TURFAX™
of the
International Sports Turf Institute, Inc.

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TURFAX™ — The International Newsletter about Current Developments in Turfgrass

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The goal of this six issue per year newsletter is to provide international turf specialists with a network for current information about turf. It is FAXed to all Institute Affiliates that use the ISTI technical assistance services on an annual basis. While the FAXing is more costly, it does ensure quick delivery to those outside the U.S.

Enquiries have been received from individuals wishing to receive TURFAX™ on a subscription basis. This is now available by an annual payment of U.S. $60.00. Payment may be made by sending a check to the address below. Foreign orders please send a check or money order on a U.S. bank.

INSTITUTE ACTIVITIES:

The International Sports Turf Institute has completed its first year of operation. It has been a successful and very busy time. Questions continue to be asked as to what are the activities of the Institute. The services include:

- Educational lecture presentations - from 1 hour to 3 days.
- Authoring specialized manuals - many translated to another language.
- Planning and guiding research projects - currently active in 3 countries, plus in the U.S.
- Turfgrass technical assistance and problem solving - on golf courses, sport fields, race tracks, sod farms, and lawns.

The Institute Activity Plan for the second year involves approximately 40% education, 35% research, and 25% technical assistance activities.

Those requiring the Institute's services may contact JB at the address, phone, or FAX listed below.

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JB COMMENTS:

The introduction and promotion of new turfgrass cultivars continues. You have the opportunity to choose from among many species and cultivars. Your choice(s) will be determined by a number of factors that must be prioritized as dictated by site-specific conditions. They include (a) climate temperature & rainfall distribution, (b) sun vs. shade, (c) soil - drainage, fertility, pH, salinity, and compaction proneness, (d) disease and insect severity by species, (e) type of use-ornamental vs sport, (f) intensity of use, and (g) cultural requirements.

Development of a new turfgrass cultivar should encompass research to characterize it relative to the above criteria. Unfortunately, too many new cultivars are being rushed to the market without adequate performance and adaptation assessments! The developer who releases a new cultivar prematurely, is generating information concerning its performance characteristics at the expense of the end-user, who may be the looser.

The performance assessments of a prospective new cultivar require a minimum of four years (after full turf establishment) in each individual location, with the evaluations being conducted in replicated plots (3 reps minimal) along with other cultivars of the same species that are currently in widespread, successful use. Five years is needed for the turfgrass ecosystem to evolve into a semi-stable state. Only then, may one make a reliable assessment of a cultivar's resistance or tolerance to environmental, soil, disease, and insect stresses.

Over the past 37 years of cultivar evaluations I have watched many entries that looked outstanding for 2 to 3 years that subsequently failed miserably in year 4 or 5!

Do you want to take a chance on an inadequately assessed cultivar, to essentially pay the assessment costs of a developer, and possibly experience a failure within 5 years?

JB VISITATIONS:

Malaysia-September

Presented a three-day lecture series on golf course turfgrass science and culture before attendees from Malaysia, Thailand, Singapore, Indonesia, Pakistan, and Hong Kong. It was an enthusiastic group with great eagerness to learn. Many questions!

While other parts of the world have slowed, the economic and golf booms continue in southeast Asia.

Night golf has arrived in southeast Asia. There are six lighted golf courses in Malaysia alone. These are 18-hole golf courses of full size and are of an international standard in design, that are lighted artificially throughout. Night play continues until 11:30 p.m. or even midnight. Night golf is very popular in these hot, humid countries, with golfers paying a premium for green fees.

A new horse race track facility was constructed in the Kuala Lumpur area, with planting of the turf track completed in late 1992. A sand root zone was used along with a vegetative bermudagrass (*Cynodon* spp.) planting. The surface is still not raceable after 1 full year of favorable growing conditions. It should be noted that they did not use the interlocking mesh matrix system.

Finally, on a newly constructed golf course in Malaysia I observed the use of buffelgrass (*Cenchrus ciliaris*) on unmowed secondary rough areas. Its performance after two years in the Kuala Lumpur area is positive.

