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## ABOUT THE COVER

It seems appropriate that the cover of the first issue of *The Grass Roots* of the new millennium (and new century and new decade and new year) features the new UW-Madison turfgrass pathologist, Dr. Geunhwa Jung. We can expect he will serve us well into this new century. Be sure to read Lori Ward Bocher's conversation with Dr. Jung, an excellent complement to Jennifer Samerdyke's superb cover.

*" 'Tis an old custom at this season to wish our friends a Happy New Year; I wish mine many, and particularly through the present inclement one, in comfortable fires, without overturning, heavy purses with a liberal hand, full tables with generous hearts, and social enjoyments without contention."*

*Old Farmer's Almanac - 1800*

## THE GRASS ROOTS

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# WORKING TOGETHER

By **Kris Pinkerton**, Golfcourse Superintendent, Oshkosh Country Club

Welcome to the new millennium! The day has finally come when I must prepare my first president's message. Hopefully, cross your fingers, the Y2K bug won't have eaten any of our computers.

The first order of business for me is to offer a sincere "thank you" to everyone for the opportunity to serve as president of this great organization. The opportunity to serve as president of the WGCSA is very important to me, just as I am sure it was for the thirty-four superintendents before me. It is also appropriate that I thank Scott Schaller for his leadership over the last two years. I suspect that most know little about the time and effort involved in running our association. Thank you Scott! Also, I would like a few moments to say thanks to a trio of departing board members. Mark Kienert, Dave Smith and Andy Kronwall have departed the board after donating so much time and effort to advance our association.

The new year, and for that matter the new millennium, promises numerous challenges for our turfgrass profession. And to lead the way, the newly elected board members, **working together** with the support of our membership, will help superintendents meet those challenges.

## Turfgrass Industry Survey

Last March at our spring business meeting, the membership overwhelmingly approved financial support in the amount of \$10,000 for the Turfgrass Industry Survey. The commitment required funding of \$5,000 in 1999 and \$5,000 in the year 2000. Spear-headed by Dr. John Stier, an oversight committee was formed and has been meeting



on a regular basis this past year.

Volunteering to serve on the oversight committee, on behalf of the Wisconsin Golf Course Superintendents Association, has given me great pride. As you know, the survey is a task which many in the turfgrass industry desire. With a great survey it will increase our political strength at the state legislative and university administrative levels. This could be expected to translate into increased economic opportunities for the turf industry plus extension, teaching and research programs.

The committee is now at a point of reviewing the draft questionnaires. Shortly, every golf course in the State of Wisconsin will be receiving the Turfgrass Survey which will be addressed to the Superintendent or Owner/Operator. **I ask each and every superintendent to please**

**take time to complete this very important survey.** This could be the single most important thing you do for the turfgrass industry this decade. Bob Battaglia, state statistician assigned to this project, has assured us that all information will be kept confidential. You will find the confidentially statement on your survey.

Surveys to the homeowners will begin in Spring as this is when they are usually thinking about their lawns. Data collection and analyzing by Ag Statistics Service will continue through summer. By spring of 2001, the oversight committee hopes to have the survey published and released.

Thank you in advance for assisting with this greatly needed task.

May God bless you and your families in the New Year! 🌿

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# Beyond the Millennium

By **Mark Kienert**, Golf Course Superintendent, Bull's Eye Country Club

We've all been guilty of some daydreaming from time to time that comes from hoping that our tomorrows are better than whatever success we have experienced today. So for a little fun, for this message, I chose to do a little crystal ball gazing for myself. I think it is important for all of us to look into the future, to anticipate its changes and what effect they will have on our industry and our working environment.

How many of us anticipated legislative mandates that forced us to remove our underground fuel storage tanks or further yet, would have thought that we would have to build separate chemical storage facilities? I bet my guess was like yours. Not many of you predicted those impending changes either. What changes do you see for yourself beyond the year 2000?

To get some insight for myself, I philosophically planted that idea on our local Internet relay chat group and at GCSAA's membership forum to see what kinds of response it would generate. I have to say that the conversation at the local level was greatly appreciated and little more on the mark than what I gained from the national forum, but

both were useful and thought provoking. I'm sure the greater response to my question on the local level was due in part to people knowing me.

The three responses I gained from the GCSAA forum reported that we would be mowing with lasers in the future. That would be great from the superintendent's and the mechanic's standpoint. I think that the turfgrass blade would be instantly cauterized minimizing disease infestation entry wounds. Obviously, this machine would have to be designed with many prisms and mirrors, not to mention one whale of a power source. I wonder if it would fracture sand topdressing particles into smaller pieces that would cause problems with the fines filtering down causing a layering effect? With any advance, there is always trouble.

