

REINDERS TO CONTINUE DACONIL PROGRAM FOR 1996

Strong support of the Reinders Daconil program in 1995 resulted in a donation of \$7,270 to the Wisconsin Turfgrass Association at the WTA TURF EXPO last January. The company will continue to donation program for this year, too. Ed Devinger thanks all of the customers who participated in this long standing effort to raise money for turfgrass research in Wisconsin:

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EXPO-96 Highlights

By Audra Anderson
WTA Administrative Assistant

The 13th annual Wisconsin Turfgrass & Greenscape EXPO, formerly called the Winter Conference, was held January 9th through 11th at the Holiday Inn-West and by all accounts was a resounding success. Mother Nature didn't cooperate on the 11th. She delivered 4 inches of snow that can be blamed for the drop in attendance from nearly 600 in 1995 to 489 this year.

Informative and knowledgeable talks were delivered in 10 hours of educational sessions. The wide range of topics were presented by speakers from Iowa State University, Ohio State University, University of Kentucky, University of Maine-Orono, Rutgers University, University of Wisconsin-Madison, Virginia Polytechnic Institute,

Landscape Management Magazine, Ontario Canada, and Wisconsin.

New to EXPO-96 were technical education sessions. They were 45 minute sessions on care and maintenance of reel mowers and troubleshooting hydraulic systems. They were well attended and will also be available for EXPO-97.

There were 61 exhibitors at the Trade Show. It was nothing short of triumphant. They informed us about the latest technology and improvements in machinery, and plant growth and plant protectant products. The vendors also had many ideas and ways to improve the looks of landscapes, get the job done more efficiently and even how to access tons of turf information on the Internet. There

was plenty of room and time to stop and visit with all of the vendors.

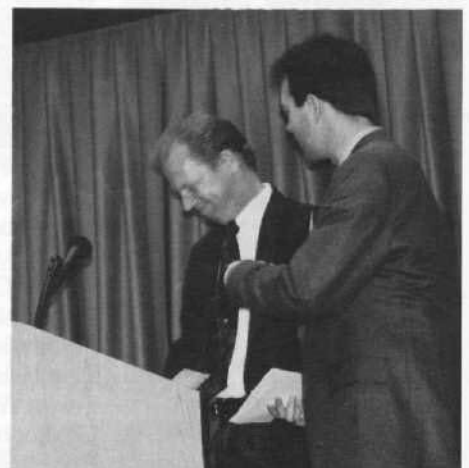
Having a conference requires months of planning and many phone calls. The most important component of a successful conference is a committee that communicates effectively and EXPO-96 had one of the best. There is always a sigh of relief when it is all over and done with and has come off without a hitch. The relief was short because plans are already being made for EXPO-97 which will be held January 8th thru 10th, 1997, at the Holiday Inn-West. If you would like to receive this information and other information on the WTA happenings, please call us at the Noer Facility, (608) 845-6536, so you don't miss out on anything. 🙌



WTA president Horman was busy accepting contributions from Ed Devinger,



Larry Lennert, and



Cubby O'Brien.



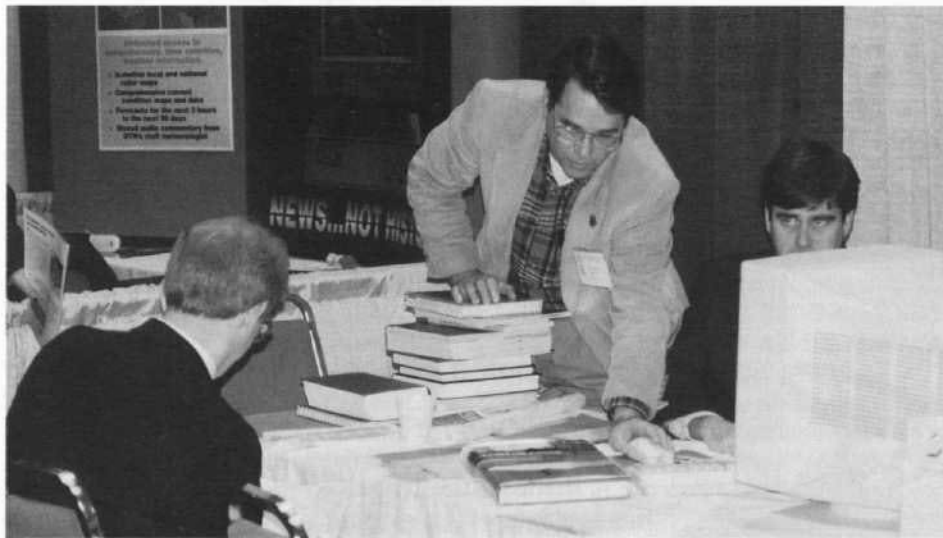
John Turner presents the Agr Evo to UW-Madison turfgrass student Chris Kliensmith.



