

INTERNATIONAL  
TURFGRASS  
SOCIETY



PROCEEDINGS OF THE 9<sup>TH</sup> INTERNATIONAL  
TURFGRASS RESEARCH CONFERENCE

TORONTO, ONTARIO, CANADA  
JULY 15 - 21, 2001

INTERNATIONAL TURFGRASS SOCIETY

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CANADA

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Secretary, Dr. Ken Carey, Department of Plant Agriculture and  
the Guelph Turfgrass Institute, University of Guelph,  
Guelph, Ontario N1G 2W1, Canada

## Preface

The 9th International Turfgrass Research Conference was held successfully at the Westin Harbour Castle, Toronto, Ontario, Canada on July 15 - 21, 2001. The total of 388 registered delegates included scientists from 23 countries. In addition, 111 people were present as accompanying persons and children of delegates, and 50 or so guests and volunteers participated in the conference.

This volume represents the record of the conference, including the scientific program, lists of delegates, tours and other activities, minutes of business meetings and reports. The abstracts of technical papers presented are included in these proceedings - peer-reviewed papers presented at the conference have been published in the International Turfgrass Society Research Journal, Volume 9. The CDROM version of the ITS Research Journal also includes full text versions of technical papers, where available.

The ITS Board and Officers hope that the conference, the ITS Research Journal and these proceedings will lead to continued growth of communication and exchange among the international turfgrass community.

Dr. Ken Carey  
Editor, 9th ITRC Proceedings.

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## **PRESIDENT'S ADDRESS**

On behalf of the International Turfgrass Society, I would like to welcome you to Toronto, to the IXth International Turfgrass Research Conference. I represent an enormous team of generous and talented volunteers who have made this conference happen. Without all their dedication, we could not have made this happen.

Toronto may have lost the Olympic bid for 2008 to Beijing, but Toronto has a lot to offer our conference delegates. I know the scientific program is jam packed, but I sincerely hope that you have some time to explore Toronto's many restaurants, live theatre performances, sporting events and shopping. The shopping is especially appealing with the favourable exchange rate for our international delegates.

Rob Witherspoon, Chair of the Local Arrangements Committee and his volunteers have put together a varied social program with a barbecue on Centre Island tomorrow night, complete with steel band. Rob also arranged the mid-conference tour on Wed. where you will have the choice to go to one of five golf courses in the area, or Greenhorizons Sod Farm, or a multi-use recreational park, or Toronto Cricket Club in the morning. All of the tour buses will meet for lunch at the Guelph Turfgrass Institute and finally arrangements have been made to visit a turf racetrack at Woodbine Race Track. We hope to send everyone off in style with a closing banquet featuring the "Tastes of Canada" on Friday night.

We have reached our targeted delegate registration here at the conference. We were hoping for between 300-400 delegates. Pre-registration numbers are at 340 delegates from 22 countries. The society membership has remained international and we hope to keep our membership growing over the next decade.

### **IXth ITRC Scientific Program**

The scientific program has been a collaborative effort, with Teri Yamada chairing a committee of international turf researchers. With the ease of international conference calls, this group was able to meet and come up with two keynote addresses and five symposia. The keynote addresses are "Historical Turfgrass Advances", J. B. Beard, International Sports Turf Research Institute. Dr. Beard will look back at the innovations that have contributed to where we are today in the world of turfgrass science. Dr. B. Huang, Rutgers University, will give us the current status of turf research and project what the upcoming turf research areas will be in the near future in her keynote titled "Current Trends in Turf Research".

The five symposia are as follows:

Turfgrass Transformation: Alien Genes and Practical Applications  
New and Emerging Pests  
Distance Education  
Environmental Issues Beyond the Fairway  
Water Repellency

The rest of the program is delegate volunteer papers. There are eleven oral sessions and ten poster sessions. There are 118 oral papers slated for the conference as well as 105 posters.

I would like to acknowledge the International Scientific Program Committee chaired by Teri Yamada.

They are:

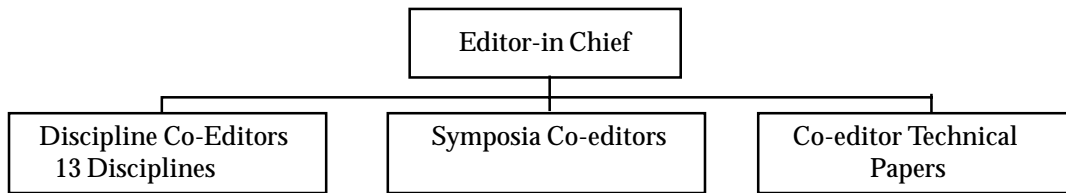
S. Baker, UK	K. Karnok, USA
N. Christians, USA	M. Kenna, USA
B. Clarke, USA	J. Murphy, USA
R. Duncan, USA	P. Stangel, USA
T. Hsiang, Canada	D. Stubbs, UK
M. Jones, UK	M. Volteranni, Italy

### **ITRC Journal Editorial Board**

At the 7<sup>th</sup> International Turfgrass Research Conference in 1993 in Palm Beach, Florida, the society moved from a conference proceeding to a peer reviewed journal. Until 1997, at the 8<sup>th</sup> ITRC in Sydney, it was the responsibility of the host country to edit and produce the journal. For this conference the Board of Directors established an international editorial board. The reasons for this are as follows: to maintain a high standard for the journal; to provide a journal that is consistent from conference to conference; to spread the work load among a larger group

At our mid-conference board meeting held in Toronto in 1997, we came up with the structure outlined below.

### **International Editorial Board**



The plan is to have the Editor-in-Chief from the host country if possible. The current Editor-in-Chief, appointed by the ITS Board of Directors for a four year term, is Ken Carey from Canada. The coeditors are appointed by the Editor-in-Chief. Half of the coeditors will have a four year term and the other half will have an eight year term for continuity. The coeditors are to represent at least three countries.

The current coeditors and disciplines for the IX<sup>th</sup> ITRC journal are:

- Rootzones - R. Gibbs, New Zealand
- Turf Management - K. Danneberger, USA
- Golf - M. Kenna, USA
- Pathology - P Landschoot, USA
- Genetics, Breeding, Biotechnology - R. Duncan, USA
- Soil Biology and Chemistry - R. Carrow, USA
- Education - A. Turgeon, USA
- Insects - P Vittum, USA
- Soil Physics - S. Baker, UK
- Turf Physiology - J. Beard, USA
- Pesticide Fate - G. Stephenson, Canada
- Weed Science - R. Gaussoin, USA
- Miscellaneous - T. Hsiang, Canada

I would like to thank the Editor in Chief, Dr. Ken Carey, his editorial assistant, Erica Gunn and coeditors for the tremendous amount of work that they did under a very tight time line to insure a quality journal. Secondly, I would like to add that we will be in need of a new group of coeditors every four years to keep this International Editorial Board going. If anyone is interested in getting involved for the next go round, please see Dr. Bill Adams and I am sure that he will oblige you.

The IXth ITRC Journal is ready. All ITS members can pick up their journals at the registration desk. Non-members can purchase the journal for a fee at the registration desk.

### **ITS and the Electronic Age**

After our 8th ITRC in Sydney, the ITS launched a website that currently lists the ITS Officers and Board of Directors. It is very important to have a presence on the world wide web these days and I think that this web site could be developed further. At our pre-conference board meeting in Toronto yesterday, there was commitment from the Board to further develop it.

Just prior to our mid-conference board meeting in 1999 the IXth ITRC web site was launched. This has been an excellent communication vehicle. It was a great way to communicate with potential authors for papers for the conference as well as conference delegates. Ken Carey and his assistant Erica Gunn were solely responsible for the development and maintenance of the ITRC web site and I would like to thank them for those efforts.

An electronic newsletter called ITS NETNOTES was the brainchild of Joe DiPaola and it was launched in 1999, after the mid-conference board meeting in Toronto. It is a monthly newsletter to ITS members and subscribers and this has proven to be an excellent communication vehicle. I would like to see the circulation grow and we invite you as ITS members to submit information to the newsletter. Dr. DiPaola is always seeking information on global honours that have been received by our members to publicize, so I ask you on his behalf to support him on this.

## **Worldwide Turf Research**

It is difficult to be aware of all the turf research needs and issues worldwide. I know that working as a Turf Extension Specialist here in Ontario that the industry is asking harder and harder questions and I find the more I know, the more I realize there are so many things we still do not know. There are, however, three issues that are important at this time and those are environment, water issues and education.

We have a situation here in Canada where a municipal government won the right in court to ban the use of pesticides for turf on public and private lands. We have seen many pesticide bans on public land in municipalities here in Canada, but this right to ban pesticide use on private land is a new situation for us and the turf industry is not sure what the outcome will be.

Water, both quantity and quality, remain an issue in turf. We have seen many advancements in the past ten years with the advent of turf species that can tolerate lower water quality. Because much of the turf is in urban areas, water use on turf is very visible and highly criticized. There is still a need to find newer genotypes of turf that use less water.

We have many new ways of providing both turf education and turf information with the advent of the world wide web and there will be many issues arising from this now and in the future.

A conference like this one does not happen without team work. I have had the privilege of working with a tremendously talented and hard working group of individuals. I would like to thank the ITS Board of Directors and Officers for their support over the past four years. John Cisar and Joe DiPaola have been very diligent about helping the society communicate with its members through the ITS newsletter and ITS NETNOTES and I would like to thank them for all their efforts on that front. I would like to thank the Scientific Program Committee, and the Editorial Committee for all their hard work. Dr. Clay Switzer chaired a fundraising committee that solicited funding from local turf businesses and multinational turf businesses covering the pesticide industry, equipment suppliers, fertilizer companies and the seed industry. I would like to acknowledge his committee members: Gregg Allan, Syngenta; Ron Craig, Turfcare Products; Ron Kowalski; Tom Sayer, Sylvite and Doug Goudy. Cindi Charters has single-handedly arranged the Accompanying Persons Program that promises to get you acquainted with Toronto Harbour, the City of Toronto and Niagara Falls. Cindi has also put together a list of her favourite things to do in Toronto for the accompanying persons. There was a very successful Pre-Conference Tour to Quebec City and Montreal area that was hosted by Yves Desjardins and Claude Dubois of Laval University. There is a five day Post Conference Tour that will take place after this conference in the Vancouver, British Columbia area. We have Brian Holl of University of British Columbia and Bob Wick of the Western Canadian Turfgrass Association to thank for what promises to be a very intimate tour. Lastly, I would like to thank the Local Arrangements Committee Chair, Rob Witherspoon and his committee of Trudi Ostler, Ken Carey, Erica Gunn and Meghan Watson. This group has been meeting weekly for months and then daily for the last few weeks to make sure that all the preparations for the conference are well in hand and it is because of them that this conference is the success that it is. My sincere thanks to all of you!

Pamela Charbonneau, ITS President 1997-2001

**9<sup>th</sup> International Turfgrass Research Conference**  
**Westin Harbour Castle, Toronto, Ontario, Canada**  
**July 16 - 20, 2001**

**Scientific Program**

**Monday, July 16**

**OPENING SESSION - 9:00am – 12:00pm**

**President's Welcome – Pam Charbonneau**

**Turf Research in Canada – Coast to Coast**

**Atlantic Canada -** Dr. Doug Cattani  
Nova Scotia Agriculture College

**Quebec -** Dr. Julie Dionne  
University of Guelph

**Ontario -** Rob Witherspoon  
Guelph Turfgrass Institute

**The Prairies -** Jim Ross  
Olds College

**Pacific Coast -** Leslie MacDonald  
British Columbia Ministry of Food and Fisheries

**Keynote Addresses**

***Historical Turfgrass Scientific Advances*** Dr. James B Beard,  
International Sports Turf Institute

***Current Trends in Turfgrass Research*** Dr. Bingru Huang,  
Rutgers University

**BREEDING & GENETICS SYMPOSIUM -**  
***TURFGRASS TRANSFORMATION: ALIEN GENES***  
***AND PRACTICAL APPLICATIONS***- 2:00-5:00pm

**Transformation Technologies in Turfgrasses.** P.R. DAY, F.  
BELANGER.

**Genetic Transformation of Elite Cultivars of Turf-type Tall**  
**Fescue.** Y. BAI, R. QU.

**Stable Genetic Transformation of Commercial Cool**  
**Season Turfgrass Cultivars.** F. ALTPETER, J.XU, S.  
AHMED.

**Gene Flow From Transgenic Creeping Bentgrass (*Agrostis***  
***stolonifera* L.) in Willamette Valley, OR.** J.K. WIPFF,  
C. FRICKER.

**Nodel Segment Explant as a Potential Target for the**  
**Genetic Engineering of Buffalograss.** S. FEI, T.YU, T.  
CLEMENTE, T. RIORDAN.

**Realistic Transformation Traits in Cool Season Grasses.**  
R.R. DUNCAN.

**Realistic Transformation Traits in Warm Season Grasses.**  
M. ENGELKE.

**SOIL ORAL SESSION I – *SOIL FERTILITY***- 2:00-5:00  
pm

**Field Evaluation of Agricultural Sulfur for use on**  
**Turfgrass Under Alkaline Irrigation.** G.E. BELL, D.L.  
MARTIN, S.G. WIESE, R.M. KUZMIC.

**Evaluation of an Industry Lime By-product on a Golf**  
**Course Fairway in South-eastern Victoria.** D.E.  
ALDOUS, D. BALFOUR.

**Bentgrass Response to K Fertilization and K Release**  
**Rates From Eight Sand Rootzone Sources Used in**

**Putting Green Construction.** W.M. DEST, K.  
GUILLARD.

**Effects of Calcium on Physiological Responses of Tall**  
**Fescue and Kentucky Bluegrass to Drought Stress.** Y.  
JIANG, B. HUANG.

**Temperature Effects on Nitrogen Mineralization in**  
**Bermudagrass Turf.** D.J. LEE, A.G. WOLLUM, D.C.  
BOWMAN, C.H. PEACOCK, T.W. RUFTY JR.

**Turf Response to Coated-urea Fertilizers. II. Nitrogen**  
**Content in Clippings, Nitrogen Uptake, and Nitrogen**  
**Retention From Prills.** J.L. CISAR, G.H. SNYDER, J.J.  
HAYDU, K.E. WILLIAMS.

**Nitrogen Requirement for Kentucky Bluegrass Grown on**  
**Compost Amended Soil.** G. GENTILUCCI, J.A.  
MURPHY, D.E. ZAUROV.

**Nitrate Uptake and Metabolism in Kentucky Bluegrass as**  
**Affected by Nitrate Levels.** Z. JIANG, W.M.  
SULLIVAN, R.J. HULL.

**Cation Exchange Capacity Impacts on Shoot Growth and**  
**Nutrient Recovery in Sand Based Creeping Bentgrass**  
**Greens.** A.N. PETRI, A.M. PETROVIC.

**Nutrient Content and Quality of Bermudagrass Cultivars.**  
J.N. MCCRIMMON.

**Tuesday, July 17**

**PESTS SYMPOSIUM – *NEW AND EMERGING***  
***TURFGRASS PESTS*** - 9:00 am – 12:00 pm

***Poa annua*: If You Can't Beat it, Breed it.** D.R. HUFF.  
**New Insecticide Technology and its Impact on**  
**IPM.** D. SHETLAR.

**Best Management Practices for the Control of**  
**Gray Leaf Spot.** B. CLARKE.

**Biological Aspects of *Ophiosphaerella agrostis* and**  
**Bentgrass Dead Spot.** J.E. KAMINSKI, P.H.  
DERNOEDEN.

**The Impact of Fertilizers and Fungicides on the Incidence**  
**and Severity of Bentgrass Dead Spot.** H.C. WETZEL  
III.

**SOIL ORAL SESSION 2 - *CONSTRUCTION OF***  
***SPORTS TURF AREAS*** - 9:00 am-12:00 pm

**Rootzone Mixes Amended with Crumb Rubber - Labora-**  
**tory Study.** S-K. CHONG, C.H. OK, R. BONIAK, K.L.  
DIESBURG.

**Rootzone Mixes Amended with Crumb Rubber - Field**  
**Study.** R. BONIAK, S-K. CHONG, C.H. OK, K.L.  
DIESBURG.

**Turf Parking Lots: Performance of Different Growing**  
**Media and Cool Season Turfgrass Mixtures.** M.  
VOLTERRANI, N. GROSSI, S. MAGNI, S. MIELE.

**Fly Ash Amendment of Sandy Soil to Improve Water and**



**Nutrient use Efficiency in Turf Culture.** S.M. PATHAN, L.A.G. AYLMOORE, T.D. COLMER.

**Creeping Bentgrass Establishment on Root Zones Varying in Sand Sizes.** J.A. MURPHY, J.A. HONIG, H. SAMARANAYAKE, T.J. LAWSON, S.L. MURPHY.

**Effect of Rootzone Composition and Cultivation/ Aeration Treatment on the Physical and Root Growth Performance of Golf Greens Under New Zealand Conditions.** R.J. GIBBS, C. LIU, M-H. YANG, M.P. WRIGLEY

**The Influence of Grain Size and Shape on Particle Migration from the Rootzone Layer to the Drainage Layer of Golf Greens.** S.W. BAKER, D.J. BINNS.