Italy - September

The trip involved visitations to Rome, Milan, and Turin. In Rome visited the Italian Golf Federation Turfgrass Technical School on the LeQuerce Golf Course near Nepi. This program continues a valuable function in the upgrading of playing conditions of Italian golf courses through the formal training of golf

Italy - September (Cont.)
course superintendents. Having the teaching facility located on a fully operational golf course is ideal for hands-on training.

Mesh Element/Parking Lot Assessments. In Milan, visited a mesh inclusion test site at a parking lot at the newly constructed Milan 3 development. The relatively large parking lot area was divided into two test sections. One section consisted of a Texas-USGA specification high-sand root zone stabilized with interlocking mesh element matrices, while the second test area consisted of a sandy root zone permanently stabilized with rigid vertical-walled plastic constructed with a cup-like base having a single drain hole. This test was established two years ago.

The first full growing season was completed in 1993. The mesh element system has performed far superior in comparison to the rigid-walled cup arrangement. The latter exhibited extensive thinning of the turf during the July-August period. Most probably, a combination of extensive heat buildup in the surrounding plastic combined with a tendency for the root zone in the shallow, 3-centimeter deep cups to be prone to water stress. The failed area was overseeded once in the fall of 1993, while no replanting has been required in the interlocking mesh matrices treatment half of the parking lot area. It will be interesting to follow this test in the next several years.

Bentgrass Cultivar Assessments. A visitation to the bentgrass cultivar research site near Turin, Italy proved very interesting. The plot area had been constructed of a Texas-USGA specification root zone. Assessments during the first full year (1993) of evaluation included visual turfgrass quality ratings at 15-day intervals, spring green-up rating, shoot density counts, leaf texture measurements, percent moss invasion, and dollar spot susceptibility.

With no fungicides having been used, dollar spot (*Sclerotinia homeocarpa*) development was quite severe on many of the cultivars. Up to 30% of the turf cover was lost. The cultivars found to have high susceptibility to dollar spot included Emerald, SR-1020, National, Putter, and Southshore, ranked in order from 30 to 10% of the area infected. Those cultivars ranked lowest in percent dollar spot infection included, from least to most, Penncross, Providence, Cobra, Pennlinks, and Penneagle. Several experimental selections from the Penn State University bentgrass breeding program also had minimal dollar spot infections.

The lack of dollar spot resistance in some newer cultivars may actually increase the use of pesticides. This is not compatible with environmental goals of modern society.

Japan - October

Presented several turfgrass seminars for invited groups in Japan.

El Toro Zoysiagrass. Developed by the University of California at Riverside for use principally in southern California, El Toro has exhibited a superior turfgrass establishment rate compared to the *Zoysia japonica* and both the fine- and coarse-leafed *Zoysia matrella* now in widespread use in Japan. The fall low temperature color retention characteristics of El Toro also are proving superior to the zoysiagrasses commonly used on golf courses in Japan.

Interlocking Mesh System. Extensive testing of the interlocking mesh element root zone matrices system for soil stabilization and environmental enhancement is being conducted in Japan. Over 100 golf courses now have installations on golf tees and/or cart path areas. Approximately 90% of the tests are proving successful. Failures usually were associated with high-sand root zones where irrigation was not practiced and extended water stress occurred following planting. Test

sites also have been established on sports fields and golf courses. This should generate a great deal of information concerning proper use of the interlocking mesh element matrices on zoysiagrass turfs in Japan.

ASA - Cincinnati, Ohio - November

The Annual Meetings of the American Society of Agronomy and Crop Science Society of America were held in Cincinnati, Ohio. A total of 84 research papers on turfgrass science were presented. An extensive symposium was conducted on environmental quality as related to the use of pesticides and fertilizer practices on turfgrasses. Abstracts for these papers have been published in **ASA Abstracts**, which is available from the American Society of Agronomy, 677 South Segoe Road, Madison, Wisconsin 53711, USA.

UPCOMING JB VISITATIONS:

Provided for Institute Affiliates who might wish to request a visitation when I'm nearby.