There was plenty of equipment to look at in the Trade Show.



The UW-Madison grads had an alumni breakfast on Wednesday morning.



Here's our Dr. Maxwell with Dr. Danneberger and Dr. Kane at "Computer Central".



Terry Ward and Bruce Worzella talking about — no doubt — turfgrass nutrition.



Worth the price of admission — the chance to see and visit with Dr. Lois Berg Stack and Dr. Bob Newman. Lois' lectures and workshops were superb!

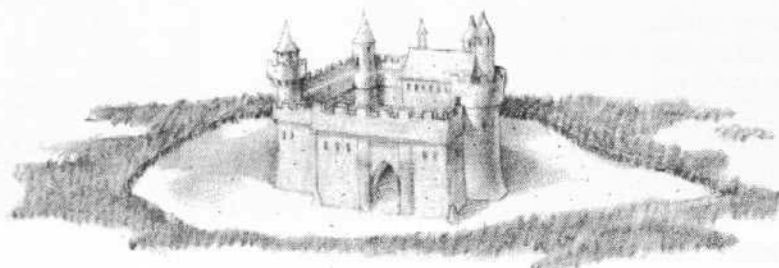


Professor Maxwell shows WGCSA president Mark Kienert the latest in communication.

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“DREAM ON”

By Pat Norton

My life is ruined!! Ruined, I say!! I am just not sure that I can go on anymore...Dream On, the very funny HBO hit comedy, is ending its lengthy cable TV run. This comedy is so good, so amusing that I actually try to remember when it's on so that I can catch the next episode. I will lament its loss. I will grieve its passing...as I grieved when Cheers passed into prime time history...for about ten minutes. These shows are really very good and very amusing, but I must remind myself that it is only television.

Dream On makes me laugh because they splice scenes from older movies into the script at key points to add to the laughs. The main character is a lovable loser named Martin Tupper, who gets dumped on by his secretary, his ex-wife, his adolescent son, and the women in his love life. Tupper dreams of a better day when he'll find true love and business success, but somehow these twin goals always elude him.

Certainly we have all heard of 'dream on', or 'dreamer', or 'dream on, baby'...very common expressions used in everyday speech. Except for the last one of these...'dream on, baby' is not such a good saying to be using, especially when talking to female co-workers or female bosses!

Everybody dreams, don't they? Everybody also daydreams, I'd venture to say. Were you a daydreamer in your other life as a child? Or, like me, you are still a daydreamer as you ponder the perfect golf course and how you are going to transform your golf course into that mythically perfect layout!

Or maybe you're a totally serious person with no capacity for daydreaming. We all know a few of these types. ...they do not dream, they do not hope for the future, and usually they do not have any sort of a sense of humor. Boring, boring, boring!!!

The optimistic among us know that dreams for the future are very possible based on our ancestors' experiences

in this country. My ancestors started out in this country trying to scratch their way onto the bottom rung of the ladder, as did millions of other immigrants. Through their efforts and those of succeeding generations, life has been very good for all of us.

If you doubt the truth or sincerity of these words, daydream a bit and imagine yourself growing up and living in eastern Europe, the former USSR, or a host of other places in this world. Not much demand for highly paid golf turf-grass specialists in those countries, I'll bet.