**Vertical Distribution of Moisture in Golf Greens Following Gravitational Drainage: The Effects of Intermediate Layer and Drainage Layer Materials.** S.W. BAKER, D.J. BINNS.

**Water Retention of Sand-based Putting Green Mixtures as Affected by the Presence of Gravel Sub-layers.** C.A. BIGELOW, D.C. BOWMAN, D.K. CASSEL.

**ENVIRONMENT SYMPOSIUM – ENVIRONMENTAL ISSUES: BEYOND THE FAIRWAY - 2:00 - 5:00 pm**

**USGA Environmental Research: Past and Future.** M.P. KENNA, J. SNOW.

**Effect of Thatch on Pesticide Model Leaching Predictions.** M. CARROLL, R.L. HILL, S. RATURI.

**Calibration of Computer Model Scenarios (PRZM/ EXAMS) for Pesticide Runoff and Leaching in Turfgrass Environments.** M. CHEPLICK, K.L. ARMBRUST.

**Dislodgeable Residues of Chlorpyrifos and Isazofos and Implications for Golfer Exposure.** R.H. SNYDER, J.B. SARTAIN, J.L. CISAR, C.J. BORGERT.

**Golf Course Design and Maintenance: Impacts on Amphibians.** J.H. HOWARD.

**Pesticide and Fertilizer Contamination of Streams Adjacent to Golf Courses and the Response of the Benthic Macroinvertebrate Community.** A.M. SOLI, W.O. LAMP.

**Wildlife Links: Looking Beyond the Turf.** P. STANGEL

**AGRONOMY ORAL SESSION I - 2:00-5:00pm**

**Differential Response of Cool-season Turfgrass Species to Isoxaflutole.** P.C. BHOWMIK, J.A. DROHEN.

**Trinexapac-ethyl Affects Canopy Architecture but not Thatch Development of Tifway Bermudagrass.** M.J. FAGERNESS, F.H. YELVERTON, V. CLINE.

**Influence of Trinexapac-ethyl on Specific Leaf Weight and Chlorophyll Content of *Poa pratensis*.** N.L. HECKMAN, G.L. HORST, R.E. GAUSSON.

**Postemergence Annual Bluegrass Control in Dormant Common Bermudagrass.** I.R. RODRIGUEZ, L.B. MCCARTY, J.K. HIGINGBOTTOM.

**Annual Bluegrass Population Dynamics in Response to Growth Regulators and Herbicides.** F.S. ROSSI.

**Turf Quality and Morphological Comparisons of Winter Overseeding Methodologies for a High-density Dwarf *Cynodon* Turf.** S.I. SIFERS, J.B. BEARD.

**The Effect of Bio-fertilizer on the Growth of Bermudagrass Cultivars.** Y-J. KUO, T-F. LI, T.W. FERMANIAN.

**Warm-season Turfgrass Species and Cultivar Characterizations for a Mediterranean Climate.** P. CROCE, A. DELUCA, M. MOCIONI, M. VOLTERRANI, J.B. BEARD.

**Effects of Shading on Photosynthetic Capacity and Growth of Turfgrass Species.** J.M. VAN HUYLENBROECK, E. VAN VOCKSTAELE.

**Management of Rough Stalk Bluegrass (*Poa trivialis*) in Cool Season Turf With Fenoxaprop p-ethyl.** D.R. SPAK, T.L. WATSCHKE.

**ENVIRONMENT POSTER SESSION - 8:00 am – 5:00 pm**

**A Cross-linked Phenolic Polyether (CPP) for Reducing Fenamiphos Leaching in Golf Greens.** G.H. SNYDER, C.L. ELLIOTT, J.L. CISAR.

**Effect of Residence Time on Washoff of Chlorothalonil from Turf Foliage.** M.J. CARROLL, R.L. HILL, E. PFEIL, J.M.KROUSE.

**An Economic Appraisal of Methods to Overcome Surface Drainage Problems on the Golf Course.** G. JAABACK.

**Functional Turfgrass Performance with Reduced Resource Inputs.** V.A. GIBEAULT, J.M. HENRY, R. AUTIO.

**Evaluation of Grasses Grown Under Low Maintenance Conditions.** D.K. MCKERNAN, J.B. ROSS, D.K. TOMPKINS.

**Persistence of 2,4-D, Mecoprop, Dicamba, Chlorpyrifos, and Chlorothalonil in Composted Turfgrass Clippings.** M.H. CARTER, C.S. BOWHEY, S.R. LANG, P. CHARBONNEAU, G.R. STEPHENSON.

**Homeowner-Applicator and Bystander Exposure to Chlorpyrifos Applied to Turfgrass.** G.R. STEPHENSON, C.S. BOWHEY, S.R. LANG, K.R. SOLOMON.

**Nitrogen Leaching Through a Sand-based Floating Golf Green Under Golf Course Play and Management.** W.J. JOHNSTON, C.T. GOLOB, C.M. KLEENE, W.L. PAN, E.D. MILTNER.

**Fluctuations in Soil Nitrate Concentrations Under Intensively Managed Turfgrass Systems.** B.B. THAPA, D.C. BOWMAN, T.W. RUFTY JR., C.H. PEACOCK.

**The Effect of Irrigation Frequency on Tall Fescue Performance.** W.E. RICHIE, R.L. GREEN, G.J. KLEIN.

**The Occurrence of Arbuscular Mycorrhizal Fungi in Golf Courses of Tuscany.** L. AVIO, M. VOLTERRANI, M. GIOVANNETTI.

**Variation in Nutrient Recovery and Leaching From Creeping Bentgrass Based on Soil Texture.** A.M. PETROVIC, D. LISK, I. LARSSON-KOVACH.

**Use of Seashore Paspalum on Phytoremediation of Heavy-Metal Contaminated Soil.** Y-J. KUO, T.W. FERMANIAN.

**PESTS POSTER SESSION- 8:00 am – 5:00 pm.**

**Control of African Black Beetle (*Heteronychus arator*) and Argentine Stem Weevil (*Listronotus bonariensis*) using Entomopathogenic Nematodes.** P. FORD, D. NICKSON, R. BEDDING.

**Brown Patch Severity and Perennial Ryegrass Quality as Influenced by Nitrogen rate and Source and Cultivar.**

- J.E. WATKINS, R.E. GAUSSOIN, K.W. FRANK, L.A. WIT.
- Growth of *Sclerotinia homoeocarpa* as Affected by Repeated Exposure to Propiconazole.** L.L. BURPEE.
- Corn Gluten Hydrolysate for Crabgrass (*Digitaria* spp.) Control in Turf.** M.C. MCDADE, N.E. CHRISTIANS.
- Using Flowering Ornamentals to Guide Application of Pre-emergence Herbicides in the Midwestern U.S.** J. FRY, S. RODIE, R. GAUSSOIN, S. WIEST, W. UPHAM, A. ZUK.
- Evaluation of Allelopathy in Cool Season Turfgrass Species.** D.W. LICKFELDT, T.B. VOIGT, B.E. BRANHAM, T.W. FERMANIAN.
- Nontarget Effects of PCNB on Putting Green Turf.** P.J. LANDSCHOOT, B.S. PARK, W. UDDIN.
- Efficacy of Pre-emergence Herbicides for use in Bermudagrass Fall-overseeded with Perennial Ryegrass.** T.R. MURPHY.
- Effects of Irrigation Frequency on Brown Patch in Perennial Ryegrass.** D. SETTLE, J. FRY, N. TISSERAT.
- Residual Control of Black Cutworm, *Agrotis ipsilon* (Lepidoptera: Noctuidae) With Selected Pyrethroid Insecticides.** F.P. BAXENDALE, A.P. WEINHOLD, T.M. HENG-MOSS, L.J. YOUNG, M.A. ZAJAC.
- DNA Sequencing for Anastomosis Grouping of *Rhizoctonia solani* Isolates from *Poa annua*.** T. HSIANG, J.D. DEAN.
- Effect of *Typhula phacorrhiza* on Winter Injury in Field Trials Across Canada.** T. HSIANG, S. COOK.
- Surface Movement of the Tawny Mole Cricket, *Scapteriscus vicinus* (Orthoptera : Gryllotalpidae).** W.G. HUDSON.
- Host Resistance to White Grubs (*Phyllophaga* spp.) among Genotypes of *Poa arachnifera* x *P. pratensis* Hybrids.** J.A. REINERT, J.C. READ.
- Control of Scarabaeid Larvae by the Entomopathogenic Nematode, *Steinernema kushidai*, on Golf Courses in Japan.** M. HATSUKADE.
- Fall Armyworm (Lepidoptera: Noctuidae) Control in Warm Season Turfgrass.** R.L. CROCKER, X. WEI.
- Southern Chinch Bug (Hemiptera: Lygaeidae) Control in St. Augustinegrass turf.** R.L. CROCKER, X. WEI.
- Lack of Dollar spot (*Sclerotinia homoeocarpa* F.T. Bennett) Influence on Changing the Cultivar Composition of a Stand of Creeping Bentgrass.** R.C. GOLEMBIEWSKI, T.K. DANNEBERGER, P.M. SWEENEY.
- Isolation Frequency and Pathogenicity of *Rhizoctonia* Species from Tall Fescue Crown and Leaf Tissues from two Locations in South Carolina.** S.B. MARTIN, S.N. JEFFERS, A. ROGERS.
- Influence of Spring-applied Pre-emergence Herbicides and Nematicides on Bermudagrass in Nematode-infested Soil.** S.B. MARTIN, J.J. CAMBERATO, L. MUDGE.
- An Integrated Approach to Dollar Spot Management on a Bentgrass Fairway.** J.E. WATKINS, R.C. SHEARMAN, R.E. GAUSSOIN, W.K. CECIL, M. VAITKUS, L.A. WIT.
- Management of Turfgrass Insects in South Africa: Recent Research and Challenges.** R. L. BRANDENBURG, A. S. SCHOEMAN, P. T. HERTL.
- The Effect of Creeping Bentgrass Cultivars on the Incidence of Dollar Spot (*Sclerotinia homeocarpa*) in South Africa.** A. S. SCHOEMAN, B. MARTIN, R. L. BRANDENBURG, H.C. WETZEL.
- Influence of Fungicides on Pythium Blight Development on *Poa trivialis*.** L.E. DATNOFF, J.L. CISAR.
- Characterization of Fluroxypyr for Broadleaf Weed Control in Turf.** J.V. HANDLY, R.C. GOLEMBIEWSKI, J.M. BREUNINGER, M. DRINKALL.
- Perennial Weed Management in Bermudagrass.** B.J. BRECKE, J.B. UNRUH.
- Downy Mildew of Zoysiagrass.** B.S. CORWIN, E.H. ERVIN.
- Integration of Biological Control and Host Plant Resistance for Pest Suppression in Turfgrass.** S.K. BRAMAN.
- Host Resistance to Tawny Mole Cricket, *Scapteriscus vicinus*, in Bermudagrass, *Cynodon* spp.** J.A. REINERT, P. BUSEY.
- Controlling the Red Imported Fire Ant, *Solenopsis invicta*, in Urban Landscapes.** J.A. REINERT, S.J. MARANZ.
- Thursday, July 19**
- AGRONOMY ORAL SESSION 2 - 9:00 am-12:00 pm**
- How Mowed Turf Conditions Affect Tall Fescue Plant Populations.** M.J. SELLMANN, A.D. BREDE.
- Summer Cultivation Effects on a Sand Based Creeping Bentgrass Golf Green.** B.T. BUNNELL, L.B. MCCARTY, H.S. HILL.
- Effect of Seeding Rate on Establishment and Quality Characteristics of a Turf Mixture.** N. ORAL, E. AÇYKGÖZ.
- Evaluation of an Innovative Cultivation Technique to Reduce Compaction and Improve Turf Surface Quality in Sports Turf.** D.E. ALDOUS, K. JAMES, J.J. NEYLAN.
- Annual Seeding of *Cynodon dactylon* [L. ] Pers. for Improved Performance of Heavily Trafficked Athletic Fields in Temperate Climates.** R.E. GAUSSOIN, D. MINNER, S. KEELEY, M. VAITKUS.
- Fuji Kogen 7-year study: The Relationships Among High Turf Quality, Root Zone Functions, and Low-cost Culture of a Putting Green Constructed with a High-sand Root Zone.** H. TONOGI, H. SONOBE, Y. MAKI.
- The Comparative Competitive Ability of Thirteen *Agrostis stolonifera* Cultivars to *Poa annua*.** J.B. BEARD, P. CROCE, M. MOCIONI, A. DELUCA, M. VOLTERRANI.
- Bentgrass (*Agrostis* spp.) Cultivar Performance on a Golf Course Putting Green.** G. LANDRY, M. SCHLOSSBERG.
- Alleviation of Photochemical Activity Decline of Turfgrasses Exposed to Soil Moisture Stress or UV Radiation.** R.E. SCHMIDT, X. ZHANG.
- Nitrogen Use Efficiency is Linked to Nitrate Reductase Activity and Biomass Partitioning Between Roots and Shoots of Perennial Ryegrass and Creeping Bentgrass.** J.T. BUSHOVEN, R.J. HULL.
- EDUCATION SYMPOSIUM – DISTANCE EDUCATION - 9:00am – 12:00pm**
- Turfgrass Instruction Through the Internet.** A.J. TURGEON.

**Learning through Distance Education: Design and Implementation of a Turfgrass Soils Laboratory.** A.S. MCNITT, G.F. JOHNSON.

**Development of a World Wide Web-based Turfgrass Management Course Using Web Course Tools.** Z. JIANG, W.M. SULLIVAN.

**Specialty Instruction Modules on the Internet for Students and Turfgrass Professionals.** G.K. STAHNKE, E.D. MILTNER, W.J. JOHNSTON.

**Combining Distance Education Delivery Technologies for an Effective Teaching/Learning Experience.** K.J. KARNOK.

**Turf Doctor: A Web-based Expert System for Turfgrass Problem Diagnosis and Treatment.** J.F. VINSONHALTER, P.G. JOHNSON.

**Web-based Turfgrass Species Selection Tool.** T.W. FERMANIAN, T.B. VOIGT, P.P. BRAGA.

#### PEST ORAL SESSION 1 – WEEDS

**Methods of Overseeding for Weed Control Against Zoysiagrass Fairways Under Non-chemical Conditions.** T. SHINGYOJI, A. FUJIE.

**Chemical Control of *Pennisetum clandestinum* Hochst ex Chiov (Kikuyugrass) in *Cynodon dactylon* (L.) Pers. (Common Bermudagrass).** C. MÜLLER, F. SANTORO.

**Bermudagrass Control in Centipedegrass with Clethodim and Adjuvant Combinations.** F.C. WALTZ JR., J.K. HIGINGBOTTOM, T.R. MURPHY, F. YELVERTON, L.B. MCCARTY.

**Tolerance of Perennial Ryegrass and *Poa annua* Control With Herbicides in Overseeded Bermudagrass.** F.H. YELVERTON, L.B. MCCARTY.

**Optimum Herbicide Strategy for Managing Mixed Weed Populations in the Southern U.S.** P. BUSEY.

**Reduced Herbicide Rates for Smooth Crabgrass Control in the Mid-Atlantic Region.** P.H. DERNOEDEN.

**Crabgrass Control with Fall Applied Herbicides.** J.W. BOYD, F.H. YELVERTON, T.R. MURPHY.

**Biology and Molecular Analysis of Dinitroaniline-resistant *Poa annua* L.** D.B. LOWE, G.A. SWIRE-CLARK, L.B. MCCARTY, T. WHITWELL, W.V. BAIRD.

**The Influence of Selected PGRs on Postemergence Herbicide Efficacy.** X. ZHANG, R.E. SCHMIDT, P.L. HIPKINS.

#### SOIL SYMPOSIUM – WATER REPELLENCY - 2:00 – 5:00 pm

**The Impact on Soil Moisture Variability and Preferential Flow.** L.W. DEKKER, K. OOSTINDIE, A.K. ZIOGAS, C.J. RITSEMA.

**Principles and Modeling of Flow and Transport in Water Repellent Surface Layers, and Consequences for Management.** C.J. RITSEMA, J.C. VAN DAM, L.W. DEKKER, K. OOSTINDIE.

**Water Repellency in Soils: Research History and the State of the Art.** S. DOERR.

**Observations on the Chemistry of Organic Materials in Water Repellent Soils.** J.L. ROY, W.B. MCGILL.

**Effects of Soil Surfactants on Water Retention in Turfgrass Rootzones.** B. LEINAUER, P.E. RIEKE, D. VAN

LEEUEWEN, R. SALLENAVE, J. MAKK, E. JOHNSON.

**Microbial Derived Water Repellency in Soil.** P.D. HALLETT, K. RITZ, R.E. WHEATLEY.

**Water Repellency in New York State Soils.** T.S. STEENHUIS, J.C. RIVERA, C.J.M. HERNANDEZ, M.T. WALTER, R.B. BRYANT, P. NEKTARIOS.

