RESEARCH SUMMARY

Visual Golf Course Effects

This research investigation addressed whether visual exposure to a natural environment can be stress reducing. Specific emphasis was on the influence of roadside environments dominated by natural elements as they might mitigate travel-related stresses. It was assumed that motorists and passengers are aware of the environment they travel through, that they have definite opinions about the attractiveness of those areas, and that their behavior can be influenced by the scenic quality of the environments through which they drive.

A total of 160 college-age participants, both male and female, viewed one of four different videotaped, simulated drives through outdoor environments immediately following and preceding mildly stressful events. The simulated drives were represented by (a) an urban structure-dominated environment, (b) a native vegetation forest-dominated drive, (c) a mixed structural and nature forest drive, and (d) a golf course environment. The investigators found **that average blood pressure levels and skin conduction levels were significantly lower in those participants exposed to the golf course environment, than for the other three environments. Further, participants who had viewed the golf course environment performed more accurately on the subsequent mental arithmetic tasks than those viewing the other three environments, including the natural forest environment.** Also, those participants who had previously viewed the golf course environment also performed more accurately on mental arithmetic tasks than those who performed the same tests prior to viewing the simulated golf course drive. The causal aspects of these golf course responses relative to the native forest remain to be clarified. This represents the first definitive data documenting the aesthetic benefits of a golf course environment. Could one conclude that golf course superintendents should have the ability to perform mathematical calculations at a higher level?

By R. Parsons, L.G. Tassinary, R.S. Hebl, and M. Brossman-Alexander. The View from the Road: Implications for Stress Recovery and Immunization. *Journal of Environmental Psychology.* Vol. 17, No. 3. 1998.

JB COMMENTS

Just returned from a week in Japan. Golfers in Japan are now paying 25 to 30% less to play a golf course. This obviously has implications for the golf course maintenance budgets.

Made a brief visit to the Japan Sumitoma VISA Masters Competition at the Taiheiyo Club. A big emphasis on the sports pages of Japanese newspapers was the fast greens—faster than they had ever experienced in Japan. One should note that zoysiagrass putting greens are still in use at some golf courses, and are very slow. Obviously, the trend to higher putting green speeds is becoming global in impact. Many people now travel world-wide via the easy access of air travel and are playing golf throughout the world. When playing on the higher-speed surfaces of putting greens at certain golf courses, golfers make comparative evaluations, and many may ask for increased putting speeds on the golf courses they play regularly.

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JB COMMENTS

Takeall patch (*Gaeumannomyces graminis* var. *avenae*) was originally recognized primarily as a problem of bentgrasses in the U.S. Pacific Northwest. It then became an increasing problem on the European continent. More recently *G. graminis* var. *graminis* has emerged as a problem of closely mowed hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) putting greens, which is called bermudagrass decline. **Now *Gaeumannomyces graminis* var. *graminis* has emerged as an increasing disease problem of zoysiagrass turfs in Japan.** The world is becoming a global economic community, with global diseases of turfgrasses.

The Japanese authorities are progressing on schedule in the construction of new stadia to host the World Cup of Soccer in the year 2002. There will be a diversity of stadium designs, ranging from the traditional open stadium to the retractable dome to a **domed stadium with a turfed soccer field that is stationed outside the stadium for regular maintenance and exposure to normal solar radiation, and then is moved as one unit into the stadium for soccer competitions.** This design has been very successful from a turf standpoint at the new Arnhem, Netherlands stadium. One Japanese stadium also will have **(a) specially designed, large air ducts extending through the stadium at field level to enhance air movement, and (b) an upper profile shape and a stadium orientation designed to minimize shading of the turfgrass.**

I visited the Toyama Soga Athletic Park in western Japan, where a three dimensional interlocking mesh system has been installed on a baseball complex of two fields, with two more fields being added. These fields are planned for use as car parking areas when the main stadium is in use. They are minimum-maintenance sport fields planted to Japanese zoysiagrass (*Zoysia japonica*). **These fields are maintained at a very low nitrogen fertility level, as a yellow-green color for turfs is very acceptable in Japan, and in fact desired.** In this case, their mowing schedule is five times per year, with a 6 to 7 month growing season—quite a different concept from what is done in many other locations around the world.

ASK DR. BEARD

Q. Should I raise the cutting height on my putting greens during the winter period?

A. In almost all cases **it is beneficial to raise the cutting height on putting greens during winter periods when suboptimal temperatures occur.** This is especially true when an extraordinarily low cutting height—less than 5/32 inch or (4 mm)—is being employed. There are two situational aspects: (a) one involves severe cold environmental conditions where golf play does not occur, and (b) the second involves intermediate suboptimal temperatures where winter play is more common.

Severe Cold-Snowy Climates. Raising the cutting height prior to the winter period is especially beneficial on putting greens composed of such species as annual bluegrass (*Poa annua*) and hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*). The higher cutting height with resultant greater leaf area is important in increasing the photosynthetic capability of the turf canopy. This produces higher plant-available carbohydrate levels, which result in increased rooting, thereby reducing winter desiccation problems. **The higher carbohydrate levels also are involved in a key phase in the development of low-temperature hardiness of turfgrasses.** This hardiness phase occurs at temperatures between 35 and 45°F (2 and 8°C).

Intermediate Suboptimal Temperatures. A higher cutting height is equally important during winters with intermediate suboptimal temperatures allowing winter golf play. In this case the shoot growth typically is at a very slow rate, which results in minimal to no recuperative capability. **The higher cutting height results in a greater turf biomass, which increases the wear tolerance of the turfgrass during this winter nongrowth period.** Sustaining extraordinarily close mowing heights during the winter typically results in thinning of the turf during intense wear stress. Traffic and the allied wear stress, which results in significant thinning of the turf, has the potential consequence of increased *Poa annua* invasion.

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