The purpose of posing my question on GCSAA's membership forum was to see if I could glean any forward thinking from the leadership of our association. They obviously have to plan for the future, (especially if they hope to be re-elected) but alas, none came forth. I did receive a personal response from

Mr. Joel Jackson, editor of Florida's "better" chapter publication, who poked a little fun at our newsletter editor, Monroe Miller, by suggesting that Monroe would become editor-in-chief of Buckley's *New Review* by the year 2000!

Joel, if you do not know him, is a retired golf course superintendent from the Disney courses near Orlando. He suggested that we will be looking for "pure strains of grass." We would still be at "loggerheads with the environmentalists," who insist that "No Man" is better than man with best practices, but on a positive note will have gained ground with the "common sense" folk. He sees laser guided mowing units and "Global Positioning Satellite" systems monitoring equipment tracking. Mr. Jackson also predicts that 30-50% of superintendents will be on-line. Thanks for your response, Joel. Can you forward Mr. Buckley's home phone number to Monroe?

Stan Mesker wrote, "The superintendent of the future will be even more of an administrator than today. Already our local membership directories have mechanics and irrigation technicians listed

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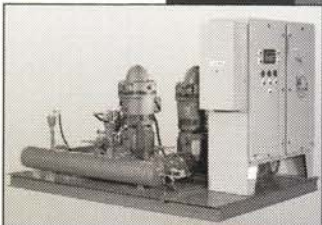


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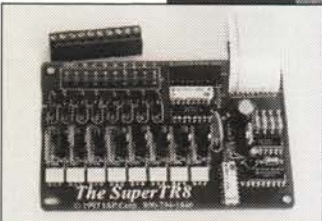
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where there used to be none. Our business is becoming more technical. I suspect that we will have to have even more "experts" on our staffs because no one person will be able to do it all." Thanks, Stan, for your thoughts as well.

I can concur with Stan's thoughts. Who couldn't use a compliance officer to keep our facilities up to date with all the legislative changes mandated by the bureaucrats. I have also seen the need for an office assistant to handle telephone calls and place orders with vendors. You have to realize that not all golf course superintendents have access to their club's secretary. The person I'm speaking of wouldn't necessarily have to be a full time person either. It would be so efficient to be able to have someone just to run errands, to do the small typing for committee and board reports or to make posters to communicate upcoming golf course maintenance practices, or to just keep the files organized. Too many times my files end up piled on the floor, as I have to make desk space ready for the next batch of work, which

also ends up on the floor besides my desk.

Our Wisconsin group hit the issues a little bit harder and wrote to express some fears and frustrations as well, issues like job security and what to do when you are feeling a sense of "job burnout." Still another wrote about the saturation of turf students into the profession. Others pondered how much longer the current "golf building boom" would last and wondered if water would become an issue again at some point in the 21st century. Will Wisconsin and Minnesota find themselves having to sell water to the dry desert southwest as more and more senior citizens retire to those warm winter climates?

We had one member write about the GCSAA's certification program, complaining about the ease of some of the program's exams. He also saw the need for higher membership standards when speaking of joining the GCSAA. One member even suggested that there be an entrance exam just to gain membership into the GCSAA similar to those that physicians take to become certified and licensed to practice medicine.

Another member wrote about maintenance standards in our industry and where they were heading. He felt that everyone's expectations of course conditions had grown to the point that it is almost to the point that you are made to feel like you are walking into someone's "white carpeted" living room and you wondered whether or not you should remove your shoes. His concern was over the escalating costs required to maintain a golf course for those players "with Augusta of the Mind." Still two other members implored golf course superintendents to hone their communication skills or be left in the dust. "People" management skills would also become increasingly important as we begin bidding for laborers in a limited pool.

So you have heard the predictions of others and I suppose I will have to lend my two cents as well. Labor will become increasingly difficult to find and to retain. One of the big three equipment manufacturers (A) will purchase C and stomp on B in the process. The building boom will continue with still a number of new golf facilities coming on-line. For those of you wishing to own your own golf course, wait. There will be many bargains to be found out there caused by some of this over-speculation. The cost of golf will continue to rise with the high budget venues still raking in tremendous profits for the product they produce. As always the cost of fossil fuels and the weather will have larger part in the cost of maintaining golf courses. The individual golf cart will be a hit in the market place and their popularity will overtake the present two person carts. These will cause further maintenance headaches if we don't watch them. And unfortunately, even with 401K programs, people in this industry will largely find themselves unprepared for the cost of retirements burdens. ♣



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# Plant Growth Regulators to Speed Fairway Establishment



By Dr. John Stier, Department of Horticulture, University of Wisconsin-Madison

Turfgrass establishment rarely seems to occur fast enough. I often am asked "How can I increase the rate of establishment?" For every need out there, there seems to be some product or device marketed for the situation.