**Amelioration of Water Repellency in Golf Course Soils.** K. CAREY, E. GUNN.

**Wetting Agent Treated Hydrophobic Soil and Its Effect on Color, Quality and Root Growth of Creeping Bentgrass.** K.J. KARNOCK, K.A. TUCKER.

**The Occurrence and Alleviation by Surfactants of Soil-water Repellency on Sand-based Turfgrass Systems.** J.L. CISAR.

#### BREEDING & GENETICS POSTER SESSION - 8:00 am-5:00 pm.

**Unbalanced Chromosome Number and Inbreeding Effects on Fertility and Plant Vigor in Buffalograss.** P.G. JOHNSON, T.P. RIORDAN.

**Scanning Electron Microscopic Study on *in vitro* Somatic Embryogenesis of Perennial Ryegrass and Tall Fescue.** D.E. BRADLEY, Y. BAI, S.P. TALLURY, R. QU.

**Effects of Cultivar, Explant Treatment, and Medium Supplements on Callus Induction and Plantlet Regeneration in Perennial Ryegrass.** D.E. BRADLEY, A.H. BRUNEAU, R. QU.

**Improved Young Inflorescence Culture and Regeneration of 'Tifway' Bermudagrass (*Cynodon transvaalensis* x *C. dactylon*).** R. QU, A. CHAUDHURY.

**Analysis of seed yield components in *Festuca nigrescens* Lam.** B. BOURGOIN.

***Poa annua* Diversity on Golf Course Greens in the Pacific Northwest, USA.** G.J. POOLE, W.J. JOHNSTON, R.C. JOHNSTON.

**Embryogenic Callus Induction and Plant Regeneration of Buffalograss Through Leaf Base and Seedling Segment Culture.** S. FEI, U.S. BISHNOI, T. RIORDAN, P. READ.

**Characterization of Kentucky Bluegrass Cultivars using RAPD Markers.** D.R. HUFF.

**Utilization of Apomictic and Dioecious Method of Reproduction in Breeding of *Poa* spp.** J.C. READ.

**Virus Resistance in Fertile Transgenic Perennial Ryegrass (*Lolium perenne* L.) Plants.** F. ALTPETER, J. XU, A. SALAHUDDIN, U. POSSELT, J. SCHUBERT.

**Genetic Characteristics of Kentucky Blue Grasses Native to Korea.** B.J. AHN, S.R. SHIM, H.J. WON.

**Variation in Thousand-seed-weight in *Lolium perenne*, *Festuca rubra* and *Poa pratensis*.** S.U. LARSEN.

**Genetic Diversity in Seven Perennial Ryegrass (*Lolium perenne*) Cultivars Based on SSR Markers.** C. KUBIK, M. SAWKINS, W.A. MEYER, B.S. GAUT.

**Somatic Embryogenesis and Plant Regeneration from Suspension Cultures of Timothy.** Y.D. GUO, S. PULLI.

#### EDUCATION POSTER SESSION - 8: 00 am – 5:00 pm

**A Code of Practice for Turf Managers of Multi-use Stadia.** B.A. WAY, R.J. GIBBS, K.W. MCAULIFFE, W.H. WALMSLEY, D.R. HOWARD.

**Providing Relevant Information to Turfgrass Managers: Challenges and Implications.** R.N. CARROW, R.R. DUNCAN, R.C. SHEARMAN.  
**Turfgrass Diseases in Europe (interactive CD ROM).** J.P. GUERIN, J.P. LÉBOUCHER, B. BOURGOIN

Friday, July 20

**PEST ORAL SESSION 2 – DISEASES I - 8:30 – 11:30 am**

**Red Thread Development in perennial Ryegrass in Response to Nitrogen, Phosphorus, and Potassium Fertilizer Applications.** L.P. TREDWAY, M.D. SOIKA, B.B. CLARKE.  
**Influence of Liming and Nitrogen on the Severity of Summer Patch of Kentucky Bluegrass.** W.J. HILL, J.R. HECKMAN, B.B. CLARKE, J.A. MURPHY.  
**Control of Brown Patch Disease Using the Bacterium *Stenotrophomonas maltophilia* strain C3 and Culture Fluid.** G.Y. YUEN, Z. ZHANG.  
**Fermentation and Delivery of *Pseudomonas aureofaciens* Tx-1 with the Bioject System to Bentgrass Affected by Dollar Spot and Brown Patch.** J.G. DAVIS, P.H. DERNODEN.  
**Remote Sensing of Brown Patch and Dollar Spot on Creeping Bentgrass and Annual Bluegrass Using Near Infrared Spectroscopy.** G.J. RINEHARD, J.H. BAIRD, R.N. CALHOUN, O. SCHABBERGER.  
**Turfgrass Diseases and Pest Management in Northern Italy.** M. MOCIONI, A. ALMA, P. TITONE, M.L. GULLINO.  
**Use of High Pressure Fungicide Injection for Fairy Ring Disease Control on Bentgrass Greens.** P.F. COLBAUGH, M.C. ENGELKE, M. FIDANZA.  
**Multi-year Performance of New BASF Fungicides Against Diseases of Turfgrass.** W.R. BARTON, B.D. MITCHUM, J.S. BARNES, J. TURNER, R.E. GOLD.  
**Reduced Sensitivity of *Sclerotinia homoeocarpa* to Fungicides on Some Italian Golf Courses.** M. MOCIONI, M. GENNARI, M.L. GULLINO.  
**Mating Reactions of *Typhula ishikariensis* Imai Complex Isolates from Wisconsin Golf Courses.** S.M. MILLETT, N. MATSUMOTO, D.P. MAXWELL.

**SOIL ORAL SESSION 3(a) – CRICKET SOILS - 8:30 – 9:55 am**

**Laboratory Testing of the Friction Characteristics of Novel Mixes for Cricket Pitch Rootzones.** W.A. ADAMS, R.J. YOUNG.  
**The Performance of Cricket Pitches in Relation to Soil Type and Moisture Content.** S.W. BAKER, D.J. BINNS, A. COOK, S.J. MOONEY.  
**Effects of Root Zone Construction and Preparation Methods on Cricket Pitch Performance.** K.W. MCAULIFFE, B.K. HANNAN.  
**Some Soil and Turf Factors Affecting the Playing Characteristics of Premier Cricket Pitches in Britain.** W.A. ADAMS, R.J. YOUNG, S.W. BAKER.

**SOIL ORAL SESSION 3 (b) – CULTIVATION/MECHANICAL TREATMENTS - 9:55 – 11:30 am**

**Cultivation Effects on Surface Qualities of an *Agrostis palustris* Putting Green.** D.E. KARCHER, P.E. RIEKE, J.F. MAKK.

**Summer Cultivation Effects on a Sand Based Creeping Bentgrass Golf Green.** B.T. BUNNELL, L.B. MCCARTY, H.S. HILL.

**Changes in Soil Physical Properties of Different Turfgrass Soils as Affected by Aeration.** W. PRÁMAĀING, H. FRANKEN, A. REINDERS, H. SCHULZ.

**Evaluation of an Innovative Cultivation Technique to Reduce Compaction and Improve Turf Surface Quality in Sports Turf.** D.E. ALDOUS, K. JAMES, J.J. NEYLAN.

**Turfgrass and Soil Responses to Lightweight Rolling on Putting Green Root Zone Mixes.** T.A. NIKOLAI, P.E. RIEKE, J.N. ROGERS III, J.M. VARGAS JR.

**PEST ORAL SESSION 3 – INSECTS - 1:30 – 2:35pm**

**Resistance in Zoysiagrass, *Zoysia* spp., to the Tropical Sod Webworm, *Herpetogramma phaeopteralis* Guenee.** J.A. REINHART, M.C. ENGELKE.

**Effects of Two Plant Growth Regulators on Suitability of Creeping Bentgrass for Black Cutworms and Sod Webworms.** M.E. ROGERS, D.W. HELD, D.W. WILLIAMS, D.A. POTTER.

**Survival and Development of Black Cutworm (Lepidoptera: Noctuidae) Larvae on Creeping Bentgrass Cultivars.** R.C. WILLIAMSON, D.A. POTTER.

**EDUCATION ORAL SESSION – TEACHING TECHNIQUES AND INFORMATION TRANSFER - 3:00 – 4:00pm**

**A Laboratory Exercise Demonstrating the Interactions of Sand, and Organic and Inorganic Amendments on Physical Properties of Sports Turf Rootzone Mixes.** B.R. STEWART, D.V. WADDINGTON, J.M. GOATLEY, J.V. KRANS.

**Collaborative Relationships in Postsecondary Education: Moving From Competition to Collaboration to Meet the Needs of Place Bound Learners.** V.O. JONES, G.L. HORST, L.C. SCHLEICHER, M.M. MCCLUSKEY, C. POHLMAN, R. MCCUE.

**Collection and Database Development at the Turfgrass Information Center: Supporting Turfgrass Scholarship.** P.O. COOKINGHAM.

**CSSA Division C-5 (Turfgrass Science) Society Activities and Opportunities.** M.C. ENGELKE.

**Pricing to Ensure Profitability and Survival.** P.J. VAN BLOKLAND.

**BREEDING & GENETICS ORAL SESSION - 1:30-3:05 pm**

**QTL Analysis of Crown Rust Resistance Perennial Ryegrass – Implications for Breeding.** D. THOROGOOD, M.F. PAGET, M.O. HUMPHREYS, L.B. TURNER, I. ARMSTEAD, H. RODERICK.

**Utilization of Interspecific Crosses for Turfgrass Improvement.** L.A. BRILMAN.

**Efforts to Better Characterize Turfgrass Performance in the U.S.A and Canada.** K.N. MORRIS, G.L. GAO.

**Soil Acidity and Aluminum Toxicity Response in Turfgrass.** H. LIU.

**Breeding Cool-Season Turfgrasses for Wear Tolerance Using a Wear Simulator.** S.A. BONOS, E. WATKINS, J.A. HONIG, M. SOSA, T. MOLNAR, J.A. MURPHY, W.A. MEYER.

**Breeding for Salt Tolerance in Cool Season Turfgrasses.** C. ROSE-FRICKER, J.K. WIPFF.

**PEST ORAL SESSION 3 – DISEASES II - 3:30 - 4:30 pm**

**Fungicides Affect Rough Bluegrass Germination and Seedling Development.** J.J. CAMBERATO, S.B. MARTIN, A.V. TURNER.

**Spring Dead Spot Resistance of Inter-specific Hybrid Bermudagrasses.** D.L. MARTIN, G.E. BELL, C.M. TALIAFERRO, N.A. TISSERAT, J.H. BAIRD, D.D. DOBSON, R.M. KUZMIC, J.A. ANDERSON.

**Evidence of Induced Resistance in the Control of *Bipolaris sorokiniana* in Tall Fescue by *Stenotrophomonas maltophilia* C3.** G.Y. YUEN, O. KILIC.

**AGRONOMY POSTER SESSION - 8:00 am – 5:00 pm**

**Treatment Effects of Seed Priming with Fungicide on 'Anyang' (*Zoysia japonica*) to Improve the Seed Germination.** H-S. TAE, S-H. LIM, H-K. SHIN.

**Evaluation of Golf Footwear for New Zealand Golf Course Conditions.** E.J. G. HALL, R.J. GIBBS, P.R. MUNRO, B.K. HANNAN, K.W. MCAULIFFE.

**Turf Height, Ball Rolling, and Other Turf Surface Characteristics on Sports Fields.** K. FUJISAKI.

**Winter Protection of Golf Greens in Canada, Finland, Norway, and Sweden.** J. DIONNE, P-A. DUBÉ, M. STRANDBERG, H. ERIKSSON.

**Irrigation Requirements for Turf Establishment Under Supraoptimal Temperature Conditions.** C.H. PEACOCK.

**Trinexapac-ethyl Effects on Rooting of Kentucky Bluegrass (*Poa pratensis*) Sod.** B.R. BINGAMAN, N.E. CHRISTIANS, D.S. GARDNER.

**Establishment of Cool Season Grasses in Different Italian Environments.** L. RUSSI, P. MARTINIELLO, C. TOMASONI, P. ANNICCHIARICO, E. PIANO, F. VERONESI.

**Dehydration Avoidance of Diverse *Poa pratensis* Cultivars and Cultivar Groups in a Semi-arid Climate.** S.J. KEELEY, A.J. KOSKI.

**Influence of Mowing and Nitrogen Fertility on Tall Fescue Turf.** T.B. VOIGT, T.W. FERMANIAN, J.E. HALEY.

**Bermudagrass and Seashore Paspalum Winter Overseeded with Seven Cool-season Turfgrasses.** M. VOLTERRANI, S. MIELE, S. MAGNI, M. GAETANI, G. PARDINI.

**Alternate Sod Production Method for Zoysiagrass.** B.A. RUEMMELE, M.C. ENGELKE, R.H. WHITE, V. LEHMAN.

**Interactive Effects of Salinity and Temperature on Kentucky Bluegrass and Tall Fescue Seed Germination.** Y.L. QIAN, M.R. SUPLUCK.

**Recycling Mower Effects on Biomass, Nitrogen Recycling, Weed Invasion, Turf Quality and Thatch.** M.A.

HARIVANDI, W.L. HAGAN, C.L. ELMLORE.

**Water Relations and Rooting Characteristics of Three *Stenotaphrum secundatum* Turf Cultivars Grown Under Water Deficit Conditions.** G.L. MILLER, L.B. MCCARTY.

**Growth and Physiological Responses of Tall Fescue to Surface Soil Drying.** B. HUANG, J. FU.

**Morphological Changes of Tall Fescue in Response to Saturated Soil Conditions.** D. LI, L. HAN, N.E. CHRISTIANS, D.D. MINNER.

**Turfgrass Traffic (soil compaction plus wear) Simulator: Response of *Paspalum vaginatum* and *Cynodon* spp.** R.N. CARROW, R.R. DUNCAN, J.E. WORLEY, R.C. SHEARMAN.

**Nitrogen Allocation of Turfgrasses: I. Recovery of <sup>15</sup>N-labeled Ammonium Nitrate Applied to Buffalograss [*Buchloe dactyloides* (Nutt.) Engelm].** K.W. FRANK, R.E. GAUSSOIN, T.P. RIORDAN, W.W. STROUP, M.H. BLOOM.

**Nitrogen Allocation of Turfgrasses: II. Recovery of <sup>15</sup>N-labeled Ammonium Nitrate Applied to Kentucky Bluegrass (*Poa pratensis* L.) and Tall Fescue (*Festuca arundinacea* Schreb.).** K.W. FRANK, R.E. GAUSSOIN, T.P. RIORDAN, W.W. STROUP, M.H. BLOOM.

**The Effect of Tarp Color and Cover Material on *Poa pratensis* growth.** D.D. MINNER, D. LI, V. PATTEROZZI, J.J. SALMOND.

**How Mowed Turf Conditions Affect Tall Fescue Plant Populations.** M.J. SELLMANN, A.D. BREDE.

**Changes in the Composition of Membrane Lipid Fatty Acids during Cold Acclimation and Characterization of Fatty Acid Desaturase Genes in Bermudagrass.** J. CYRIL, G.L. POWELL, W.V. BAIRD.

**Turfgrass Traffic Simulators: A Description of two Self-propelled Devices Simulating Wear and Compaction Stress.** R.C. SHEARMAN, R.N. CARROW, L.A. WIT, R.R. DUNCAN, L.E. TRENHOLM, J.E. WORLEY.

**Sod Strength and Lateral Spread of *Poa pratensis* Cultivars and Experimental Lines.** R.C. SHEARMAN, T.R. TURNER, K.N. MORRIS, R.E. GAUSSOIN, M.R. VAITKUS, L.A. WIT.

**Evapotranspiration and Root Distribution Effects on Dehydration Avoidance of Diverse *Poa pratensis* Cultivars.** S.J. KEELEY, A.J. KOSKI.

**Control of Dew Formation on Sports Turf With the Use of Wetting Agents.** R.J. GIBBS, M.P. WRIGLEY, M.A. HOOKER.

**Use of Artificial Light to Stimulate Retention of Summer Leaf Form of *Leptinella maniototo* During Winter.** M.Z. HOOD, R.J. GIBBS, M.P. WRIGLEY.

**The Biggest Turf is in Rome (Italy)?** C.F. CERETI, F. ROSSINI.

**Behaviour of Two Cultivars of Tall Fescue Subjected to Different Management.** S. MACOLINO, M. SCOTTON, U. ZILLOTTO.

**The Response of Zoysiagrass and Other Turfgrasses to Environmental Conditions of Saudi Arabia.** R. OKAWARA, N. S. AL-KHALIFAH.

**National Germplasm Collection, Assessment and Improvement Carried Out in East China During 1993-2000.** J. LIU, Y. ZHEN, H. GUO, S. CHEN, A. GUO, S. HU.

**Effect of Seeding Rate on Establishment and Quality Characteristics of a Turf Mixture.** N. ORAL, E. AÇYKGÖZ.

**Performance of Creeping Bentgrass Cultivars Maintained at Two Mowing Heights and under Two Fungicide Regimes in North Carolina.** A.H. BRUNEAU, C.A. BIGELOW, R.J. COOPER, D.C. BOWMAN.