- Feb. 1 to 7 - Dallas, Texas.
- March 3 to 6 - Calgary, Alberta, Canada.
- March 7 to 8 - Columbus, Ohio.
- March 21 to 24 - Los Angeles, California
- April 25 to 26 - Columbus, Ohio
- May 14 to 26 - Australia
- June 27 to 28 - San Diego, California
- July 1 to 20 - Scotland and England
- July 24 to Aug. 3 - Rhode Island, Massachusetts, and New York

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Cultivar, turfgrass - a strain or race that (a) has originated and persisted under turf culture and use for many years or (b) has been specially developed for the purpose of turf culture and use.

BOOKS PUBLISHED:

How To Have A Beautiful Lawn.
Author J.B. Beard. 113 pages (1993). Newly revised fifth edition. Widely used in (a) night school and community college turfgrass education courses, (b) employee training for lawn care, nursery, and landscape companies, (c) sales staff education, (d) premium gift for large sales items and clients, and (e) extension and master gardener programs. Well illustrated throughout, includes 12 pages of full color of turfgrass species, weeds, diseases, and insects. Price $20.00 U.S.

Contact Beard Books, 1812 Shadowood Drive, College Station, Texas, 77840. U.S.
FAX: 409-693-4878.

Management of Turfgrass Diseases.
Author J.M. Vargas, Jr. 294 pages. Second edition (1994). Includes more than 70 four-color photos and 100 in black-and-white. The book encompasses the cultural, genetic, biological, and chemical approaches to turf management and provides practical solutions to everyday problems. It covers cool- and warm-season turfgrasses, growing conditions, new diseases, and symptoms. More specifically, fungal, bacterial, and viral diseases, plus diseases caused by nematodes, are addressed for all the major turfgrasses. Price $59.95 US.

Contact Lewis Publishers, P.O. Box 519, Chelsea, Michigan, 48118. U.S. or by calling 800-272-7737 within the continental U.S. or 407-994-0555 for other locations.
FAX: 313-475-8650.

Proceedings 64th International Golf Course Conference and Show.
83 pages (1993). Contains 48 one or two page summaries of the papers presented.

Contact Golf Course Superintendents Association of America. Education Department. 1421 Research Park Drive, Lawrence, Kansas 66049-3859, U.S.
FAX: 913-832-4433.

UPCOMING INTERNATIONAL EVENTS:

July 4-8, 1994 Second World Scientific Congress of Golf. St. Andrews, Scotland. Invitational and volunteer papers will be organized in 3 themes: The Golfer; Equipment, and The Golf Course. the last encompasses the turfgrass-agronomic topics. Poster paper title submissions are due by February 15. Lodging available at the University of St. Andrews.

Contact Dr. Martin Farrally, Congress Director, Department of Physical Education, University of St. Andrews, St. Andrews, Fife, KY16 9DY, United Kingdom.
FAX: 334-74322.

July 27-29, 1994 American Sod Producers (ASPA) Summer Convention and Field Days. Newport, Rhode Island.

Tours will play a major role in this year's Summer Convention, with both ASPA-member farms and the University of Rhode Island (URI) Agricultural Experiment Station being featured in this day-long event. At URI alone, you'll see National Turfgrass Cultivar Evaluations for high- and low-maintenance of Kentucky bluegrass, perennial ryegrass, tall fescue, fine fescues, and bentgrass. Other test-plot high-lights include commercial and experimental fungicides, nitrogen use, organic amendments, weed control, and low-maintenance areas.

Sodco, Inc. located in nearby Slocum, Rhode Island will host the Field Day portion of this Summer's ASPA show which will be highlighted by equipment demonstrations, exhibit displays, and the third-annual ASPA seed test plot.

The Newport Islander Doubletree Hotel will be headquarters for the Summer Convention.

Contact Mr. Douglas H. Fender, American Sod Producers Association, 1855A Hicks Road, Rolling Meadows, Illinois 60008, USA. FAX: 708-705-8347.

RESEARCH SUMMARIES:

Turf benefits and soil physical enhancement resulting from augmentation of sandy clay and clay loam turfgrass root zones with randomly oriented, interlocking mesh elements by S.I. Sifers, J.B. Beard and M. Hall, Texas A&M University.