As I dream/daydream about the future, it all seems to come back to golf and golf courses. I certainly am not sitting here dreaming about the highways I'm going to build or the computers that I'm going to operate! I'm looking out over the seventh hole and daydreaming about all of the cool improvements that we will be making to this course, the increased play and income that we will be enjoying, and the overall success that I know we will be attaining with each passing year.

Everybody dreams about the future, as we've already established. So why don't we 'dream on' together about our futures in the golf/turf worlds and see what's ahead...

—I see the day coming, friends, when a Republican is again elected to the White House... in about the year 2008. By then, Dole will be dead,

"Newtie" will be totally disgraced, and former heroes of the right wing—Rush and G. Gordon Liddy—will be in exile in South America. In November 1996, Clinton will certainly be re-elected, Hillary will emerge triumphant, and Al Gore will write another fact-filled book about the environment ...

The Republicans, you see, have not fielded a candidate capable of beating Clinton. Senator Dole will not defeat "Big Bill" because of the constant scowl on his face. That tells people that he is not an optimist, not a dreamer, and has no clear vision for America's future! He will go to his grave a bitter, defeated man.

—Dream for the day, gentlemen, when you are the top dog, the king of the hill, the Big Kahuna!!! The governing board at your facility has truly seen the light and realizes that the golf course—its daily condition and playability—is the most important reason why golfers return and members belong, and compensates the golf course agronomist in the manner that he/she has long deserved!

—Along these lines, dream on for the day when all golfers understand that the 'rise of the educated superintendent' is one of the primary reasons why golf is such a great sport and enjoying such immense popularity. Think about it guys! Does anybody even think for a nanosecond that the

(Continued on page 37)

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(Continued from page 35)

golf explosion is due to the 'rise of the club professional' or the 'rise of the clubhouse manager'? Our star is rising and will continue to do so, while theirs is on a steady, negative decline.

—Dream large, fellas, for the day when your golf course is really finished...your wish list is complete...everything is in place...capital improvements, course landscaping, staffing, equipment ...all addressed and completed to everybody's satisfaction!

—Dream for the day, superintendents, when you'll know so much about a new product that you will confidently tell the sales rep that you know for a fact that his wetting agent, 'bio' product, or fertilizer has no merit...in fact, you kick him right off the property with instruction to never return. Actually, I'd never do that sort of thing. It's pretty rude behavior.

—Turn the dream around, suppliers, and ponder the day when you'll have exclusive rights to the hottest product on the golf turfgrass market! In fact, you have all rights to the product because you have just invented the product, developed a complete product line that is critical to the success of tur-

grass managers everywhere, and cannot begin to fill all of the orders that keep coming into your suite of offices! Is this a great country, or what??

—Now we're shifting into hyper-drive...in order to finish off this piece of fantasy with a bang...David Smith buys Abbey Springs, is wildly successful, and goes on to develop a golf kingdom in Lake Geneva with his longtime partner, Mr. Andrew Kronwall ...while over in western Wisconsin, the Bahrs and the Drugans continue their bitter fight for control of all the golf courses in that region. Drugan, needing more capital, reluctantly agrees with financially wise Mary that they must sell out all of their golf interests to the Bahrs in order to put a stranglehold on all highway and barge traffic in the West...until all travelers and shippers agree to pay the proper greens fee...while in the capital Miller finishes developing the next generation of a Rogaine-type product...this miracle product can be used on either the human scalp or golf fairways to encourage a happy, thick luxurious crop of hair...or bentgrass...Erdahl, and to a lesser extent Norton, Schaller and Johnson become successful part-

time distributors and big-time users!! Semler, meanwhile, becomes governor of Wisconsin (because he loves Madison so much) and appoints Harrison, Magnin, Frazier and Smith as "The Untouchables" with the mission to clean out state waste and bureaucracy...in troublesome cases, "the Untouchables" call in Johnson, who knows just how to handle these sensitive government types...and lastly, up in the Bay of Green, Randy Witt and Brian Kindle buy up majority stock in the Packers, decide to retain present management, and subsequently enjoy the fruits of their labor...four consecutive Super Bowl titles!!! Finally, Norton and family realize that wife Susan has been proven correct after all these years...Northern Illinois really has been good to us...we've made about \$20 million or so from these courses we own...maybe now we can retire back to Wisconsin...and tell our grandchildren about all of the adventures we've experienced...