**SOILS POSTER SESSION - 8: 00 am – 5:00 pm.**

**Modification of Sand-based Soil Media with Organic and Inorganic Soil Amendments.** Y.K. JOO, J.P. LEE, N.E. CHRISTIANS, D.D. MINNER.

**Evaluation of a Modular Turfgrass System Amended with Shredded Carpet.** A.S. MCNITT, P.J. LANDSCHOOT.

**The Effects of Soil Reinforcing Inclusions in an Athletic Field Rootzone.** A.S. MCNITT, P.J. LANDSCHOOT.

**Supplemental Calcium Applications to Turfgrass Established on Calcareous Soils.** R.A. ST. JOHN, N.E. CHRISTIANS, H.G. TABER.

**Fertility and Simulated Traffic Effects on Kentucky Bluegrass/Supina Bluegrass Mixtures.** J.C. SOROCHAN, J.N. ROGERS III, J.C. STIER, D.E. KARCHER.

**Leaf Tissue N Content and Soil N Status Following Monthly Applications of Nitrogen Fertilizer to Fairway Turf.** E.D. MILTNER, G.K. STAHNKE, P.A. BACKMAN.

**Freezing and Thawing Effects on Sand-based Media Modified with Soil Amendments.** D. LI, M. VOLTERRANI, N.E. CHRISTIANS, D.D. MINNER, S. MAGNI.

**Effect of Turf Competition on Creeping Bentgrass Seedling Establishment.** D.J. CATTANI.

**Addition of Inorganic Amendments to a Mature, Sand-based Putting Green.** M.D. RICHARDSON, D.E. KARCHER.

**Hydrated Silicates Incorporated in Fertilizers: A New Way to Improve Nitrogen Efficiency and to Prevent Leaching of Nutrients.** H-E. COCHARD, C. GILLONNIER.

**Physical Stability of Inorganic Amendments Used in Turfgrass Root Zones.** J.P. WASURA, A.M. PETROVIC.

**Use of an Optical Sensor as a Tool to Evaluate N-supply of a Sportsturf Sward.** R. HAEHNDEL, C. DAUSTER, S. WILLKOMMEN.

**Response of 'Tifway' Bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) to N:S:K ratios.** C.H. PEACOCK.

**Drought Tolerance of Warm Season Turf Species.** G.R. TAYLOR II, R.H. WHITE.

**Web Based Turfgrass Extension: Providing Greater Information Transfer to the Public.** G.R. TAYLOR II, J. GRAY, R.H. WHITE.

## ATTENDANCE LIST: ALPHABETICAL BY SURNAME

Name	Address	City	State/ Prov	Country	Postal code	Email
Dr. Esvet Açýkgöz	Faculty of Agriculture, Uludag Univ.	Bursa		Turkey		esvet@uludag.edu.tr
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**Abstracts of technical (non-peer reviewed papers presented at the  
9th ITRC, Toronto, Canada, July 15-21, 2001**

[Peerreviewed papers have been published in the International Turfgrass Society Research Journal, Volume 9. Full text versions of the technical papers, where available, have also been included on the CD-ROM version of the ITS Research Journal.]

**(R-0023) Use of Artificial Light To Stimulate Retention of Summer Leaf Form of *Leptinella maniototo* During Winter.** M. ZETA HOOD, *Massey University*; R.J. GIBBS, *NZ Sports Turf Institute*; M.P. WRIGLEY, *Massey University*.

The plant species *Leptinella maniototo* (used on bowling greens in New Zealand) changes its leaf shape with different seasons, with the summer leaf form of the species being preferred from a management and playing quality perspective. Change from winter to summer leaf form is thought to be governed principally by day length. A trial was conducted to assess the potential for using conventional artificial light to manipulate the period of summer leaf formation. *L. maniototo* plugs were collected in early autumn 1998 whilst still in summer leaf form and placed in trays under conventional, natural light conditions. Each week over a 36-week period, selected plugs were transferred to a 24-h natural and artificial light environment where they remained for the remainder of the 36-week period. Automatic sensors were used to activate artificial light when natural daylight intensity fell below acceptable levels. Leaf form of individual plants in each group of transferred plugs (plus those remaining under conventional light conditions) was scored weekly. Results showed that under 24-hour light, plants that never experienced short day length days remained in full summer leaf form throughout the winter, but quality of foliage was poor. However, plants that had changed into full winter leaf form under natural light conditions could be induced into early summer leaf form using artificial light from mid-winter onwards with a reasonable quality of foliage. It was concluded that simple artificial light can be used to manipulate *L. maniototo* leaf form, but further field trials are required on operational bowling greens to study the effects of extended summer leaf retention on plant quality and reproductive ability of the species.

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**(R-0026) A Code of Practice for Turf Managers of Multi-Use Stadia.** K.W. McAULIFFE, R.J. GIBBS, B.A. WAY, M.A. HOOKER, D.A. ORMSBY, D.R. HOWARD, *NZ Sports Turf Institute*.

Owners and managers of multi-use sports stadia have to be able to accommodate a variety of sporting and non-sporting events such as cricket, rugby, soccer, concerts, exhibitions and shows. The ability to change the playing surface from one use to another, almost overnight, and the need to pay particular attention to television/spectator requirements and corporate expectations is now critical for a successful stadium. The multi-use nature of many sports stadia worldwide has created new challenges for the turf manager. In an attempt to address many of these challenges, the New Zealand Sports Turf Institute has compiled a set of guidelines for managing a turf surface within a multi-use environment. These guidelines have been assembled into a voluntary code of practice for use by stadium managers when booking and managing events. The code of practice divides management of the turf surface into a series of key subject areas. For each subject area, background information and recommended operational guidelines are proposed that take into account how a specific activity or series of activities is likely to affect the performance of the turf surface. Model contract documentation is also included that can be adapted by stadium managers when booking individual events. There are 11 sections in the code of practice: access on to the playing surface, turf protection during non-sporting events, cricket block protection, excavations and constructions, vehicle movement over

the playing surface, logo management, firework displays, risk management for cricket, turf repair and replacement, dew control for night time sport, and shade management. The code of practice will be available from the New Zealand Sports Turf Institute towards the end of 2001.

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**(R-0028) Management of Turfgrass Insects in South Africa: Recent Research and Challenges.** R.L. BRANDENBURG, *N.C. State Univ.*; A.S. SCHOEMAN, *Univ. of Pretoria*; P.T. HERTL, *N.C. State Univ.*

Studies of three insect pests in South Africa, a native mole cricket, *Gryllotalpa africana* Palisot de Beauvois, *Aphodius* grubs, *Aphodius pseudolividus* Balthasar, and a rove beetle, *Neosorus brevipennis* Fagel have revealed a similar ecology and impact on turfgrass as compared to related species on turfgrass in the U.S. The mole crickets construct a tunnel structure similar to that observed in the southeastern U.S. While mole cricket females were attracted to a synthetic acoustic sound trap, there were no apparent peak periods of attraction. The similarities of distribution of life stages found in the summer reflect similar trends with mole cricket development in the southeastern U.S. Populations of rove beetles appear on putting greens, collars, and approaches and produced as many as nine "pushups" or soil mounds per cup cutter. The number of mounds indicate a common tunnel structure for the population. Most adults and larvae were found in the first 75 mm of soil below the surface. *Aphodius* grubs were observed causing severe damage to creeping bentgrass putting greens with populations as high as 29 grubs in a standard cup cutter sample (10.8 cm diameter). Populations at this level caused significant turfgrass injury while populations below 10 grubs per cup cutter core produced little visible turfgrass injury.

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**(R-0031) Genetic Characteristics of Kentucky Bluegrasses Native to Korea.** B.J. AHN, *Chongju University*; S.R. SIM, *Sewon Plant Research Institute*; H. J. WON, *Dankook University*.

*Poa pratensis* plants native to Korea were collected and their morphological and cultural characteristics were examined to determine possible uses as a turfgrass or for revegetation. Also their genetic relatedness were compared with those of the introduced cultivars of foreign origins using RAPD analysis. The local ecotypes were collected the most from riverside areas, and then from roadsides and agricultural fields like rice paddies and vegetable fields. The collected *Poa pratensis* plants showed morphological differences. Their qualities as a turfgrass, rated visually during their growing season varied remarkably depending upon the genotypes. Selected genotypes among those showed various desired qualities in general vigour, growth rate, or tolerance to leaf blight and rust diseases. At the level of SED 13, all the foreign cultivars and some turfgrass-typed native grasses were genetically grouped together. There are several other ecotypes, rated high through evaluation period, which were genetically less related from those of foreign origins. In conclusions, in Korea, genetic diversity was found rich in *Poa pratensis*. Some genotypes are expected to be developed as cultivars or can be used to revegetate ecologically disturbed areas like roadside cut areas.

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**(R-0032) The Effect of Creeping Bentgrass Cultivars on The Incidence of Dollar Spot (*Sclerotinia homeocarpa*) in South Africa.** A.S. SCHOEMAN, *Univ. of Pretoria*; R.L. BRANDENBURG, *N.C. State Univ.*; B. MARTIN, *Clemson Univ.*; H.C. WETZEL, *BASF Corp.*

Fourteen cultivars of creeping bentgrass were established on 7 April 1999 at Services Golf Club in Pretoria, South Africa. Incidence of the foliar fungal disease dollar spot (*Sclerotinia homeocarpa*) was determined on 21 January by counting the number of infection centers per two randomly placed 0.25 square meter grids per plot and again on 6 March in one randomly placed 0.25 square meter grid per plot. Results on 21 January indicate less dollar spot in Lofts L-93 as compared to half the other cultivars. Pennncross, Penn A-1, Providence, and Pennlinks also had less disease than SR 1020, Dominant, and Crenshaw. Crenshaw had more dollar spot than any other cultivar and Dominant had more disease than half the other cultivars. Evaluations on 6 March revealed that the level of disease incidence remained high and there was a shift in the rankings of some cultivars. Pennncross and Pennlinks had significantly more infection centers than Penn A-1. Southshore had significantly fewer disease infection centers than Pennlinks and Pennncross. Penn G-1 also had less disease than Pennlinks. Lofts L-93, Penn A-1, and Penn G-1 ranked in the upper half of all the cultivars for reduced disease incidence in both evaluations.

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**(R-0033) Influence of Fungicides on Pythium Blight Development on *Poa trivialis*.** L.E. DATNOFF, University of Florida; J.L. CISAR, Ft. Lauderdale Res. and Educ. Center.

The purpose of this study was to evaluate seed and foliar applications of fungicides for controlling Pythium blight development on *P. trivialis* overseeded into a bermudagrass green. Seeds of *P. trivialis*, 'Dark Horse', were treated with Apron XL, Maxim combined with Apron XL at three rates and CGA 48988. Heritage, Subdue MAXX, and Aliette also were applied at seeding and emergence. Fungicide sprays were applied using a CO<sub>2</sub> backpack sprayer and delivered in 7.6 L water/90m<sup>2</sup>. Each plot received 50 grams of *Pythium aphanidermatum* inocula. Inverted plastic boxes (28 x 56 cm) were placed directly within each plot to increase the temperature and relative humidity, and potentially enhance infection. Pythium blight development was high throughout the plots. All fungicides significantly reduced Pythium blight in comparison to the control. Heritage and Aliette applied at emergence had the lowest AUDPCs and final disease severities, but were not significantly different from Subdue MAXX applied at seeding or emergence, and Maxim + Apron XL applied as a seed treatment. CGA 48988 and other seed treatments also had reduced Pythium blight but was associated with poor stand quality. Fungicides applied as seed or foliar treatments at seeding or emergence provide an excellent means for evaluating and comparing fungicide performance and duration against Pythium blight.

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**(R-0049) Behaviour of Two Cultivars of Tall Fescue Subjected to Different Management.** S. MACOLINO, M. SCOTTON, U. ZILLOTTO, *Universita Delgi Studi di Padova, Italy.*

The present investigation has the purpose to study the behaviour of two cultivars of tall fescue (Safari and Noria) in monophyte cultivation and subjected to different management: tow nitrogen levels (100-200 Kg/ha/year) tow cut levels (3-6 cm), with and without grass-cycling. The research was conducted at the Experimental Farm at Padova University in a split plot statistical design with four replications (sowing: 5/4/99). The turf was mowed with a rotary mower at

appropriate intervals to remove one-third of the existing stubble in not grass-cycling theses. The study was conducted from August 1999 to December 2000. The most important result is related to the vertical plant growth (mm/day) that presented important changes from season to season and has been strongly influenced by cultivar (Safari: 2.72; Noria: 3.23), fertilization (200 N units: 3.31; 100 N units 2.72) and grass-cycling (grass-cycling: 4.45; not grass-cycling 3.01); as consequence there were many differences in the cut frequency. Nevertheless, the visual rating (1-9) showed that high nitrogen distribution (200 units) and grass-cycling practice increase the plants color that maintain high-quality turf, especially during the winter season.

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**(R-0058) Turfgrass Diseases and Pest Management in Northern Italy.** M. MOCIONI, A. ALMA, P. TITONE, M.L. GULLINO, *University of Turin.*

A survey was carried out on several golf courses in Northern Italy, to evaluate the main diseases and insects on turfgrass. Dollar spot (*Sclerotinia homeocarpa* F.T. Bennett), pink snow mould (*Microdochium nivale* (Fries) Samuels and Hallett) and brown patch (*Rhizoctonia solani* Kuhn) are the diseases most frequently observed in such conditions. The main insect problems were caused by cutworms (*Agrotis ipsilon* Hufnagel and *Agrotis segetum* Demis & Schifferüller), billbug (*Sphenophorus striatopunctatus* Goeze) and white grubs (*Melolontha melolontha* L., *Amphimallon solstitialis* L. and *Rhizotrogus aestivus* Olivier). The control strategies, based on chemicals, coupled with good cultural practices, are particularly difficult due to the scarcity of fungicides and insecticides registered for turf in Italy.

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**(R-0081) Treatment Effects of Seed Priming on 'Anyang' (*Zoysia japonica*) to Improve the Seed Germination.** HYUN-SOOK TAE, HONG-KYUN SHIN, *Turfgrass & Environment Research Institute, Samsung Everland Inc.*

'Anyang' (*Zoysia japonica*) is famed as a good quality warm-season grass in Korea. Its color, quality, and disease resistance are the most attractive parts among many zoysiagrasses. However, its ability of establishment is very low because of poor germination and low vigor of seed. 'Anyang' is a vegetatively propagated turfgrass until now. The main goal of this study is to improve 'Anyang' to seed propagation and evaluate priming systems in combination with fungicidal seed treatment in soil. Various seed priming treatments were tested to enhance final emergence under suboptimal temperature. Osmotic priming of turfgrass seeds (*Zoysia japonica*) using potassium salts (0.2, 0.4M KNO<sub>3</sub>) or sodium salts (0.2, 0.4M NaNO<sub>3</sub>) resulted in higher germination at 25 degrees. The inclusion of 50 ppm GA<sub>3</sub> was more effective on both germination rate and mean germination time than those without GA<sub>3</sub>. In addition to GA<sub>3</sub>, priming duration was most critical to increase germination rate as well as reduce mean germination time. Particularly, priming for 7, 9 days with GA<sub>3</sub> regardless of salts dramatically promoted the germination rate by 37.6~45.3% compared with the non-treated seeds, and also shortened the mean germination time by 3.3 to 4.1 days at suboptimal temperature (25 degrees). The result of fungicide treatments indicate that methyl cellulose could affect zoysiagrass seed germination and fungicide combination (metalaxyl + toclofos-methyl) was more desirable on seed germination than that of fungicides treatment alone. In soil infested with the most serious pathogen in zoysiagrass, *Rhizoctonia solani* AG2-2, combined fungicides induced 80% emergence compare to 30% of control.

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**(R-0084) Turf Height, Ball Rolling, and Other Turf Surface Characteristics on Sports Fields.** K. FUJISAKI, *Nihon University*.

Some components of turf surface quality were studied on sports fields. New methods to measure turf height and ball rolling were developed in this study. Turf height is one of the most basic and important components of turf quality. But there had been some hesitation in adopting it as an index of turf characteristics because observational error among researchers can not be ignored. "Simple turf height meter" was designed to eliminate difference among observers. The distance rolled by the ball is usually measured after rolling a ball down from the slope of 45 degrees. But it was revealed in this study that the rolling distance is longer and the rebound is about half when the angle is 37 degrees instead of 45 degrees. One more apparatus was designed to shoot ball without rolling by using swinging maul. In addition to these items, soil hardness, Clegg impact value, ball rebound and some other components were measured on some sports fields. And relations among each component were analyzed. Where turf height was low, rolling distance was long. Where Clegg impact value is high, rebound is high. But these relations were not absolute and they were affected by other causes, too.

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**(R-0087) Analysis of Seed Yield Components in *Festuca nigrescens* Lam.** B. BOURGOIN, J. JUERGENS, *INRA Unité de Génétique et d'Amélioration des Plantes Fourragères*.