Plant growth regulators (PGRs) have been used for years to decrease clipping yields (Watschke et al., 1992). Some of the newer PGRs, notably trinexapac-ethyl (Primo®), can increase turf quality and density by stimulating tiller production and root growth (Stier, 1997).

Some superintendents have begun questioning whether PGRs can be useful to hasten turf establishment. This is an area of particular interest when new courses are being constructed or when fairways are being re-established because of the potential revenue to be made from opening the course for play. Testimonials abound, but testimonials do not usually give a complete picture. During the spring and summer of 1999 we completed two studies at the O.J. Noer Turfgrass Research and Educational Facility which were designed to determine the potential for PGRs to affect

establishment rates of fairway turf.

## Study 1: Primo Effects on Creeping Bentgrass Establishment

### Materials and Methods

'Penncross' creeping bentgrass was seeded on a Miami silt loam soil on 10 May 1999 (1 lb per 1000 ft<sup>2</sup>). Starter fertilizer (10-22-20) was applied to supply 1 lb P<sub>2</sub>O<sub>5</sub> per 1000 ft<sup>2</sup>. The seed was lightly raked in and the plots were irrigated three times daily until one week after emergence when irrigation was reduced to supply approximately 70% evapotranspiration (ET) three times weekly. The turf was first mowed at 0.75 inch height using a lightweight McLane reel mower. A walking greens mower set at 0.5 inch height was used for the second mowing. A fairway triplex mower set at 0.5 inch height was used for all subsequent mowings. Plots were mowed three times weekly. On 19 July a potentially severe yellow nutsedge (*Cyperus esculentus*) weed infestation was controlled using halosulfuron (Manage®; 0.062 lb ai acre-1).

The experimental design was a

randomized complete block with three replications. Each plot measured 60 ft<sup>2</sup> (6 ft x 10 ft). Trinexapac-ethyl (Primo®) was applied on 3 June when there was approximately 50% turf cover. Subsequent treatments were applied at either two or four week intervals depending on the treatment (17 June, 7 July and 25 July). We compared the label rate for bentgrass fairways (0.25 oz/1000 ft<sup>2</sup> at four week intervals) to a 0.5x and a 2x rate, plus a 0.5x rate applied at two week intervals. Treatments were applied in two gallons of water per 1000 ft<sup>2</sup> using 8004 flat fan nozzles.

Turf density and quality were evaluated weekly using a visual rating scale from one to nine where one denoted dead turf/bare soil, six was acceptable turf, and nine was perfect turf. Data on growth characteristics were collected twice during the season (six weeks apart) by selecting 10 plants from each plot area using a pre-marked grid. For each plant, the number of shoots, the number of stolons, average length of stolons, and the average length of the internodes on the stolons were determined. Internode data was determined by counting the number of nodes on each plant and dividing this figure by the total length of all stolons, providing an average internode length for the entire plant. At the end of the experiment two four-inch diameter cores were collected from weed-free areas near the center of each plot. The verdure and thatch were removed and the soil below three and one-half inch depth was discarded. The cores were broken apart, washed, and the roots collected using sieves. The

Table 1. Primo effects on percent cover of creeping bentgrass during establishment (Verona, WI, 1999).<sup>†</sup>

Primo rate	24 Jun	7 Jul	16 Jul	23 Jul	30 Jul	6 Aug	13 Aug	19 Aug
Untreated	91.0	93.3	94.3	95.3	92.0	95.0	95.0	95.0
0.25 oz/4 wks	90.3	91.0	92.0	92.7	90.3	91.7	91.7	92.7
0.50 oz/4 wks	88.0	88.7	90.0	91.7	85.7	88.3	87.7	88.7
0.125 oz/2 wks	90.3	93.3	94.3	94.3	92.7	93.7	94.3	94.7
0.125 oz/4 wks	90.0	92.3	94.3	93.3	91.7	94.0	94.0	94.3
LSD (0.05)	ns	ns	2.0	ns	ns	3.8	4.5	3.2

<sup>†</sup> Plots were seeded to one pound per 1000 ft<sup>2</sup> on 10 May 1999 on a Miami silt loam soil. Primo was initially applied on 3 June 1999 when turf cover was approximately 50%.



root masses were oven-dried at 50 C for three to four days and weighed. The average of the root mass from both cores within a plot were used for statistical analysis. All data were analyzed by ANOVA procedures and means were separated using Fisher's LSD (MSTAT, 1988).