The feasibility of using randomly oriented interlocking 50 x 100 mm mesh elements in sandy clay loam and clay loam root zones was evaluated. Ratios of mesh elements volume-to-soil volume of 0.0, 2.5, 3.75 and 5.0 kg of mesh per cubic meter of soil, installed to a depth of 150 mm (6 in.) were assessed. Both the sandy clay loam and the clay loam were turfed with Tifway bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) and maintained at a 15 mm (0.6 in.) mowing height, by weekly mowing. Parameters assessed were compression displacement, lateral turf tear, divot size, divot opening turf recovery rate, ball bounce, traction, surface hardness, turfgrass quality, water infiltration rate, and soil moisture content.

Results of the sandy clay loam study for the first 2 years following turf establishment revealed a 28 to 34% reduction in divot length, an average 14 day reduction in divot opening turf recovery time, and a 12% reduction in surface hardness when the mesh system was present. Results for the clay loam revealed a 42 to 46% reduction in divot length, a 21 day reduction in divot opening turf recovery time, and a 17% reduction in surface hardness. The other parameters assessed on both soils also showed significant beneficial response from mesh inclusion.
Significance. This study indicates that the randomly oriented, interlocking mesh matrices are effective in turf surface stabilization and environmental enhancement of sandy clay loam and clay loam soils for sports uses, similar to the findings reported earlier for high-sand root zones.

GREENS TURF-ROLLING RESEARCH-II

The potential benefits of rolling greens reentered the cultural picture due to (a) the substantial use of high-sand root zones in putting greens thereby greatly reducing the potential for soil compaction problems from turf rolling and (b) the preference of golfers for fast ball roll speeds which have been achieved principally through very close mowing heights that also results in further shortening of the root system, reduced turfgrass health and canopy density, and a resultant increase in moss and algae problems. This situation leads to the question of whether the increased ball roll distance achieved by turf rolling can substitute for the ball roll distance accomplished by extremely close mowing heights. The result would provide the opportunity to raise the cutting height, thereby achieving better overall turf health, rooting, and canopy density, plus an associated reduction in moss and algae.

Thus, investigations were conducted over the past two years in conjunction with two cooperators: (1) Jeff Holmes and Doug Kendziorski conducted studies with a single weighted, powered mechanical walking turf roller at the Grand Traverse Resort in Traverse City, Michigan, and (2) Steve Hammon and Mike Morris conducted studies with a 3-gang, powered mechanical turf roller at Crystal Down Country Club in Frankfort, Michigan. At both experimental sites the greens were constructed of well drained high-sand root zones and were composed of mature creeping bentgrass (*Agrostis stolonifera* var. *stolonifera*) turf with minimal thatch. Most of the studies were conducted in each of two years in multiple locations, with a randomized block design of three replications used. The ball roll distance as measured by the stimpmeter technique prior to initiation of the individual turf rolling studies ranged from 9.5 to 10.5 feet (2.9 to 3.2 meters).

The findings from these studies can be summarized as follows:

- A single mowing in early morning consistently increased distance of ball roll by 10% at the morning reading.
- One, two, three, or four consecutive turf rollings each morning increased the distance of ball roll from 10 to 20%.
- Differential effects of rolling 2 to 4 times dissipated after 1.2 to 3.3 days. However, plots receiving the multiple rollings still sustained an 8 to 10% greater distance of ball roll when compared to adjacent non-rolled areas, when there were no longer any differential effects.
- There was no increase in the distance of ball roll when the rolling pressure was increased from 4.8 to 11.9 pounds per lateral inch (0.85 to 2.13 kg/lateral cm.).
- The distances of ball roll were similar when the turf was rolled with the direction of mowing in comparison to when the turf was rolled against the direction of mowing.
- Operating speed did not influence the distance of ball roll.
- There was a decided visual improvement in surface smoothness for ball roll as a result of turf rolling.

These studies conducted over two years at two locations indicate that turf rolling has the potential of being used as a component in turfgrass cultural systems for high-sand, creeping bentgrass putting greens where the goal is to achieve high ball roll speeds, while sustaining the best possible turfgrass health. Further, there are other dimensions in terms of (a) turfgrass effects from rolling on a long-term basis and (b) how turf rolling should be integrated from a timing standpoint with other turfgrass cultural practices that need to be investigated. The Institute plans to continue these original investigations first initiated in 1992.