So you see, ladies and gentlemen, daydreaming is a good thing! I can now go on about my business this day with a laugh in my heart...writing for THE GRASS ROOTS really is fun! ♣

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Wear Tolerance of Kentucky Bluegrass-Tall Fescue Blends

by Douglas D. Schoch

Introduction

Wear on turf is a term loosely defined as stress resulting from general use, including running, walking, and vehicular traffic. These stresses have varying degrees of severity and are a direct result of a tearing or crushing type of motion that breaks down the basic structures of grass plants. Under severe wear, crowns as well as leaves and stems may be damaged. The ability of turf to withstand the effects of traffic is termed wear tolerance (8).

Wear tolerance is reported to have two main components (1). The first is resistance of the grass to compression. This is most important during times of slow growth and slow recovery from damage. The second component is the ability to recover from damage that has been inflicted. Recovery is through growth of tillers, stolons or rhizomes, or seed production, the actual mode being dependent on the species of grass.

Whatever type of traffic the turf is enduring, it must be able to tolerate stresses resulting from soil compaction, soil displacement, and turf removal as well as foliar damage. Soil compaction reduces soil aeration, turfgrass rooting, and water infiltration and is known as hidden traffic stress (3). Soil compaction significantly influences the amount of damage to the turfgrass plant and its ability to recover from wear stresses. This needs to be distinguished from wear injury by recording wear injury soon after it occurs rather than several days later when soil compaction effects come into play (5). Soil displacement stress results from movement of soil by cleats, tires or erosion and exposure of crowns and roots. Turf removal via divots creates gaps into which turfgrass regrowth must occur if good ground cover and wear tolerance are to be maintained.

Various characteristics of turf and turfgrass contribute to wear tolerance (9). These involve the degree of tissue hydration, the total amount of above-ground biomass, the quantity and location of sclerenchyma fibers in the plant, the leaf and stem lignin contents, the coarseness of leaves and stems and the shoot density of the turf. The more biomass above ground, the greater the surface area of plant tissue over which wear occurs and the greater the tolerance to wear. This suggests that wear tolerance will be directly proportional to the height of cut. Such is often not the case. Research (10) has shown that turf mowed at 5 cm (2 inches) often exhibits more visual signs of wear than does turf mowed at 3.8 cm (1.5 inches). This is thought to be from the ability of the more closely mowed turf to remain more upright and proportionately more high sclerenchyma content stem tissue that enables the grass to better withstand bending pressures.

Other research (10) indicates that verdure, shoot density, and load bearing capacity do not account for turfgrass interspecies differences in wear tolerance. Rather, the inter-

species differences relate to combinations of leaf tensile strength and width, with tensile strength being a function of sclerenchyma fiber and lignin content. Plant cell wall cellulose content may also be involved (9).

Nutrition has also been implicated in the wear tolerance of turf. Carroll and Petrovic (4) examined the wear tolerances of creeping bentgrass and Kentucky bluegrass during the third and fourth years of fertilization with different amounts of N and K. They found that increasing the N supply improved creeping bentgrass wear tolerance in the fourth year, but had no effect in the Kentucky bluegrass. Potassium was found to have no effect on wear tolerance or recovery from injury in either turf. Hawes and Decker (7) also saw no effect of K on the healing capacity of creeping bentgrass. In contrast, Shearman and Beard (10) noted that increased potassium supply improved creeping bentgrass wear tolerance. These conflicting reports of the effects of K may well be due to differences in the K status of the soils in which the grasses were grown or differences in research methods.

While the ability of turf to withstand wear varies with turfgrass species and cultivar, the cultural practices used and the intensity and type of traffic, the importance of thatch and mat should not be overlooked. Duncan (6) observed up to 400% increases in wear tolerance that were attributed to the presence of thatch and mat. The optimum thatch and mat thicknesses appeared to be around 1.4 and 0.4 inches, respectively. Thatch and mat presumably affect wear tolerance by cushioning the turf and soil and protecting stems and crowns.



