

Table 4. Effect of Chipco Proxy® on Kentucky bluegrass establishment for fairways (Verona, WI, 1999).

Treatment	16 Jun	24 Jun	1 Jul	8 Jul	16 Jul	23 Jul	30 Jul	6 Aug	13 Aug	20 Aug
Proxy (oz/M)	-----Percent turf cover-----									
0	25.8	33.3	55.0	55.8	62.5	61.7	61.7	62.5	71.7	66.7
3†	32.5	36.7	55.0	60.8	61.7	64.2	65.0	65.8	73.3	70.8
5	27.5	32.5	53.3	55.0	62.5	64.2	60.8	65.8	74.2	69.2
10	28.3	39.2	56.7	62.5	71.7	71.7	67.5	71.7	80.8	78.3
LSD (0.05)	ns	ns	ns	ns	ns	ns	ns	ns	ns	11.0
Timing										
Pre-emerge	29.6	35.4	55.8	60.4	64.6	65.0	63.8	65.4	73.3	70.8
Post-emerge	27.5	35.4	54.2	56.7	64.6	65.8	63.8	67.5	76.7	71.7
Proxy x timing	*	ns	ns	ns	ns	ns	ns	ns	ns	ns

\* Significant at  $p=0.05$ ; ns = not significant at  $p=0.05$ .

† Chipco Proxy® was applied to pre-emergent plots on 11 May and post-emergent treatments were applied 15 June 1999. Plots were seeded on 7 May 1999.

on 11 May and post-emergent treatments were applied on 15 June. Plots were rated for percent turf cover, percent weed cover, color, quality, and growth habit (prostrate versus upright).

#### Results and discussion

Chipco Proxy® had little effect on turf establishment (Table 4). Percent turf cover was affected only marginally on one date three months after planting, although percent weed cover was reduced at the 10 oz rate during the early part of the study (data not shown). Turf quality was not affected by rate. Generally, the pre-emergent treatment had no effect on the turf while the post-emergent treatment occasionally affected both turf quality and growth habit. By August the turf which received the post-emergent application had slightly lower turf quality than plots which received the pre-emergent application, though the differences were not significant on a practical basis (data not shown). The post-emergent treatment resulted in an upright growth habit compared to

the pre-emergent treatment (data not shown).

#### CONCLUSION

**Neither Primo® or Chipco Proxy® increased the speed of establishment of either creeping bentgrass or Kentucky bluegrass, respectively.** Further studies during cooler periods of early spring or autumn may provide different results and are worth investigating as creeping bentgrass growth is slowed during high temperatures. Other cultivars, soil types, maintenance regimes, and environments may cause different results, although data from other areas of the country generally mirror that which is shown here.

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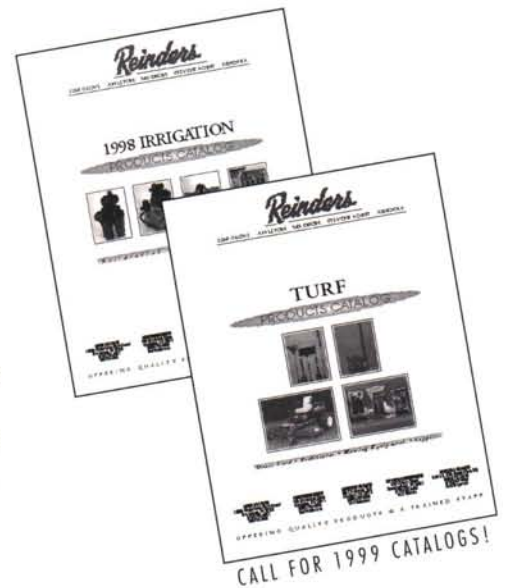
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# '99 Symposium Among the Best

By **Monroe S. Miller**, Golf Course Superintendent, Blackhawk Country Club

The 1999 Wisconsin Golf Turf Symposium started on a serious, even sad note as session chairman Tom Schwab asked for a moment of silence in memory of our friends Jim Belfield, Dave Murgatroyd and Jack Anderson.

This year was the third symposium of three symposia that developed golf course construction (1997), golf course grow-in (1998) and golf course maintenance (1999). This one was the best, in my view. Thanks to the speakers for that.

Jim Moore traveled to Milwaukee almost immediately after he returned from nine days in Spain to speak at his third consec-

utive Symposium. His loyalty to our meeting should be rewarded with a standing annual invitation as a speaker and an honorary membership in the WGCSA. Speaking from his extensive experience as an USGA agronomist and as a former golf course superintendent, Moore spoke to golfer expectations that approach perfection and how to deal with such unreasonable desires. He reviewed his report card for golf courses (see the USGA website), addressed course projects and their place in golf course management, and emphasized communication. Moore's dry Texas sense of humor was present throughout, a definite

plus in his presentations.