In France, seed production is becoming a main objective for plant breeders as it is the key for commercial success of turfgrass cultivars. Research work with tall fescue seed production has been reported, but nothing has been published for red fescue, one of the most important turfgrass species in France and in Europe. An experiment with 17 populations and cultivars of *Festuca nigrescens* Lam. (chewing fescue) was laid out in 1999, at Lusignan INRA station where seed yield and several components of seed yield were measured. Characteristics reported include heading date, number, and weight of panicles and seeds, panicle length and 1000-seed weight. Total seed weight was significantly and positively correlated with 1000-seed weight, seed per panicle, panicle length and panicle weight. The present study contributed to a better knowledge of relationships among characters involved in seed production. Heritabilities of these components needs to be determined as an indication that breeding may lead to seed production improvement, with all fine-leaved fescue used for turfgrass purposes.

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**(R-0154) Characterization of Fluroxypyr for Broadleaf Weed Control in Turf.** J.V. HANDLY, J.M. BREUNINGER, M. DRINKALL, *Dow Agrosciences*.

Fluroxypyr, (1-methylheptyl (4-amino-3,5-dichloro-6-fluoro-2-pyridyloxy)acetate) was evaluated at .06, .12, .25, and 0.5 lbs ae/acre alone and in a factorial combination of treatments with clopyralid (3,6-dichloro-2-pyridinecarboxylic acid, monoethanolamine salt) at .187, .25, .375, and 0.5 lbs ae/acre. All applications were made postemergence to actively growing weeds and turfgrass. Rates as high as 0.5 lbs ae/acre showed no injury to centipedegrass (*Eremochloa ophiuroides*), and zoysiagrass (*Zoysia japonica*). The maximum acceptable rate for use on bermudagrass (*Cynodon dactylon*), and St. Augustinegrass (*Stenotaphrum secundatum*) showed acceptable tolerance to rates of .12 lb ae/acre or less of fluroxypyr. Data on weed control was obtained on 28 different weeds. White clover (*Trifolium repens*), and California burclover (*Medicago polymorpha*) were controlled by all rates tested of fluroxypyr. Virginia Buttonweed (*Diodia virginiana*) was controlled by fluroxypyr plus clopyralid at .06 plus .375 lbs ae/acre respectively or by .12 lbs ae/acre of fluroxypyr mixed

with any rate clopyralid. Common catsear (*Hypochaeris radicata*) was controlled by .06 lbs per acre of fluroxypyr mixed with any rate of clopyralid. Data for other weeds is reported and is available.

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**(R-0155) The control of African Black Beetle (*Heteronychus arator*) and Argentine Stem Weevil (*Listronotus bonariensis*) in turf using Entomopathogenic Nematodes (ENs) of the genus *Heterorhabditis*.** PHILLIP FORD, *Northern Melbourne Institute*; DAVID NICKSON; ROBIN BEDDING.

Field trials over the summers of 1999/2000 and 2000/2001 has shown excellent efficacy on turf insect pests using a commercial EN product based on an Australian species of the genus *Heterorhabditis*. The EN technology has been developed by Dr. Robin Bedding of the Australian CSIRO, and uses a highly lethal nematode species that is bred to high numbers in a factory environment and then induced into a dormant state. This results in a cost-effective and practical product with an extended shelf life of several months. A number of patents are attached to this technology. Replicated trial work in the field on two important Australian turf insect pests demonstrated that *Heterorhabditis* rates of 200,000 nematodes per square metre gave excellent control of African Black Beetle (100% control) and Argentine Stem Weevil (90% control). Dr. Bedding is continuing his research to investigate similar breeding and storage of Predatory Nematodes, with potential efficacy on plant parasitic nematodes.

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**(R-0156) Effect of Application of Paclobutrazol [(2RS, 3RS) -1-(4-chlorophenyl) -4,4- dimethyl-2- (1H-1,2,4-triazol-1-yl) pentan-3-ol] on the Species Composition and Volume of Weeds in the Turfgrass Fields.** YUTAKA NOMA, SATORU TSUKAGOSI AND MICHIO TAKAGAKI, *Faculty of Horticulture, Chiba University*

Paclobutrazol was applied to retard elongation and growth of weeds in Turfgrass field and its effect on elongation and growth of weeds were shown. The weight of annual emergence of weeds was restrained by yearly application of Paclobutrazol to 39-43% of the control plot to which Paclobutrazol was not applied. In the experiment Turfgrass fields where Paclobutrazol was applied only in the first year, the emergence weight of weeds increased as years passed, but weight of the weed emerged in the second year restricted to 51-63%. In order to prove the effect of Paclobutrazol on emergence of individual species of weed, variation in emergence of *Bromus catharticus* Vahl and *Digitaria adscendens* Henr was studied. The retarding effect of Paclobutrazol application on vegetative growth of *Bromus catharticus* was prominent in emergence weight and elongation length. The physiological effect such as on flower-bud formation was also observed. The effect of Paclobutrazol application on vegetative growth of *Digitaria adscendens* was as conspicuous as in the case of *Bromus catharticus*. However, the physiological effect such as on flower bud formation was not clear.

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**(R-0158) Amelioration of Water Repellency in Golf Course Soils.** K. CAREY, E. GUNN, *Guelph Turfgrass Institute and Department of Plant Agriculture, University of Guelph*

Research trials in 1997, 1998, and 1999 examined the efficacy of various liquid and granular wetting agent formulations at alleviating turf problems associated with hydrophobicity and localized dry spot. Trials were performed on a Penncross creeping bentgrass (*Agrostis palustris* Huds.) USGA green at the Guelph Turfgrass Institute, Guelph, Ontario, Canada. Evaluation techniques included water droplet penetration

time tests on cores, visual assessment of turf characteristics, infiltration rate determination with split ring infiltrometers, and *in situ* measurement of soil moisture using the Theta-probe frequency domain relectrometer. Considerable variation was observed in measurable effects among different treatments and trials. In some cases the stress (hydrophobicity and water stress) may not have been strong enough to observe wetting agent effects. The USGA green suffered a significant dry-down event in spring of 1999, which provided ideal conditions for examining localized dry spot and wetting agent efficacy. Volumetric water content measurements allowed detailed mapping of soil moisture fluctuations across the treated plots.

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**(R-0175) An Economic Appraisal of Methods to Overcome Surface Drainage Problems on the Golf Course.** G. JAABACK.

Between tee and green, areas of a clay loam texture with little fall (less than 3%) are prone to waterlogging at the soil surface during prolonged wet winter months. Close spaced drain lines with porous material to the surface do not readily remove surplus water between drains and – drains also have a tendency to become ineffective with covered grass growth and the eventual accumulation of silt and fine sand. In a comparative exercise, the landing area on a new golf course, prone to excessive surface waterlogging, was reshaped creating swales to lead accumulating surface water away from the playing area while still maintaining a pleasant undulating surface for golf. With the installation of the drains only in the swale inverts there was a considerable reduction in drainage installation. Total costs, which included the replacement of topsoil, soil preparation, seeding and sand dressing on either side of the drain lines, proved to be more economic and effective than installing a grid like system of close spaced drainage pipe lines.

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**(R-0180) Use of an Optical Sensor as a Tool to Evaluate N-Supply of a Sports Turf Sward.** R. HAEHNDEL, C. DAUSTER, S. WILLKOMMEN, BASF Agricultural Center Limburgerhof.

The evaluation of the nutritional status of sports turf is often based on its visual aspect, and is thus rather subjective. Soil and plant analysis is quite time and cost consuming and interpretation of the data is not always easy, so that it is not carried out regularly. Especially the nitrogen nutrition of grass plants has a dominant effect on the optical aspect and wear resistance of a grass sward. However, it is not possible to obtain information about minor short-term changes, though this would be of great interest to green keepers and researchers. The use of an optical sensor ensures objective results, and measurements can be carried out very quickly. This study was conducted to establish whether valid correlations exist between growth, N-status and the spectral reflectance of turf grass.

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**(R-0185) The Bigger Turf is in Rome (Italy)?** C.F. CERETI, F. ROSSINI, Tuscia's University in Viterbo.

To welcome the great events of the Jubilee 2000 in Rome, a wide turf has been sowed, able to accept religious and artistic demonstrations for more than 1,500,000 people. The owner of the area, the University of Rome 2 Tor Vergata, put an area of 350 ha (41° 86' N and 12° 63' E) at the promoters disposal. The area was neglect with unauthorized and occasional cultivation and grazing. The Crop Production Department of the Tuscia's University of Viterbo has planned the land reclamation and carried out a turf of 3,200,000 m<sup>2</sup> seeding 100 t of a blend of three varieties of Tall Fescue (*Festuca arundinacea*) and two of Kentucky Bluegrass (*Poa pratensis*). Seeding was accomplished

between September and October 1999 and the resulting turf was used the first time May 1 2000 for the "Jubilee of the Workers" and then August 19-20 2000 for the "Jubilee of the Young People" when about 2,000,000 of youths occupied the area for 36 hours. The turf installed and managed according to proper techniques, held out against the human load and has greeted the young people correctly for the night. The Roman turf is, probably, the bigger turf sowed at the same time and used with a 0.7 people per m<sup>2</sup> load after only 10 months.

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**(R-0189) Turfgrass Diseases in Europe (interactive CD-ROM)** J. P. GUERIN, J. P. LEBOUCHER, B. BOURGOIN, French Turfgrass Society

The new CD-ROM HYMEGA 1.0 is the first French interactive turfgrass diseases guide that allows the turfgrass managers to identify, prevent and control about 29 turfgrass diseases existing in Europe. The CD-ROM contains seven chapters:

1. A dictionary allows to consult about 500 words concerning grasses and phytopathology.
2. The second chapter develops the cultural, technical and varietal aspects of turfgrasses species you can find in Europe.
3. The third chapter presents the turfgrass disorders that can occur of the turf without pathogenic cause.
4. All aspects for the 29 diseases are described in the fourth chapter. Each disease is illustrated with pictures of different stages of development. (106)
5. The following chapter presents the European regulations for applications of fungicides, popularize the calculations for the rates of active ingredients and dilution, and schematically expose the safety rules for the applicators.
6. Innovation resides in an expert system of diagnostic based on criteria easily observed on the affected turfs. This expert system allows all turfgrass managers to defined easily the potential pathogen(s) that could affect their turfs or lawns.
7. The last chapter contains the bibliographic references, and updated classification of the turfgrass pathogens and about 150 useful addresses.

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**(R-0193) Crabgrass Control With Fall Applied Herbicides.** J.W. BOYD, University of Arkansas; F.H. YELVERTON, North Carolina State University; T.R. MURPHY, The University of Georgia.

Ten studies were conducted in Arkansas, North Carolina and Georgia to evaluate the effectiveness of late October application of preemergence herbicides for large crabgrass (*Digitaria sanguinalis*) control in common bermudagrass (*Cynodon dactylon*). Plots were evaluated for crabgrass control during August of the following summer. The data were averaged across all locations. Prodimamine at 0.84, 1.12, 1.4 and 1.68 kg ai ha<sup>-1</sup> provided 93, 95, 99 and 97% crabgrass control, respectively. Pendimethalin at 2.24 and 3.36 kg ai ha<sup>-1</sup> provided 77% and 84% control. Dithiopyr at 0.56 kg ai ha<sup>-1</sup> averaged 78% control. Benefin at 3.36 kg ai ha<sup>-1</sup>, oxadiazon at 3.36 kg ai ha<sup>-1</sup> and benefin + trifluralin at 2.24 + 1.12 kg ai ha<sup>-1</sup> were ineffective as fall treatments.

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**(R-0218) Improving Surface Quality in Sports Turf and Reducing Compaction Using Innovative Aeration Machinery.** D.E. ALDOUS, K. JAMES, The University of Melbourne; J.J. NEYLAN, Australian Golf Course Superintendents Association; B. WHYKES, The University of Melbourne.

The objective of the project was to evaluate the performance of the Vertidrain 7117 Mustang® sub-surface aeration machine and assess its ability to improve the playing surface quality of sports fields in the

cool temperate climate of Melbourne, Australia. The trial was conducted on two sportsfields in Melbourne, Australia, a 11 year media-fine sand profile and a 30 year duplex red friable clay profile both established under Kentucky bluegrass (*Poa pratensis* L.) and over-sown with perennial ryegrass (*Lolium perenne* L. cv. 'Cutter'). The study incorporated treatments of tine spacing (55x75, 55x55, 55x35 mm), tine diameter (5 and 8 mm diameter), and degree of kick (5 and 10 degrees), applied weekly. Results showed that subsurface aeration using the 8-mm needles can reduce surface hardness and soil strength, improve infiltration rate, root dry weight and turfgrass quality in the sand profile, however may cause injury of the fine root system generated in the clay loam profile. In sand profiles larger needle diameter (8-mm) can advance measurable reductions in surface hardness to one month, whereas the effects of narrow diameter needles (5-mm) were not observed for two to three months. Penetrometer resistance could be reduced, infiltration rate increased within one month using treatments of either 5 or 8-mm needles on sand profiles and 8-mm diameter needles on clay loam profiles. Increasing needle diameter significantly increased root dry weight in the sand profile, but significantly reduced root dry weight in the clay loam profile. It is suggested that larger needle diameter and the higher frequency of cultivation may have damaged the finer and numerous roots found in the clay loam profile leading to poor root dry weights. The improved root dry weights and healthy root system contributed to significantly improve turfgrass quality exhibited in the sand profile, whereas poor root weights and damaged roots provided for poor quality turf in the clay profile.

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**(R-0219) The Response of Zoysiagrass and Other Turfgrasses to Environmental Conditions of Saudi Arabia.** R. OKAWARA, N.S. AL-KHALIFAH, *King Abdulaziz City for Science and Technology.*

The current presentation represent a research work carried out by a joint Saudi- Japanese project "Cultivation of Turfgrass in Saudi Arabia". The growth and performance of newly developed Zoysiagrass and Bermudagrass was evaluated under the environmental conditions of Saudi Arabia. Experiments were carried out to select the most suitable cultivars for such conditions. Two sites were used in this study, AlKhafji at the Eastern coastal province of the country and Muzahmiah at the central dry region of Riyadh. Experiments in both sites were designed in RCBD plots and data was collected from each. Growth parameters i.e., establishment rate, turf density, color and quality of the turfs were evaluated monthly for about two years. The 9 cultivars under study showed different growth behavior. Bermuda grass showed the best color all year round where the Zoysia cultivars showed a lower leaf color during winters. The Bermuda grass cultivars showed faster establishment and covering rates than zoysia even though both species gave good density within the first 6 months of cultivation.

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**(R-0224) Genetic Diversity in Seven Perennial Ryegrass (*Lolium perenne*) cultivars based on SSR Markers.** C. KUBIK, M. SAWKINS, W.A. MEYER, B.S. GAUT, *Rutgers the State University of New Jersey.*

An essential prerequisite to cultivar identification is to determine whether cultivars are differentiated genetically. We investigated genetic diversity among and within seven perennial ryegrass (*Lolium perenne* L.) cultivars (Loretta, Linn, Manhattan II, Affinity, Jet, Pennfine and Palmer III) using simple sequence repeat (SSR) markers, with the goal of determining whether cultivars could be differentiated on the basis of genetic data. In each cultivar we genotyped 30 individuals with 22 SSR markers, 18 of which had not been reported previously. Our results indicated that each of the seven cultivars

contained high but similar levels of genetic diversity. Within-cultivar heterozygosity ranged from 0.589 to 0.643. The cultivars could be distinguished by a number of statistical criteria, including: i) a small but significant proportion (14.6%) of among - cultivar genetic variation, based on analysis of molecular variance (AMOVA); ii) significant between cultivar  $F_{ST}$  values that ranged from 0.065 to 0.197; iii) separation of individuals in principal component analysis (PCA), and iv) correct identification of individuals by the genotype assignment test, which is related to discriminant analysis. The genotype assignment test worked particularly well: it correctly assigned all 210 individuals to their cultivar of origin. Sampling analysis indicated that the genotype assignment requires data from at least 15 SSRs to be > 99% accurate, suggesting future studies of genetic diversity in perennial ryegrass cultivars should use at least 15 SSR markers. Overall, the SSRs reported in this paper were highly effective for differentiating among cultivars.

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**(R-0225) Use of High-Pressure Injection for Fairy Ring Control on Putting Greens.** P.F. COLBAUGH, *Texas Agricultural Experiment Station;* M.A. FIDANZA, *Berks/Lehigh Valley College of the Pennsylvania State University;* S.D. DAVIS, *Aventis Environ. Science;* M.C. ENGELKE, *Texas Agricultural Experiment Station.*

Fairy ring (FR) disease and localized dry spot (LDS) can contribute to significant reductions in both quality and function of bentgrass (*Agrostis* spp.) putting greens in Texas and throughout the Southern U.S.A. The result of a FR-LDS complex on a USGA sand-based putting green is often a hydrophobic soil profile that is difficult for curative fungicides or soil surfactants to penetrate. Therefore, field studies were conducted during two years to determine the efficacy of fungicide and soil surfactant treatments delivered through high-pressure injection (HPI) on FR-LDS occurring on a bentgrass putting green. HPI treatments were applied from a Cushman® Enviroject Model 160. In 1998, HPI flutolanil or HPI azoxystrobin fungicides consistently reduced FR-LDS symptoms compared to non-HPI treatments. In 1999, significant reduction in FR-LDS symptoms were observed from HPI flutolanil + soil surfactant, HPI flutolanil + chlorothalonil, or HPI azoxystrobin versus a standard aerification program that was included only during the second year. Greater turfgrass growth and recovery was observed in those plots treated with HPI flutolanil + soil surfactant. The use of HPI to deliver fungicides and soil surfactants was a successful strategy at reducing FR-LDS symptoms in a USGA sand-based bentgrass putting green in Texas.