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A rather novel approach for simulating the effects of thatch and mat is that of incorporating crumb rubber into soil prior to turf establishment followed by topdressing with the material (14). Early results have shown these practices to be more effective for perennial ryegrass than for Kentucky bluegrass.

There is a wide range among turfgrass species in their wear tolerance. Zoysia appears to be one of the most wear tolerant grasses even though its recuperative rate is slow. Least wear tolerant is creeping bentgrass, with its poor traffic and soil compaction tolerance and relatively high disease susceptibility (2). Turfgrasses with intermediate wear tolerances include Kentucky bluegrass, perennial ryegrass, bermuda grass, and tall fescue.

Significant cultivar differences also exist in the wear tolerances of turfgrasses. Recent reports from the National Turfgrass Evaluation Program provide wear tolerance ratings for Kentucky bluegrass (12) and for perennial ryegrass (13) cultivars.

Methods

This research project was conducted at the O.J. Noer Turfgrass Research and Education Facility on plots seeded in 1993 to various blends of two Kentucky bluegrass cultivars (Park and Adelphi) and Rebel Jr. tall fescue. The objective of the study was to observe the effects of the percentages of each species on wear tolerance. While the study was specifically directed toward late-season wear tolerance of athletic turf, the results are applicable to any highly trafficked area.

Since its establishment in 1993, the plot area has been uniformly maintained with moderate amounts of N, mowing at 2½ inches and irrigation to prevent severe moisture stress. Three weeks prior to initiation of wear stress, mowing height was reduced to 2 inches to better simulate athletic field conditions. Wear stress was applied with tandem rollers outfitted with golf shoe spikes and towed with a sand rake. The rear roller is geared to turn more rapidly than the front roller, thereby creating some tearing action. Prior to applying the wear stress, the percentages of tall fescue in each plot were visually assessed and verdure removed from a 7.6 in², randomly selected area in the plots. After traversing the plots 10 times with the simulated wear device, all plots were visually rated for wear tolerance and resiliency on a scale of 1 (least) to 9 (best).

Results and Discussion

Visual ratings of the percentages of tall fescue in the plots correlated highly ($r = 0.952$) with the 1993 seeding percentages. Thus, if any species population shifts occurred during the first three years after seeding, they were not visually detected.

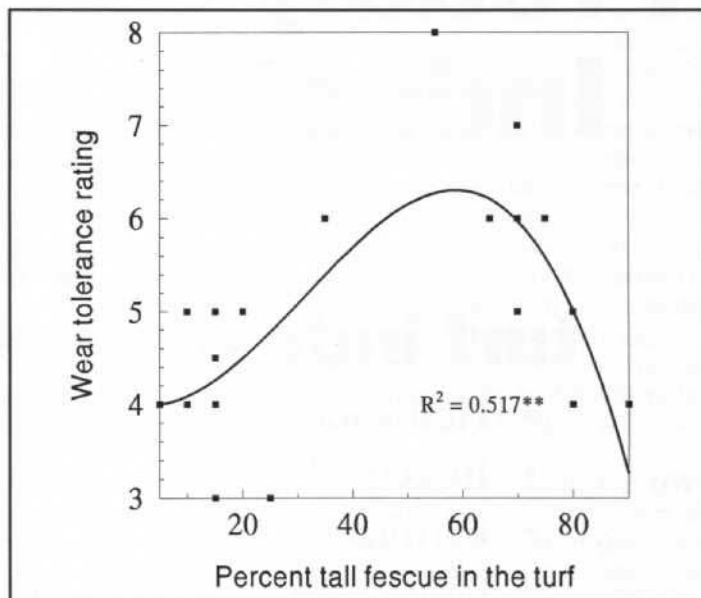
Verdure turns out to be a very poor indicator of the wear tolerance and resiliency of the Kentucky bluegrass-tall fescue blends. The relationships of wear tolerance and resiliency to verdure were not only insignificant, but negative as well. In other words, there was a slight tendency for wear tolerance and resiliency to decrease with increases in verdure even as verdure ranged from 0.54 to 0.12 lb/ft².