Another Texan followed Jim - Dr. Dick White of Texas A & M. He spoke to issues of irrigation frequency and timing, and showed how much science was brought into these practices that also include a lot of experience and instinct. Dr. White tied algae appearance on greens to irrigation frequency (as well as to the height of cut) and related rooting and shoot population to frequency. The subject of calibration of irrigation systems was discussed.

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President Pinkerton presents Scott Schaller the past president plaque.



Penn State professor Dr. Pete Landschoot returned to Wisconsin and the Symposium.



Rutgers professor Dr. Jim Murphy accepts gratitude from Jeff Gregos on behalf of the WGCSA.

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the Merit Club. He will be hosting the 2000 U.S. Women's Open, testimony to his golf course and to him.

People lucky enough to know Oscar well, know that details are what you can expect from him. Unlike a lot of professions where successful secrets are tightly held, there is a generous sharing of information in ours. Oscar is a premier example of that openness. Starting from week one in his program, he took us through the season with his putting green maintenance program. It was impressive information.

I have a prejudice at meetings like the Symposium. I especially enjoy listening to lectures from soil science faculty. Jim Murphy didn't disappoint anyone as he offered great advice on topdressing practices.

The annual program wouldn't be complete without a speaker from the UW - Madison, and Dr. John Stier filled that roll perfectly this year. John talked about moss, algae and dry spots, all somewhat mysterious areas of our business.

By the way, John also served as session on the second day. Tom





The distinguished panel of VanAuken, Handrich and Lee, and moderator Vavrek.



Oscar Miles shared some of his vast knowledge about golf course management.



Dr. Dick White joined fellow Texan Jim Moore on our 1999 program.



O.J. Noer Facility manager Tom Schwab served ably as a session chairman.



Dr. John Stier served as both speaker and as a session chairman.

Schwab was joined by Jeff Gregos on day one.

Pete Landschoot, professor from Penn State, returned to Wisconsin and our Symposium and gave solid advice on golf turf management regarding soil and thatch problems.

USGA Green Section agronomist Bob Vavrek chaired a panel discussion. The panel included three of our top golf course superintendents - Mike Lee, Mike Handrich and Dave VanAuken. The free give and take among them and the audience resulted in a very interesting hour or so. With Vavrek directing traffic on subject matter, topics ranging from total N on greens (2# to 4#/yr) to PGR use (none of the three use them). This

format of discussion is clearly popular and successful.

The WGCSA election wrapped up business on the first day and many stayed for the cocktail hour afterward.

Attendance the second day was good, certainly better than in most years. Attribute that to good speakers - Moore, Murphy and Vavrek - and topics that generated interest among those of us in the audience.

Moore summarized some of the research that is underway to find out what are the best greens and how you attain them. He hammered hard on basic research as the basis for good buying decisions, as opposed to making those same buying decisions on testimo-

nials. Moore considers testimonials as nearly worthless from a scientific point of view.

I've attended the vast majority of the Symposia presented since the beginning, going back to the years when I was an undergrad. This one was among the best. Thanks to the committee and the MMSD for that. 🌿





# Climbing a Steep Learning Curve

By Lori Ward Bocher

Dr. Geunhwa Jung will be doing a lot of climbing in the next few years. As the new assistant professor for turfgrass pathology at the UW-Madison, he's on a steep learning curve. First, in a position that's 40 percent Extension, he'll have to hone his English speaking skills. Second, in a position that's 60 percent research, he'll be redirecting his area of study from common beans to turfgrass. And third, he just might want to learn to play golf when the time is right.

But with his academic track record and enthusiasm, learning new things shouldn't be much of a problem for Geunhwa (pronounced *goon-wa*). And he has a lot to teach us - not only about plant pathology and biotechnology, but also about a different culture.

## Native of Korea...

Geunhwa was born in Taejon, South Korea in 1960. He's the son of a high school English teacher, but he didn't learn English at home from his father. "I learned it just like everyone else," he admits. "English is a required course in the middle school and high school and for the freshman year of college. But there's no learning conversation - listening and speaking. All I had to do was memorize grammar and test for the exams. That's why it's really hard to get an understanding of English. I had a really, really hard time when I first came to the U.S. I'm even having a hard time right now - writing, listening, speaking. Learning English and different cultures is one of my life-time missions."

When it came time to choose a college and major, Geunhwa's choices were rather limited. "We go to the university based on a test score," he explains. "They don't care about how you did in three years of middle school and three years of high school. They only care about the points you got from the exam. Based on my score, the horticulture department is the only one I can go into."

"The second reason I liked horticulture is that there's not much pressure in that major so you can have time to prepare for governmental exams," he adds. "If you pass the government examination, you can become some high official."