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**(R-0240) Downy Mildew of Zoysiagrass.** B.S. CORWIN, *University of Missouri;* E.H. ERVIN, *Virginia Tech University.*

*Sclerophthora macrospora* (Sacc.), the incitant of downy mildew in many grass species, has been observed in association with 'Meyer' zoysiagrass (*Zoysia japonica* Steud.) in eastern Missouri and western Illinois. The first reports of yellowing were received in 1995. The symptoms occur in the early spring or in early fall on shaded areas of zoysiagrass fairways. From a distance the affected turf is freckled, with yellow tufts interspersed with green, healthy grass. Occasionally the yellowing is more diffuse, with no well-defined tufting. Tufting corresponds to multiple tillers at individual nodes. As many as 40 tillers have been observed at a single node. In April 1999 and again in April 2000, sporangia conforming to the size range and morphology of *S. macrospora* were observed on infected leaves. The disease appears to be a cosmetic problem, although individual tufts sometimes die because of poor rooting.

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**(R-0241) Multi-Year Performance of New BASF Fungicides Against Diseases of Turfgrass.** W.R. BARTON, *BASF Corporation*; J.S. BARNES, H.C. WETZEL III, *Research Triangle Park*.

BASF is developing several fungicides for the control of turfgrass diseases. Pyraclostrobin (BAS 500 F) is a new synthetic strobilurin fungicide currently under joint Canadian (PMRA) and US EPA review for use on turfgrass. At the rates tested in field research trials, pyraclostrobin effectively controlled many important diseases including brown patch (*Rhizoctonia solani*), Pythium blight (*Pythium aphanidermatum*), gray leaf spot (*Pyricularia grisea*), snow mold (*Microdochium nivale*, *Typhula* spp.) and others. Pyraclostrobin also provided significant activity on dollar spot (*Sclerotinia homoeocarpa*). Disease efficacy data generated from the 1996 - 2000 field seasons are presented to demonstrate the broad-spectrum activity and versatility of pyraclostrobin. The tradename for pyraclostrobin in turfgrass will be Insignia™ fungicide. BAS 510 F is an experimental fungicide under development for control of dollar spot of golf course turfgrass. Research results from 1997 - 2000 indicated excellent activity from applications made preventatively or in early stages of disease development. BAS 510 F represents a new class of fungicide chemistry and may have utility as a resistance management tool for controlling dollar spot.

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**(R-0251) Environmental Research: Past and Future.** M.P. KENNA, J.T. SNOW, *USGA Green Section*.

We live in interesting times when the truth and public perception on environmental issues are shaped more by the media and special interest than science and reason. Turfgrass scientists need to look beyond the fairway and understand how the plant species we work with fit in sustainable, urban landscapes. This paper summarizes past environmental research focused on the fate of pesticides and fertilizers applied to turfgrasses; water quality and quantity issues; and efforts to address public concerns about amenity and recreational turfgrass. In general, the research shows that under most conditions, the small amounts of pesticides and nutrients that move through the soil are found at levels below the health and safety standards established by the U.S. Environmental Protection Agency. The important components affecting the fate of pesticides and nutrients are a) the filtering properties of the canopy and thatch; b) soil texture; and c) solubility and adsorption properties of the product applied. The paper also looks forward into the future and describes the problems that will face the turfgrass industry and the research needed to address these problems.

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**(R-0252) Wildlife Links: Looking Beyond the Turf.** P. STANGEL, *National Fish and Wildlife Foundation*.

Golf courses impact the environment. Determining whether those impacts are positive, negative, or neutral begins with an integrated research and monitoring program both on and off the course. The golf industry has an impressive history of measuring environmental impacts within the fairway's boundaries, but less attention has been directed to influences to out-of-play areas and "downstream" sites and the flora and fauna of these areas. The USGA's Wildlife Links program was established in part to address this specific need. Projects funded through Wildlife Links focus on the impact of golf course operations on wildlife both on- and off-site. Although our knowledge of these influences is still preliminary, linking traditional turfgrass research with wildlife oriented programs could greatly accelerate our understanding of these issues. In this presentation I will propose issues of mutual interest that could form an agenda for research for both turfgrass and wildlife. Expanding the research horizon from

turfgrass to wildlife can help minimize potential negative impacts of course operations on wildlife and maximize opportunities for golf courses to contribute in a meaningful way to natural resource conservation.

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**(R-0253) Calibration of Computer Model Scenarios (PRZM/EXAMS) for Pesticide Runoff and Leaching in Turfgrass Environments.** M. CHEPLICK, *Waterborne Environmental Inc.*; K.L. ARMBRUST, *University of Georgia*.

Data generated by the US Geological Survey's NAWQA program have indicated that pesticides are often detected at higher concentrations and frequencies in waterways draining suburban settings than in agricultural systems. Most of these pesticides are associated with turf use patterns. Regulatory exposure assessments for pesticide movement to aquatic systems often make use of computer models. Due to the lack of data on turf, the model scenarios used for estimating leaching and runoff are based off of scenarios calibrated in agricultural settings. Model calibration and validation is being conducted on fairways and greens at two North Atlanta Country Clubs as a collaborative effort between UGA and industry scientists as well as modelers at USEPA/OPP and the original model developers. The US EPA has expressed a desire to have calibrated and validated turfgrass computer scenarios using their regulatory models (PRZM3/EXAMS) to obtain the best exposure estimates possible for turfgrass compounds. The goal of this research is the development of computer model scenarios calibrated on turf grass that can be used by regulatory authorities to estimate movement of turf pesticides to potential sources of drinking water and other aquatic environments. Ultimately this research will allow regulatory authorities to make the best decisions based upon the best available science.

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**(R-0254) Golf Course Design and Maintenance: Impacts on Amphibians.** J.H. HOWARD, *Humboldt State University*.

Golfing as a recreational enterprise has grown dramatically in recent years and has spawned a nation-wide proliferation of new courses. In light of this phenomenon, the industry is facing increased pressure to make development and maintenance of golf courses more sensitive to conservation issues. Concurrent with golf course expansion, one of the most alarming revelations in the conservation community in recent years has been the reports of worldwide declines in amphibian populations. Numerous investigators have observed mortality of amphibian larvae in natural populations associated with pesticide application. Increased mortality due to direct or indirect effects of pesticides in successive years may eventually result in loss of entire populations over time. In our laboratory investigations, all amphibian species exhibited reduced survival and increased time to metamorphosis with higher concentrations of pesticides. However, there are very dramatic differences in pesticide toxicity. Many of the most toxic compounds are used during the breeding season and although there are differences among species in sensitivity, all species showed similar patterns of effect. At lower concentrations, mortality is often not the direct effect but rather we observed decreased hatching rates, slower growth rates and longer times to metamorphosis. Over many years, all of these more subtle effects can be more damaging to the persistence of amphibian populations than one large mortality event. Managers should have the data available to apply chemical treatments responsibly to reduce these hazards. That data should include information on the relative toxicity of the compounds, the persistence of those chemicals and the life stage that is most sensitive to treatments. As we have shown with our studies, some compounds appear to penetrate the jelly layers in amphibian eggs more readily than others and directly impact egg hatching. Some compounds that

have little detectable effect on eggs can have dramatic effects on larval growth at low concentrations. Hopefully, our research will encourage others to evaluate additional compounds and expand the data base available to managers.

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**(R-0255) Pesticide and Fertilizer Contamination of Streams Adjacent to Golf Courses and the Response of the Benthic Macroinvertebrate Community.** A.M. SOLI, W.O. LAMP, *University of Maryland*.

High-quality golf courses require substantial pesticide and fertilizer applications, leading to concerns about their environmental impacts. A study was conducted the effects of golf course pesticides and fertilizers on adjacent surface waters and the their impact on benthic macroinvertebrates. Stream water and benthic macroinvertebrate community samples were collected from mid-Atlantic golf courses; samples were collected from sites upstream and downstream of the courses for comparison. Water samples were collected following runoff events (for pesticide and nutrient analysis) and on a monthly basis (for nutrient analysis). Higher downstream concentrations of several pesticides and phosphorus in runoff samples indicated contamination by these chemicals. However, monthly sampling did not reveal increases in downstream nutrient concentrations. Therefore, fertilizer applications do not appear to contribute to long-term stream nutrient enrichment. Macroinvertebrate communities were analyzed using bio-assessment indices. While increases in abundance and taxa richness of invertebrates downstream of the courses were seen, no significant shifts in community structure and function between sites were found. Therefore, golf course management practices did not appear to impact stream-macroinvertebrate communities. However, since the potential for problems exists further downstream, e.g. in the Chesapeake Bay, studies on turfgrass management practices that minimize potential chemical movement, such as riparian vegetation maintenance, are justified.

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**(R-0262) Perennial Weed Management in Bermudagrass.** B.J. BRECKE, J.B. UNRUH, *University of Florida*.

Studies were conducted at the University of Florida to evaluate quinclorac for torpedograss (*Panicum repens* L.) control and CGA 362622 for control of torpedograss and purple nutsedge (*Cyperus rotundus* L.). One month after application quinclorac applied at 1.1 to 1.7 kg a.i. ha<sup>-1</sup> provided 80 to 85% control of torpedograss. By September regrowth had occurred and torpedograss control declined to 55 to 60%. The most effective quinclorac treatment ( 3 applications at 0.6 kg ha<sup>-1</sup> spaced 21 d apart) provided 95% control at the September evaluation. CGA 362622 at rates of 10 to 30 g a.i. ha<sup>-1</sup> provided better torpedograss control 3 wk after treatment (90 to 100%) than 11 d after application (80 to 90%). Better late-season control was achieved with sequential treatments applied 6 wk apart than with single applications of CGA 362622. CGA 362622 provided better control of purple nutsedge 3 wk after application (90 to 100%) than 11 days after treatment (80 to 90%), similar to results observed with torpedograss. Single applications of CGA 362622 controlled purple nutsedge as well as sequential treatments.

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**(R-0280)The Assessment and Improvement of Warm Season Turfgrasses Genetic Resource Conducted in East China During 1993-2000.** J. LIU, A. GUO, Y. ZHENG, H. GUO, J. ZHOU, S. CHEN, S. HE, *Institute of Botany, Jiangsu Province and Chinese Academy of Sciences*.

The genetic resource of bermudagrass, zoysiagrass and centipedegrass over the China was collected during 1993-1999, and 735 accessions of bermudagrass, 130 accessions of zoysiagrass and 150 accessions of centipedegrass are maintained in the germplasm plots of our institute right now. The distribution of the main warm season turfgrasses in China was preliminarily determined. The morphological variation, phenophase, drought resistance, cold hardy and turf quality of the accessions were evaluated. DNA markers was also used to identify the promising accessions. Some variation was obtained by the hybridization and mutation. Several accessions have been widely used to establish the turf in East China. The result of the project will play a important role in chinese turfgrass genetic resource utilization and turfgrass breeding.

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**(R-0281) Changes in Soil Physical Properties of Different Turfgrass Soils as Affected by Aeration.** W. PRÄMABING, *DEULA Rheinland GmbH, University of Bonn*; H. FRANKEN, A. REINDERS, *University of Bonn*; H. SCHULZ, *University of Hohenheim*.

Investigations were carried out to describe the change of soil physical properties in different rootzone mixtures supporting sports turf after aeration with high pressure water injection (Hydroject 3000) and a deep solid tine cultivation (STC) with refracting angle (Terra Spike P6). Rootzone mixing ratios soil to sand were 13:87, 37:63, 67:33 and 100% soil. The objective was the recording of cultivating effects and following compaction caused by rolling. Significant differences were recorded for a reduction of bulk density, an increase of hydraulic conductivity and air permeability of the 13:87 ratio by water injection to a depth of 12cm. STC showed a significant decrease of bulk density in the 67:33 ratio and the 100% soil variation between 3–7cm. A significant increase of air permeability occurred in the 37:63 variation from 8–12cm and of hydraulic conductivity in the 13:87 ratio from 3–7cm. Penetrometer readings could support some effects, but were extremely influenced by soil moisture. First results showed a decrease of penetration resistance up to 0.8MPa after treatment with water injection between 6-9 cm and 0.5MPa after STC between 10-13cm in the 13:87 variation. Following compaction by rolling was measured with penetrometer. Readings showed insignificant lower penetration resistance on treated plots compared to untreated control after six weeks. That indicates an almost compensated aeration effect.

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**(R-0284) Fluctuations in Soil Nitrate Concentration Under Intensively Managed Turfgrass Systems.** B.B. THAPA, D.C. BOWMAN, T.W. RUFTY, JR., D.K. CASSEL, C.H. PEACOCK, *North Carolina State University*.

Based on the observation of high nitrate levels in the agro-ecosystem, the public perceives that golf courses and other intensively managed turfgrass areas as sources of surface and ground water contamination. However, relatively few field studies have addressed the fate of nitrogen applied to golf courses. This field experiment, conducted at an intensively managed golf course in Pinehurst, North Carolina, determined soil solution nitrate concentration as a function of landscape position, soil depth, and season. Seventy- two suction cup lysimeters for four transects and six landscape positions were installed in the fairways, roughs, and adjacent non-play areas at 30, 60, and 90- cm soil depths. Soil water samples were collected weekly from August 1999 to February 2001. Nitrate concentration was highest at the surface and decreased with depth. Higher concentrations were found on the fertilized fairways (0.1 to 79 mg L<sup>-1</sup> NO<sub>3</sub>-N) and roughs (0.1 to 59 NO<sub>3</sub>-N), whereas unfertilized non-play areas contained the least (< 10 mg L<sup>-1</sup> ). Low NO<sub>3</sub>-N concentrations adjacent to a lake suggests

substantial denitrification losses. We conclude that  $\text{NO}_3\text{-N}$  concentrations fluctuate seasonally and across the golf course landscape as a result of fertilization and management practices.

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**(R-0286) Virus Resistance in Fertile Transgenic Perennial Ryegrass (*Lolium perenne* L.) Plants.** F. ALTPETER, J. XU, A. SALA-HUDDIN, *Institut für Pflanzengenetik und Kulturpflanzenforschung Gatersleben*; U. POSSELT, *Landessaatzuchtanstalt*; J. SCHUBERT, *Institut für Resistenzforschung*.

Perennial ryegrass (*Lolium perenne* L.) is the most important grass species in areas with temperate climate. Ryegrass mosaic virus is a serious yield constraint in perennial ryegrass, drawing attention to RNA-mediated virus resistance strategies. Biolistic gene transfer followed by a modified selection protocol resulted in the rapid and efficient production of fertile transgenic ryegrass plants. In total 66 independent transgenic perennial ryegrass plants were produced. Transformation frequency was highly affected by genotype, explant and selection scheme. In the optimised protocol 1.2 to 3.8 independent transgenic plants per bombardment were produced. Integration of selectable marker gene and coat protein gene of ryegrass mosaic virus were confirmed by PCR. Southern blot confirmed the independent nature of the transgenic lines with the number of integrated transgene copies ranging from two to six in the majority of lines. Fully fertile transgenic ryegrass plants transmitted the transgenes through pollen and zygote after biolistic gene transfer. Virus resistance of primary transformants and sexual progeny is discussed in the context of transgene integration pattern and transcription rates.

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**(R-0288) Management of Roughstalk Bluegrass (*Poa trivialis*) in Cool Season Turf with Fenoxaprop p-ethyl.** D.R. SPARK, T.L. WATTSCHKE, *Aventis Environmental Science*.

Roughstalk bluegrass (RBG) is a significant weed problem in cool season turf. Studies were conducted during 1999-2001 to determine the effect of fall and/or spring applied fenoxaprop p-ethyl on RBG and the tolerance of other cool-season turfgrasses. In a greenhouse study, fenoxaprop applied at 0.13 to 0.4 kg ha<sup>-1</sup> to 'Sabre' RBG 10 weeks after seeding caused significant injury and reduced clipping yields for about 5 weeks which also resulted in a verdure reduction close to 50%. Field studies were conducted on RBG monostands and in cool-season turf naturally or artificially infested with RBG. Results of the field studies had some variation. In general, fenoxaprop at rates of 0.13 to 0.27 kg ha<sup>-1</sup> provided fair to good suppression of RBG with repeat applications when applied either in fall, spring, or fall + spring. Best control was observed with fall + spring applications. No suppression of RBG in creeping bentgrass was noted at low rates (0.07 kg ha<sup>-1</sup>) required for adequate turf safety. Variability in susceptibility to RBG to fenoxaprop may be related to RBG cultivar and environmental conditions. The range of turf species tolerance to fenoxaprop was tall fescue (*Festuca arundinacea*) > Perennial ryegrass (*Lolium perenne*) >> Kentucky bluegrass (*Poa pratensis*) >> creeping bentgrass (*Agrostis palustris*) and varied with rate, timing, and frequency of application. Fenoxaprop shows significant potential for the suppression of RBG in several cool-season turfgrasses.