Tall fescue did not appear to contribute more to verdure than did the Kentucky bluegrass. This was evidenced by the fact that verdure did not increase significantly as the percent tall fescue in the blends was increased.

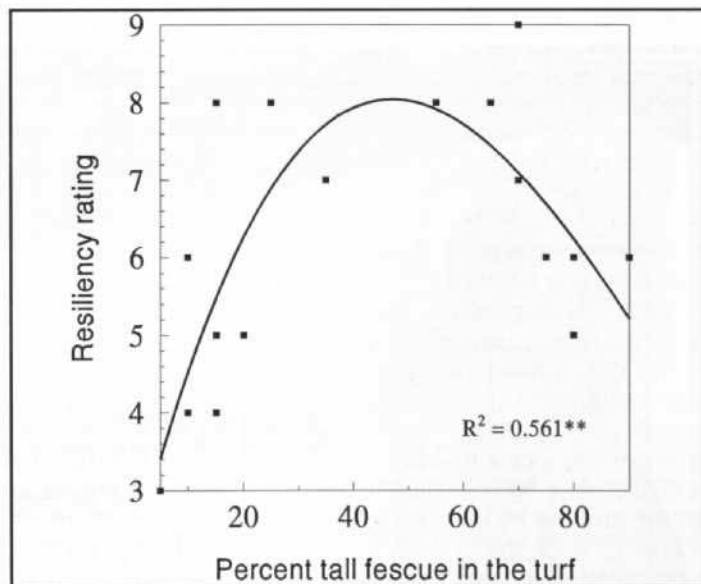
The percentage of tall fescue in the blends did influence the wear tolerance and resiliency of the turf, but these were not simple, linear relationships. Both wear tolerance and

resiliency ratings were low at low tall fescue percentages and increased with increasing tall fescue percentages, but only up to a point. Wear tolerance ratings declined quite rapidly after the proportion of tall fescue reached about 60% (Fig. 1). Resiliency ratings began to decline when the percent tall fescue exceed about 50% (Fig. 2).

Relationship between turf wear tolerance ratings and the percentage of tall fescue in the turf.



Relationship between turf resiliency ratings and the percentage of tall fescue in the turf.



These were not the results anticipated at the start of the study. The expectation was that as the percentage of tall fescue increased in the blends, there would be a corresponding increase in verdure and, in turn, progressive improvements in wear tolerance. Resiliency was viewed somewhat differently, owing to observations by others that tall fescue loses resiliency late in the season when growth slows. This line of reasoning leads to the thought that resiliency should have showed progressive declines as the percentage of tall fescue in the blends increased.

(Continued on page 41)

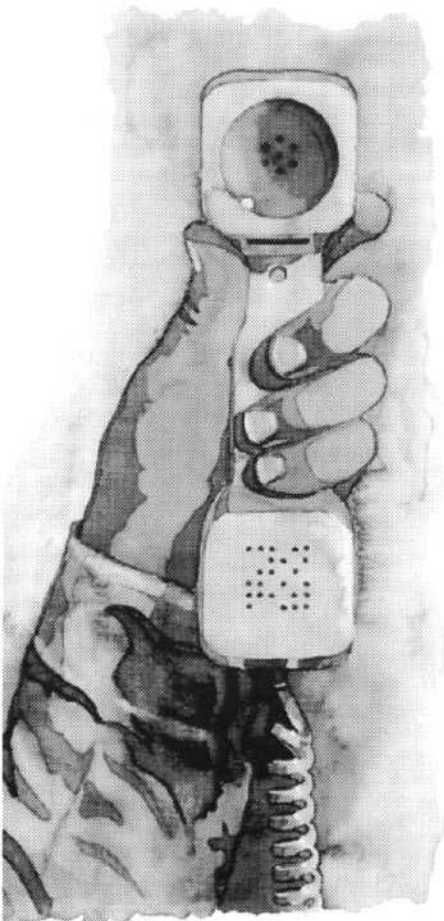


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