After receiving a BS in horticulture from Chungnam National University in Taejon, Geunhwa knew that he wanted to further his education. "In Korea, there's a lot of pressure for higher education, mostly possible with good financial support from parents," he points out. "If you don't have a higher education, there's no way you can get a job. One way to get a higher edu-

cation that makes it easier to get a job is to get a degree from an overseas university."

## Chooses the U.S...

Geunhwa chose to apply at universities in the United States. "Simply I like the United States," he says. "I don't know why. When I was in Korea and saw people from the United States, they were so tall. I was afraid of approaching them. But I simply liked the idea of coming here."

He applied at several universities. It was a letter from his soon-to-be major advisor, Dr. Dermot Coyne, that attracted him to the University of Nebraska at Lincoln. "He sent a very favorable letter. He wrote about all the details of his program. That is the reason I chose Nebraska," Geunhwa recalls.

Geunhwa came to the United States on January 2, 1989. After one semester, he returned to Korea to marry and bring his new wife to the U.S. His first impressions of this country? "Really good," he answers. "I say to myself, 'This is a place where I can do some research.' And all the

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systems here are very well organized - your schools, your government.

"For my masters, I did interspecific hybridization in the common bean to transfer disease resistance from the tepary bean (*Phaseolus acutifolius*) to the common bean (*Phaseolus vulgaris*), which is more edible," he explains. "When you make crosses between two species, the tepary and common bean, the F1 hybrid embryo all the time aborts. We have to excise those embryos before they lose their viability, so they don't receive an inhibitory chemical from the parent plant to keep them from growing. We excise the embryo into an artificial agar media to grow it. Once you grow them you can plant them in the pot. And then you can make back crosses to improve the fertility of the hybrids and utilize them as a bridge (more compatible) to cross with either species. That was my major work."

**First ties to UW...**

After receiving his MS in December of 1991, he then proceeded directly to work on his PhD at Nebraska. But he made a change in his studies that led him to the UW. "My major advisor at Nebraska is a classical breeder, so he is always making crosses in the greenhouse and then putting the population out in the field for selection," Geunhwa explains.

"During the time I was finishing on my masters degree, there was a boom in biotechnology," he continues. "And I thought, maybe I can mingle with some of the biotechnology techniques for my PhD. That would be really good for my future. So I asked my advisor if there is any possibility that I can do some biotechnology work for my PhD. He suggested one of the professors at the UW-Madison and asked him to be a co-advisor to train me about some

of the biotechnology techniques."

That professor was Dr. James Nienhuis in the Department of Horticulture. Geunhwa came to the UW to do lab work for two one-month periods while still doing the majority of his PhD work at Nebraska. He studied the genetics of disease resistance in common bean species by using genetic linkage maps, QTL (Quantitative Trait Loci) mapping, and molecular markers.

After receiving his PhD in May of 1995, Geunhwa came to the UW to do post-doctorate research with Dr. Nienhuis. And four years later he applied for, and received, the assistant professor position in plant pathology.

**Decides to stay...**

When Geunhwa first came to the U.S. 11 years ago, it was never his intent to stay. "My goal was to finish up my PhD work and go back to Korea to get a professional job," he points out, adding that a life-changing event made him open to other possibilities. "Five years ago I didn't know anything about Christianity. My wife was going to church. For two reasons - God's grace and constant prayers from my beloved people, including my wife, Christian friends and pastors - God saved me and gave me a completely new life.

"Then my thinking changed," he continues. "I said, 'I open up the world to opportunities because I can do anything in Him.' So from that time on I thought, if God wants me to go back to Korea, I can go back. If He wants me to stay in the United States, I can stay. I just take it day by day, thinking that, if anything comes along, I would apply for it."

There was another reason he wanted to stay in the U.S. "If I have a job here, I can train people in more effective ways," he says. "If you go back to Korea, it's going to be really hard to bring in research grant money if you don't have a good political relationship with an effectual person and if you did not get an undergraduate degree from a prestigious university. Here in the U.S., if you work hard and are very diligent and very smart, I think you can show the people that you have the ability. But, back in my country, it's not easy. You have that same type of political and social influence here in the U.S., too. But not as much as in Korea."

**Finds turfgrass fascinating...**

When the position opened up in turfgrass pathology, Geunhwa applied for three reasons. "First of all, I wanted the job," he says. "Second, I didn't know much about turfgrass; in other words, it was a self-motivated challenge to learn new things. And, third, I was encourage by several professors I knew through my cooperative research.