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**(R-0289) Methods of Over-Seeding for Weed Control against Zoysiagrass Fairways Under Non-Chemical Conditions.** T. SHINGYOJI, A. FUJIE, *Chiba Prefectural Agricultural Experiment Station*.

Under the conditions of non-use of chemical pesticide, we have

studied weed control for fairway grasses (*Zoysia matrella*) by over-seeding five representative cool-season turf grass species at Chiba prefecture, Japan for eight years, beginning in 1990. These over-seeded species were evaluated for weed invasion, turf quality and damage to zoysiagrass by comparing to non over-seeded zoysiagrass. Perennial ryegrass was more competitive against annual bluegrass, which was a major winter weed, and increased to maximum growth at the fifth year of this study. Except in the summer period, perennial ryegrass was superior in relative turf quality to other cool-season turfgrass species of Italian ryegrass, Kentucky bluegrass, tall fescue and fine leaved fescue. Forty-six perennial ryegrass cultivars in 1994 and a total of 67 ryegrass cultivars over a four-year period have been evaluated for damage to zoysiagrass at Ibaragi test fields, Japan. As the results indicate, several perennial ryegrass cultivars such as Linn, Nobility, Wizard, 246-Sunly, and Eco-transitPR (Japanese commercial names) were found to be less damaging to zoysiagrass. Two cultivars of Linn and Eco-transit have significantly diminished their tillers more rapidly than other cultivars in Chiba field surveys in summer, 1996.

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**(R-0299) The Occurrence and Alleviation by Surfactants of Soil-Water Repellency on Sand-Based Turfgrass Systems.** J.L. CISAR, *University of Florida*.

The phenomenon of soil-water repellency, also known as "hydrophobic soil", "dry patch", or "localized dry spot (LDS)", has been recognized in turf in the USA for a number of years. The cause of the repellency is not fully understood although some evidence suggests that sand grains become coated with certain hydrophobic organic compounds deposited by fungal and other soil-borne biotic components. The phenomenon is most evident in very sandy soils that are often found in coastal regions in the southern USA and as the major soil base for athletic and golf course construction. Once soil-water repellent areas develop, the sand is very hard to re-wet. It can remain dry even after very intense or prolonged rain or irrigation. Needless to say, root activity essentially ceases in zones of water repellency, resulting in very weak stands of turfgrass. The best method of preventing water repellency is to maintain high moisture levels: irrigate frequently. As long as the soil is kept moist the repellency phenomena does not occur. Clearly this irrigation strategy practice goes against government water management agency objectives for reducing water use on turfgrass areas. Never-the-less, restricted or reduced irrigation practices have resulted in an increase in water repellency which often leads to over-irrigation to compensate for wilted turfgrass. Few studies have been conducted that demonstrate the usefulness of wetting agents, surfactants, and penetrants to reduce soil-water repellency. This symposium paper reviews and discusses the factors related to soil water repellency and approaches to alleviate soil water repellency in turfgrass systems.

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**(R-0300) The Effect of Bio-fertilizer on the Growth of Bermudagrass Cultivars.** Y-J. KUO, T-F LI, *Chinese Culture University*; T.W. FERMANIAN, *University of Illinois*.

Bio-fertilizers are using different types of living cells to provide soil nutrition for plant growth. The using of bio-fertilizer is one of the most important step to solute soil pollution from chemical fertilizers or pesticides using. Two Common bermudagrass (*Cynodon L. C. Rich*) cultivars "Sahara" and "U-3" were choosed in this research. Seeds were sown in 6" pots contained vermiculite media. The seeding rate was 10g/m<sup>2</sup>, and maintained at 1". During the time of germination, only 1/10 Hoagland's solution were added. A complete randomized design with four replications for each treatment, and five treatments, including fast-released fertilizer (N:P2O5:K2O:MgO=15:15:15:4),



slow-released fertilizer (Scotts; 34:3:3), two concentrations of bio-fertilizer, include 0.4 ml/m<sup>2</sup>, and 0.5 ml/m<sup>2</sup> (Fong-Yuban microbe; 3.5:5.1:3.4), and control were used in this experiment. The experiment was conducted under greenhouse for 10 weeks. Root and shoot dry weight were measured. Chlorophyll content was also measured by chlorophyll meter (Minolta SPAD 502) at first week and before harvest. Statistical analyses of the study was performed with Statistical Analysis System (SAS, 1987). From the results we found that the treatments of bio-fertilizer 0.5 ml/m<sup>2</sup>, slow-released fertilizer, and fast-released fertilizer were significant better than the bio-fertilizer 0.4 ml/m<sup>2</sup> treatments and control on their shoot dry weight and total dry weight, but not root dry weight. From the comparisons of chlorophyll measurement we found that bio-fertilizer 0.5 ml/m<sup>2</sup> showed the best result on the present of color. These results revealed that biofertilizer had the greatest influence on the quality of bermudagrass under normal soil temperature.

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**(R-0301) Use Seashore Paspalum on Phytoremediation of Heavy-Metal Contaminated Soil.** Y.-J. KUO, *Chinese Culture University*; T.W. FERMANIAN, *University of Illinois*.

Heavy metal pollutants are present in agricultural soil in Taiwan due to use heavy pesticides. There are many reports mentioned that many plants capable of absorbing contaminates from polluted soil via root. Pollutants are subsequently removed by harvesting aboveground plant tissues. Some plants used for phytoremediation including alfalfa, *Arabidopsis*, Bladder campion, *Brassica juncea*, Compositae family, Euphorbiaceae, and some grass family. In these, we think the turfgrass cultivars have the most valuable potential and the most effective in enhancing heavy-metal elements accumulation in plants. Because of the regular mowing of the turfgrass, we can use mulching mower to collect the clippings and remove for treatment. Among the turfgrass species, Seashore paspalum (*Paspalum vaginatum*) has the highest salt-tolerance of any turfgrass. The first stage of this study is going to observe the presence of seashore paspalum for its phytoremediation to heavy-metal elements from contaminated soil in Taiwan.

Our initial test was to screen the responses of seashore paspalum after exposed to heavy salt treatment and heavy-metal element. The comparisons of chlorophyll content measured by Chlorophyll meter (Minolta SPAD 502) of Zoysiagrass (*Zoysia japonica*), St. Augustinegrass (*Stenotaphrum secundatum* (Walt.) Kuntze), and Seashore paspalum were treated with artificial seawater every week in the greenhouse. Three treatments, including 0.1 mM, 1.0 mM of CsCl, and deionized water as control were using in non-radioactive heavy-metal absorption experiment for 4 weeks. The digested samples were analyzed for Cs by ICP-AES (Fisons Accuris, Fisons Instruments, Inc., Beverly, MA) and for K by flame photometer. The experimental design was a randomized complete block with five replications and was repeated at least once. After 7 weeks of treatment Seashore paspalum showed that the growth conditions were as well as control, but not Zoysiagrass and St. Augustinegrass. From the comparisons of chlorophyll content we found that Seashore paspalum was not affected by CsCl treatments, and was not affected by K content in leaves.

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**(R-0302) Biological Aspects of *Ophiosphaerella agrostis* and Bentgrass Dead Spot.** J. E. KAMINSKI, P. H. DERNOEDEN, *University of Maryland*.

Bentgrass dead spot (BDS) is incited by *Ophiosphaerella agrostis* Dernoeden, Câmara, O'Neill, van Berkum, and Palm, and has been found in 12 U.S. states. The pathogen attacks *Agrostis* spp. and *Cynodon* spp. In *Agrostis stolonifera* L., BDS develops in turf grown

on sand-based mixes in stands less than 6 yr old or following fumigation with methyl bromide. The disease occurs on putting greens and tees, and has not been found on fairways or other sites where turf is grown on native soil. The optimum growth rate of *O. agrostis* on PDA is between 25 and 30 C. The fungus overwinters as pseudothecia and as mycelium in infected plant tissue. In winter-dormant bentgrass, BDS was reactivated in 12 to 28 d by incubating plugs at 20 to 30C. In the field, BDS may appear in June and can remain active until frost. Patches increase slowly, but generally do not exceed 8 cm diam. Pseudothecia may develop prior to the appearance of disease symptoms and over 200 can be produced in a single patch. Ascospores are ejected several cm above the turf canopy or ooze from ostioles, and spores can infect leaves, stems or roots. Ascospores germinate within 2 h in light in the presence of bentgrass leaves; low levels of germination occur in the dark and in the absence of leaves. New disease spots appear 2 to 4 d following initial infection.

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**(R-0303) *Poa annua*: If You Can't Beat it, Breed it!** D.R. HUFF, *Penn State University*.

Annual bluegrass (*Poa annua* L.) is often considered a serious weed problem for fine-sports turf. However, the species exhibits a wide range of variability in traits like color, shoot density, and life history. As such, there are annual bluegrasses that exist as long-lived perennials with extremely high shoot density [*P. annua* L. f. *reptans* (Hausskn.) T. Koyama]. The evolution of these high shoot density perennial-types begins when golf greens planted to creeping bentgrass become infested with the weedy annual types. Because of annual bluegrass's ability to flower and set seed under close mowing heights, each new generation becomes increasingly adapted by investing more of their photosynthetic energy into vegetative growth and less into seed production. Eventually, over decades, the annual bluegrasses that exist on golf greens have a perennial life history with stoloniferous-like shoots, a short-stature, and an enormously high shoot density. These perennial forms of annual bluegrass are an important and valuable turfgrass for the golf industry in various regions worldwide. Because such greens-type annual bluegrasses evolve on-site and cannot survive in environments other than golf greens, they are for all intent and purposes considered cultivars. Therefore, prospects for developing improved cultivars are extremely good.

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**(R-0304) Somatic Embryogenesis and Plant Regeneration From Suspension Cultures of Timothy.** Y.D. GUO, S. PULLI, *University of Turku*.

As a graminaceous grass, timothy (*Phleum pratense* L. 2n=6x= 42) is one of the basic field crops in global food production, and the most important grass in northern latitudes. Timothy somatic embryogenesis and green plant regeneration were successfully established using immature inflorescences and seedling stems. The capacity of somatic embryogenesis from immature inflorescences was higher than that from seedling stems. Immature inflorescences of 0.5-1.5 cm in size cultured in MS medium containing 2 mg l<sup>-1</sup> 2, 4-D gave the best performance in callus induction. Suspension cultures were initiated from friable nodule-forming callus in MS basal medium supplemented with 5.0 mg l<sup>-1</sup> 2, 4-D and 0.5 mg l<sup>-1</sup> ABA. Kinetin at 1.0 mg l<sup>-1</sup> and 2, 4-D at 0.1 mg l<sup>-1</sup> was the best plant growth regulator combination in green plant regeneration from direct callus differentiation and suspension cultures. The highest green plant regeneration was achieved 5-7 weeks after initiation in suspension culture and the rate of regeneration began to decline after 11 weeks of culture. More than 100 regenerated plants were obtained.

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**(R-0305) Variation in Thousand-seed-weight in *Lolium perenne*, *Festuca rubra* and *Poa pratensis*.** S.U. LARSEN, *Royal Veterinary and Agricultural University (Denmark)*.

The thousand-seed-weight (TSW) is commonly considered to be 2.0g for *Lolium perenne*, 0.83g for *Festuca rubra*, and 0.21g for *Poa pratensis*. In a study of the TSW in 19 seed lots of turfgrass types of *L. perenne*, 20 seed lots of *F. rubra* and 16 seed lots of *P. pratensis* the average TSW of these species was found to be 1,720g, 0,786g and 0,300g, respectively. Within each species the seed lots in the study represented 4, 4 and 5 cultivars of *L. perenne*, *F. rubra* and *P. pratensis*, respectively. The TSW varied significantly among cultivars within species as well as among seed lots within cultivars. Among all seed lots within a species the TSW varied from 1,381g to 1,906g for *L. perenne*, from 0,674g to 0,883g for *F. rubra* and from 0,217g to 0,365g for *P. pratensis*. In order to optimize the composition of seed mixtures it is important to know the exact TSW of the applied seed lots. It is suggested, that the commonly used TSW may generally be too high for *L. perenne* and too low for *P. pratensis*.

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**(R-0306) The Impact of Fertilizers and Fungicides on the Incidence and Severity of Bentgrass Dead Spot.** H.C. WETZEL III, *North Carolina State University*.

Bentgrass dead spot (BDS), incited by *Ophiostoma agrostis* Dernoeden, Câmara, O'Neill, van Berkum, & Palm, was documented in 1999 in North Carolina, South Carolina, and Georgia on newly established creeping bentgrass (*Agrostis stolonifera* L.) putting greens. A study was designed to evaluate the effects of nitrogen source,  $K_2SO_4$ , and the curative properties of a 50% chlorothalonil plus 16.7% thiophanate-methyl (16.4 kg ai ha<sup>-1</sup> applied on a 7-d interval) fungicide on the incidence and severity of BDS. Turf was a newly established, methyl bromide fumigated, 'Cato' creeping bentgrass sand-based research green. Nitrogen and potassium were applied in a 1:1 ratio to deliver a total of 390 kg ha<sup>-1</sup> yr<sup>-1</sup> of each element. Point inoculations were made on 16 October 1999 with *O. agrostis*-colonized oat (*Avena sativa* L.) grains. Symptoms of BDS were first noted on 24 June 2000. Curative fungicide applications were initiated on 28 June and continued for 5-wk. The  $K_2SO_4$  had no influence on BDS incidence or severity. Symptoms of BDS failed to develop in (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> and Country Club 16-4-8 (N source consisting of (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> & NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>) treated, but were pronounced in NaNO<sub>3</sub>, NH<sub>4</sub>NO<sub>3</sub>, and urea (CO(NH<sub>2</sub>)<sub>2</sub>)-treated plots. Ratings from 5 July to 1 December demonstrated that BDS incidence and severity (avg. no. & diam. of infection centers per 1.5 m<sup>2</sup>, respectively) was significantly less in NaNO<sub>3</sub> (2 & 17 mm) when compared to NH<sub>4</sub>NO<sub>3</sub> (5 & 36 mm) and urea (4 and 31 mm)-treated plots. Consequently, BDS infection centers in the fungicide treated NaNO<sub>3</sub> plots healed 28 days after the initial fungicide treatment (DAIFT) as compared to 35 DAIFT for NH<sub>4</sub>NO<sub>3</sub> and urea-treated plots.

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**(R-0307) Best Management Practices for the Control of Gray Leaf Spot.** B. B. CLARKE, S. S. VAICIUNAS, *Rutgers University*.

Management practices can influence development of gray leaf spot (GLS) on perennial ryegrass (PRG), tall fescue (TF), and St. Augustinegrass (SA). For all three grasses, the severity of GLS typically increases with increasing nitrogen (N) rate above an application rate of 24.4 kg N ha<sup>-1</sup>. N source has also been reported to affect GLS in PRG and TF, but not SA. Compared to controls, water-soluble N sources can increase the severity of GLS, but slow release N sources may reduce the disease. In a New Jersey study, there was a consistent positive association between mowing height and the severity of GLS, whereas no association was reported in a Kentucky study. Removal of infested clippings does not appear to affect GLS. The herbicides dithiopyr and ethofumesate can increase GLS. Fungicides are most

effective when used preventively. Azoxystrobin and thiophanate-methyl are most efficacious, whereas propiconazole, trifloxystrobin, and chlorothalonil often provide good control under moderate GLS pressure. SA and TF germplasm has a range of resistance to GLS, but little natural resistance has been reported for PRG.

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**(R-0308) Effect of Thatch on Pesticide Model Leaching Predictions.**

M. J. CARROLL, R. L. HILL, S. RATURI, *University of Maryland*.

When convection-dispersion models are used to predict the transport of pesticides applied to turf, the presence of thatch is usually considered by averaging the organic carbon content of the thatch into the uppermost soil layer. An assumption made when using this approach is that thatch and soil have similar sorptive properties. A series of sorption and column transport studies were conducted to examine this assumption and to determine the impact of thatch on predicting pesticide leaching losses from turf. Sorption studies revealed that thatch organic carbon is a less effective sorbent for some pesticides than is soil organic carbon. This indicates that soil pesticide adsorption values obtained by averaging the organic carbon of thatch and soil will usually overestimate pesticide retention in uppermost soil layer when the values are derived using soil based normalized sorption coefficients. Column studies demonstrated that model predictions of pesticide transport in soils containing thatch are comparable to predictions of pesticide transport in soils devoid of thatch when model retardation factors are based on separately measured thatch and soil sorption coefficients.

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**(R-0312) New Insecticide Chemistries Require Rethinking of Turf IPM Concepts.** D.J. SHETLAR, *The Ohio State University*.