### Results and Discussion

Primo did not enhance the rate of creeping bentgrass establishment at any of the rates or application times evaluated (Table 1). The 2x rate of Primo (0.5 oz/1000 ft<sup>2</sup>) significantly delayed creeping bentgrass establishment and resulted in increased weed density (data not shown), primarily fall panicum (*Panicum dichotomiflorum*). (The halosulfuron treatment effectively controlled the yellow nutsedge without damaging the approximately four-week old creeping bentgrass.) Heat stress which developed during mid and late July caused a transient

decline in turf cover as temperatures rose above 90 F.

Contrary to responses occasionally reported from trials of mature turf, Primo did not affect stolon density, stolon length, stolon internode length, or root mass (Table 2). The 2x rate and the 0.5x rate (biweekly applications) appeared to increase shoot density although visual turf density was not affected. The 2x rate occasionally resulted in higher turf quality during periods of heat stress compared to the control and other treatment rates (Table 3). This may have been due to the buildup of carbohydrates and other osmotic agents resulting from suppressed leaf expansion. No phytotoxicity was observed at any rate at any time of the study.

### Study 2: Chipco Proxy® effects on Kentucky bluegrass establishment

### Materials and methods

Plots were seeded 7 May at 1.5 lb seed per 1000 ft<sup>2</sup> using a blend of elite Kentucky bluegrass cultivars developed for fairway maintenance regimes including a 0.5 inch mowing height ('Award', 'America', and 'SR2100'). The soil type was a Miami silt loam. Starter fertilizer (10-22-20) was applied and both fertilizer and seed were lightly raked into the top 0.125 to 0.25 inch of soil. Plots were irrigated three times daily until establishment, then three times weekly at 70% ET.

The experimental design was a split-plot, randomized block design with three replications. Plots were split to evaluate both pre-emergence and post-emergence applications of Proxy. Plot sizes were 60 ft<sup>2</sup> (6 x 10 ft). Proxy was applied at three rates to both bare soil and seedling Kentucky bluegrass. Pre-emergent treatments were applied

Table 2: Primo effects on plant growth characteristics during creeping bentgrass establishment (Verona, WI, 1999).<sup>†</sup>

Primo rate	Stolon internode length (cm)		No. shoots plant <sup>-1</sup>		No. stolons plant <sup>-1</sup>		Total stolon length plant <sup>-1</sup>		Root mass (g)
	1 July	12 Aug	1 July	12 Aug	1 July	12 Aug	1 July	12 Aug	23 Aug
Untreated	0.89	0.78	2.47	0.83	3.2	4.0	10.1	19.1	4.8
0.25 oz/4 wks	0.85	0.67	2.83	0.70	3.3	4.1	11.1	17.8	4.2
0.50 oz/4 wks	0.84	0.75	3.37	1.53	3.5	3.8	9.1	19.7	4.1
0.125 oz/2 wks	0.88	0.69	3.23	1.57	3.6	3.8	10.7	16.9	4.2
0.125 oz/4wks	0.87	0.66	3.37	1.07	3.4	4.4	11.0	18.4	5.3
LSD (0.05)	ns	ns	ns	0.66	ns	ns	ns	ns	ns

<sup>†</sup> Plots were seeded to one pound per 1000 ft<sup>2</sup> on 10 May 1999 on a Miami silt loam soil. Primo was initially applied on 3 June 1999 when turf cover was approximately 50%.

Table 3. Primo effects on turf quality during creeping bentgrass establishment (Verona, WI, 1999).

Primo rate	Date										
	9 June	16 June	24 June	30 June	7 July	16 July	23 July	30 July	6 Aug	13 Aug	19 Aug
Untreated	8.0	7.8	7.7	7.2	6.5	6.0	6.8	5.2	5.3	6.0	6.2
0.25 oz/4 wks	8.0	7.5	7.5	7.2	6.5	6.0	6.5	5.8	5.8	6.0	7.0
0.50 oz/4 wks	8.0	7.7	7.5	7.2	6.5	6.0	7.0	6.0	5.8	6.5	7.0
0.125 oz/2 wks	8.0	7.7	7.5	7.3	6.5	6.0	6.5	5.5	5.7	6.2	5.5
0.125 oz/4wks	8.0	7.7	7.5	7.0	6.5	6.0	6.7	5.3	5.3	6.0	6.5
LSD (0.05)	ns	ns	ns	ns	ns	ns	0.3	0.6	ns	0.2	ns

<sup>†</sup> Plots were seeded to one pound per 1000 ft<sup>2</sup> on 10 May 1999 on a Miami silt loam soil. Primo was initially applied on 3 June 1999 when turf cover was approximately 50%.