"Let me explain more about my second reason," Geunhwa continues. "When I saw the job announcement, I thought, 'I need to take a look at turfgrass and what kind of work has been done on that crop.' So I go to the Noer



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Research Center and talk to Tom Schwab. He shows me several plots of what they're doing. I'm astonished! Some of the grass looks like carpet! This is not the grass that I'd been thinking about. When I saw the grass, it changed me completely and the preconception I had of grass. And I saw lots of opportunities in research areas for me to contribute with my expertise."

He applied for the job, got it, and will officially start probably in February. With a 40 percent Extension appointment, Geunhwa knows that the language barrier will be a challenge for him. "If I want to stay here, my goal for the rest of my life is to keep on working on my English. I can never forget that mission," he says.

For the Extension component of his job, his goal is, "To keep on updating and providing basic and applied research results for the plant pathology side of turfgrass through writings and presentations to the Wisconsin clientele - golf course superintendents, home owners, and sod growers. I want to make it easier for them to manage their jobs," he says.

"Another important responsibility is to coordinate with Jeff Gregos and Gary Gaard who are currently in charge of diagnosing commercial and homeowner samples for the Turf Disease Diagnostic Lab," he adds. "And I'm anxious to get to know the people in the turf industry." He was looking forward to his formal introduction to the turf industry on January 11 at the Turf Expo.

### **Studying molecular markers...**

For the 60 percent research component of his job, he wants to zero in on the use of molecular markers to help understand the population structure and dynamics of important turfgrass pathogens, such as snow mold, for better disease management. He also wants to study the genetic components of disease resistance to turfgrass pathogens.

"Molecular markers, compared to morphological markers (phenotypic traits), are excellent tools because of easiness, accuracy, and unlimited numbers," Geunhwa explains. "The two most practical applications for using PCR (Polymerase Chain Reactions) makers is: one, to diagnose diseases which are symptomatically difficult to identify; and, two, to fingerprint new clones or cultivars."

He has already visited with Dr. Mike Cassler about his research to find bentgrass that is resistant to snow mold. "We've already talked about some research projects we could work on together," Geunhwa points out. "I'm so glad that he collected so many bentgrass clones (from the northern and southern parts of Wisconsin) that have inherited snow mold resistance. Using molecular marker techniques, those materials, or segregated populations derived from the cross of snow mold resistant and susceptible clones, can be utilized by me to understand the biology and genetics of disease resistance and host-parasite interactions.

"In more detail," he continues, "F1 progenies from the

cross will be challenged by virulent snow mold strains in both the greenhouse and in field replicated trials. Then I'll look for a statistically significant association between marker genotype and the disease symptoms. Molecular markers will be detected showing strong linkage with disease resistant genes. Eventually, that marker information will facilitate in the process of breeding for disease resistant turfgrass which can be adapted in Wisconsin."

### **U.S. resident, not citizen...**

After 11 years in the U.S., Geunhwa is still a Korean citizen. "But officially and legally I'm a permanent resident of the U.S.," he adds. At this point, he does not plan to apply for U.S. citizenship. He has returned to Korea for three visits in 10 years, and his parents have come to the U.S. for several visits. "We usually see each other once a year," he points out.

Geunhwa and his wife, Eunjee Ahn, have two children: Roy, who is 9 years old; and Emily, who is 3 years old. The children are dual citizens of the U.S. and South Korea. The Jungs live in Madison where they are active in their church. In their free time, they like to bike and fish together.

And maybe when his professional and language learning curves aren't as steep, Geunhwa will have some time to learn how to enjoy that carpet-like turfgrass from a golfer's perspective. ♣



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# Noer Ready for 2000

By Tom Schwab, O.J. Noer Turfgrass Research and Education Facility, University of Wisconsin-Madison

The Noer Facility will start the New Year with improvements and additions to propel us into the next century in great shape. The university's turf program has been producing some impressive research from the faculty and staff in horticulture, plant pathology, and soils/plant nutrition. Then last year more turf work started to be done in entomology and turfgrass breeding. Starting with the new year another turf position will begin. Dr. Geunhwa Jung was just hired to fill

the vacant turfgrass plant pathology position formerly held by Dr. Julie Meyer and Dr. Gayle Worf. These faculty and staff are going to need a larger research facility and associated support. Noer is going to be ready to meet the challenge.

A new irrigation well and pump will be installed this winter. Our old system barely supplied the volume and pressure to support our existing seven acres of irrigated land. This is not to mention another seven acres of irrigated land that we

will be adding in 2000 or 2001. The old system supplied 70 gallons per minute with 35 PSI at the sprinkler heads. The new system will supply 150 gallons per minute with 60 PSI at the heads. Pressure regulation will be controlled by a variable frequency drive (VFD) system which will keep the water pressure at the sprinkler heads constant to within a degree or two. Dick Reinders from Watertronics offered us a deal on this VFD that we could not refuse.

The irrigation system will be fur-



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