Turf IPM approaches were developed to reduce reliance on broad spectrum, long residual pesticides. Use of such chemistries had resulted in pest resistance, accelerated microbial degradation, loss of beneficial organisms and movement from turf sites. New insecticides such as neonicotinoids, insect growth regulators (IGRs), as well as, bio-based insecticides such as BT toxins and spinosyns should be viewed in the light of their unique modes-of-action and their significantly reduced environmental risks. While neonicotinoids and some IGRs have broad spectrum of activity, they seem to pose little risk to traditional non-target organisms, especially earthworms, vertebrates and even beneficial arthropods. Many of these new insecticides perform best when used in a preventive mode as opposed to the IPM desired curative mode. Principles of multiple target effects, non-target effects, and preventive-curative control approaches will be discussed.

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## REPORT FROM THE EDITOR ON THE INTERNATIONAL TURFGRASS SOCIETY RESEARCH JOURNAL, VOLUME 9.

### Statistics

164 peer reviewed papers are published in the ITSJ Volume 9 in 10 sections. Breakdown by section is given below:

Conservation and Environment	8
Education and Information Technology	12
Genetics and Breeding	19
Physiology	17
Soil Biology and Chemistry	12
Soil Physics	26
Turfgrass Diseases	18
Turfgrass Insect Pests	12
Turfgrass Management	27
Turfgrass Weeds	13
Total	164

The Journal is set up in a format following the style of Tri-Society journals, letter size layout. Because of the number and length of papers we decided to divide the Journal into two parts to avoid an unwieldy 8" x 11" volume of ~1100 pages (including front matter and indices).

Thirteen Co-Editors (list appended) and 136 reviewers handled the review process on 222 manuscripts, with the successful papers representing a 73% success rate. 20 of the manuscripts which were submitted for peer review switched to "technical" (non-peer-reviewed) status to be presented at the 9<sup>th</sup> ITRC.

There were also some papers (particular education papers) which were submitted as technical papers but were reclassified and peer reviewed, to be published in the ITSJ. [see *Peer-reviewed educational papers*, below]

### Title-Summary submission

A total of 312 Title-Summary forms were submitted, mostly (90%) before the deadline of May 1, 2000. These were comprised of 260 "research" (peer-reviewed) and 52 "technical" (non-peer-reviewed) submissions as characterized by the authors. These forms permitted us to assign Co-Editors by discipline area. Most corresponding authors had valid email addresses, which improved greatly the rapid and efficient communication of decisions on Title-Summary submissions. There were no Title-Summary submissions which were judged to be not appropriate to the ITRC. The final count of papers submitted, reviewed and accepted for publication, and/or presented at the 9<sup>th</sup> ITRC included some titles which were submitted late (not reviewed), either as invited papers for symposia or others.

### Co-Editors and the review process

The 13 Co-Editors handled from 6 to 31 manuscripts each, assigning two reviewers and dealing with review decisions on first and second drafts in a highly constrained time frame. It was a truly awesome effort. There were some differences in approach, particularly to the final drafts of manuscripts, with some coming directly from the authors to the Editor, and others coming via the Co-Editors. The only concern in one or two cases was that it was not always clear what the final decision was on a manuscript (or sometimes whether a final decision had been made). This part of the process may need some consideration before 2005. In general, if the Journal continues to be published as it has been, with the number of papers submitted increasing, it is critical to continue to have an editorial board of 10 (preferably 15+) Co-Editors who are willing to deal with the review of 10 to 20 papers each.

### Handling of manuscripts: electronic submission

Electronic manuscripts proved very useful when feasible, reducing mailing and courier time and costs when review and editorial annotations were not needed (copies of first drafts to the Editor, etc.) Unfortunately technology is not sufficiently advanced and universally accessible to allow a completely "paper-free" or mail/courier free review process. There were some temporary hitches with electronic formats or software packages that were uncommon, but all were dealt with without too much difficulty. Figures and tables provided the biggest challenge. Page proofs of final drafts of manuscripts were returned to authors as electronic (PDF) files, which seemed to work very satisfactorily in most cases.

## **Journal production**

The Journal was set up using Adobe Pagemaker, and submitted electronically to the printer on June 1, 2001, with the proofs returned to the editor on June 7. The Journal was printed and bound by Webcom Ltd. between June 21 and July 10. We decided to continue with the past practice of having the Journal produced in case-bound ("hard-cover") form. As mentioned above, because of the size and length of the final volume, we also decided to divide it into 2 roughly equal parts, to prevent it being unwieldy and difficult to use. If the Journal continues to increase in size, the Editorial Board may have to examine options other than case-bound format because of expense and weight. There will continue to be a need for printed versions for libraries, etc., otherwise the electronic option of a CD-ROM version might be the answer. In fact, because of the way it has been prepared, Volume 9 will also be produced as a CD-ROM to be mailed to authors as an alternative to hardcopy reprints. The PDF file format used on the CD-ROM allows reprints to be produced as needed. The CD-ROM also has a fully searchable electronic index of the whole Journal.

## **Technical (non-peer-reviewed) papers**

Non-peer reviewed papers, whether representing technical information, useful descriptive or preliminary results, or other information, continue to be important at the ITRC meetings. The decision of the Editorial Board for the current meeting was to publish the abstracts of these papers at the conference (they are part of the Conference Program book), and publish the full text, more or less edited, in the ITS Newsletter over the next few issues after the conference. Authors have been asked to bring a full text of the papers to the conference; in fact only 20 of 52 presented technical papers were represented with full text versions. The decision of the ITS board at the post-conference meeting was to publish the abstracts and full text versions of the technical papers on the CD-ROM version of the Journal.

## **Peer-reviewed educational papers**

In the course of separating out technical papers from the Journal, the Editorial Board decided to include educational papers along with strictly research papers in the Journal. While these are peer reviewed, the criteria for review are less straightforward than with research papers. For the next volume of the Journal in 2005, it would be worthwhile for the Editorial Board to develop some specific criteria for adequacy for peer-reviewed educational papers.

## **Continuity (forms, review criteria, web site)**

The editorial team for Volume 9 will have a large file of material to pass along to the team for Volume 10, including various forms and templates, support documents, and advice about potential problems and solutions. We hope that others can learn from some of the mistakes we've made. The ITRC web site has been very useful as a communication tool, both for the editorial function and for the conference as a whole, and we hope to pass along as much of this as possible to the 10<sup>th</sup> ITRC team.

## **Co-Editors for 9th ITS Research Journal**

Editor-in-chief	Dr. Ken Carey
Rootzone Characteristics	Dr. Richard Gibbs
Turf Management	Dr. Karl Danneberger
Golf	Dr. Mike Kenna
Turf Pathology	Dr. Peter Landschoot
Genetics, breeding and biotechnology	Dr. Ronny Duncan
Soil Biology / Chemistry	Dr. Bob Carrow
Education, information technology	Dr. Al Turgeon
Turf Insects / Nematodes	Dr. Pat Vittum
Soil Physics	Dr. Stephen Baker
Turf Physiology	Dr. James Beard
Pesticide Fate / Environment	Dr. Gerry Stephenson
Weed Science	Dr. Roch Gaussoin
Miscellaneous	Dr. Tom Hsiang

**Submitted by**  
**Ken Carey**  
**Editor, ITSJR Volume 9**

**REPORT ON THE ITRC PRE-CONFERENCE TOUR**  
**QUEBEC, CANADA**  
July 11 - 14, 2001

**Pre-Conference Tour, Quebec** hosted by Yves Desjardins, University of Laval and Claude Dubois

**Attendees/Country:**

- Dr. and Mrs. Brede, United States
- Dr. and Mrs. Breuninger, United States
- Dr. Ali Harivandi, United States
- Dr. and Mrs. Leinauer, United States
- Ms. Marchant, Chile
- Dr. and Mrs. Muller-Turina, Chile
- Dr. and Mrs. Noma, Japan
- Dr. and Mrs. Schmidt, United States
- Dr. Gwen Stahnke, United States
- Mr. and Mrs. Schlosser, Germany
- Mr. Jack Handly, United States

**Wed. July 11** Participants arrived by air to Lesage International Airport, Quebec City

**Thurs. July 12** Quebec City

- Check in at the Radisson Hotel Gouverneur
- Tour the University of Laval Horticultural Research Station
- Lunch in Van den Hende Garden
- Guided bus tour of Old Quebec City
- National Battlefields Park, National Assembly of Quebec
- Dinner cruise on the St. Lawrence River

**Fri. July 13** Quebec City and travel to Montreal

- Travel to Montreal by bus
- Visit and lunch at Royal Montreal Golf Course
- Guided bus tour of Montreal
- Check in at the Wyndham Montreal Hotel
- Free evening in in Montreal

**Sat. July 14** Travel to Toronto by bus

- Visit Manderley sod farm in Kemptville
- Arrived in Toronto early evening

**Report on the ITRC Post-Conference Tour  
Vancouver, British Columbia, Canada  
July 22 – 27, 2001**

The following participated in the ITRC Post-Conference Tour in Vancouver, BC:

Akira & Hirako Okada (Japan)  
Carol & Claudia Muller (Chile)  
Michael & Debbie Russell (Australia)  
Otto & Elisabeth Weilenmann (Switzerland)  
Karen Williams (Florida)

Group co-coordinators: Dr. Brian & Ruth Holl, University of British Columbia (UBC) and Bob & Charlotte Wick, Executive Director, Western Canada Turfgrass Association (WCTA).

### **Sunday**

The tour started on Sunday with a get acquainted reception at Paul Stevens', WCTA President, home in Tsawwassen, 15k south of downtown Vancouver. In addition to the tour group, several from the WCTA Board and Research Committee and some local golf course superintendents were in attendance to make the guests feel welcome.

The tour group were presented WCTA golf shirts, hats, back packs, *Turfgrass Disease and Pest Management Guide for Professional Turfgrass Managers in BC*, *BC Turfgrass Industry Profile*, 5 back issues of the *Turf Line News*, WCTA Pests and Diseases of Turfgrass poster and other items. They had a substantial package to take back to the Vancouver Sandman Hotel that night.

### **Monday**

Dr. Brian Holl and Charlotte Wick picked up the group in 2 vans transporting them for a guided tour of the Museum of Anthropology, then on to the UBC Nitobe Memorial Garden. Judy Newton, Education Coordinator of the UBC Botanical Gardens gave the group a very personalized tour during which they were served lunch in the garden pavilion.

### **Tuesday**

The group was picked up and transported to Kwantlen University College (KUC) WCTA Field Day where they were participants at the WCTA Annual Summer Field Day. The site at KUC was the 5-acre training facility for turfgrass students with all the events being held out of doors. 320 were registered for the Field Day which included 38 equipment / supplier exhibits, lunch and speaker (Peter Munro, New Zealand). In mid-afternoon the group and 70 WCTA members played in the 6<sup>th</sup> Annual WCTA Research Golf Tournament. This year it was not on a full-length golf course but rather on an 18 hole "putting" course over 20,000 square feet of putting green. Akira Okada was a member of the winning team and one of the few who had a hole-in-one on the putting course. Everyone had a great time ending with a BBQ next to the putting course. The day gave the group an excellent opportunity to meet and spend quality time with turfgrass managers from BC. Many friendships and much networking were created.

### **Wednesday**

The group left early in the morning for Seattle, Washington in the vans driven by Bob (Bob was done with his Field Day responsibilities and could spend the remainder of the week with the group) & Charlotte Wick for a tour of Seattle area sport turf facilities.

The first stop was Safeco Field, Home of the Seattle Mariners Major League Baseball team. We were hosted by Bob Christofferson, Grounds Manager who explained in great detail the challenges and rewards of managing a first class baseball facility. Safeco Field has a retractable roof which allows for a splendid turfgrass field while at the same time covering the playing area and crowd when it rains.

The second stop was at the University of Washington where we were hosted by Chris Petrik and Luther Martin, Sports Facilities Managers. After a lunch of teriyaki chicken and rice we reviewed the UW's baseball field (infield synthetic turf with real turf in the outfield), soccer field, women's softball field and Husky Football Stadium. The 75,000 seat stadium has Field Turf™ for a playing surface which has been topdressed with a sand/crumb rubber

mixture. It was very impressive seeing all the first class, outdoor facilities of a Division I USA Intercollegiate sports program.

Last stop was the training facility for the National Football League's Seattle Seahawks team in Kirkland. We were hosted by Jay Warnick, Facilities Manager, who told us about the challenges of maintaining 3 acres of turf used extensively by 300+ pound players who demand perfection of turf in their training program. The 3 acres accommodates two fields that can be aligned to create 5 different fields to spread out the wear and give opportunity for regrowth. They also have a third field which is synthetic turf and covered with an air pressure bubble. On the way back to Vancouver in the evening we stopped for dinner which was also part of the tour package.

#### **Thursday**

Early in the morning we loaded up the vans and caught the first ferry to Vancouver Island. The ferry ride is 1 hour and 45 minutes long. While having breakfast aboard the group enjoyed the spectacular scenery as the route snaked between several Georgia Strait islands.

First stop was Victoria Golf & Country Club and were hosted by Golf Course Superintendent and WCTA member, Paul Robertson. Paul gave the group a personal golf cart tour of this very old, historic golf club on the shoreline of the Straits of Juan de Fuca. The next stop was for shopping, lunch and touring in historic downtown Victoria. Victoria looked quite different this year than any time in recent history because of their "stage 4" water alert. Only flowers and shrubs could be irrigated. All the normally beautiful lawn areas in the greater Victoria region were brown, even in front of the famous Empress Hotel!

Then it was on to the world famous Butchart Gardens where we were hosted with a personal tour by WCTA member and Turf Supervisor, Larry Stansfield who came in from his vacation to be with our special international tour group. Larry toured us through the spectacular gardens, gave us some of its history, described challenges he encounters with 500,000 guests annually, and showed us "behind the scenes" into the day to day working of Butchart Gardens. It was a tour the group will not soon forget.

We had dinner at Cordova Bay Golf Club and were hosted with a tour by Assistant Superintendent, Gord Plain. After enjoying dinner on the patio we boarded the ferry back to the BC mainland; a repeat of the morning trip but with a beautiful sunset off the stern.

#### **Friday**

With such a busy schedule over the last three days we slept in a bit before we went to world famous Capilano Golf & Country Club where we were hosted for coffee and muffins in the main club house dining room by Dennis Pellrene, Golf Course Superintendent. Looking up from the club house, we could see Grouse Mountain the site of our next visit. Dennis told us about his turfgrass maintenance program and then gave us a tour in carts over much of the golf course.

Starting at sea level we ascended Grouse Mountain on North America's largest aerial tramway system which whisked us to 3700 feet (1100 m) above sea level to a different world. We enjoyed spectacular panoramas of land, sea and city views framed by magnificent, rugged mountainscapes. Lunch was in the Grouse Nest while continuing to take in the breathtaking view.

The last stop for the day was Northlands Golf Course where we were hosted with a tour by Golf Course Superintendent, Bentley Sly. In the spring of 2000 Bentley had overseeded the creeping bentgrass greens with *Poa reptans* because of the difficulty of growing bentgrass in many shaded areas. He has had remarkable success to date.

For the last event of the tour we were joined by several guests from the WCTA Board, Research Committee and local golf course superintendents for a 3-hour boat cruise around Stanley Park and into English Bay where we could enjoy the spectacular view of Vancouver from the water. During the mid part of the cruise we were treated to a wonderful buffet which featured Pacific Coast salmon - a fitting end to a very busy but enjoyable week.

We enjoyed sunshine for the entire week until the boat cruise - when it rained. Even being indoors for the cruise did not dampen our spirits. This was a very memorable week for all who participated. Many friendships were created and the networking will be an ongoing beneficial aspect of meeting many people with the common interest in growing quality turfgrass around the world.

Respectfully submitted,  
Bob Wick  
Executive Director, WCTA

## **ITRC LOCAL ARRANGEMENTS COMMITTEE REPORT**

The IX<sup>th</sup> International Turfgrass Research Conference was held at the Westin Harbour Castle Hotel, located on Toronto's beautiful waterfront. It was an ideal location from which delegates could explore the summer attractions offered by the city of Toronto.

The conference opened with a *Streets of Toronto* welcoming reception on Sunday night featuring foods that reflected the multi-cultural diversity of Toronto. On Tuesday, delegates boarded ferries outside the hotel to travel across the harbour for the *Escape to the Islands* barbeque. Located in a private corner of the Toronto Centre Island Park, the barbeque had a distinct Caribbean flavour including a performance by the Afropan Steel Band. The conference ended on a social note at the *Taste of Canada* banquet on Friday night featuring the bountiful foods and wines from across Canada.

Eight buses departed the hotel early on Wednesday morning to take delegates to sites of local turfgrass interest including the Toronto Cricket Club, RIM Sports Park, Oakdale Golf Club, Markland Woods Golf Club, Rattlesnake Point Golf, Devil's Pulpit Golf Club, Crosswinds Golf Club and Greenhorizons sod farm. All of the buses made their way to the Guelph Turfgrass Institute where delegates were treated to a delicious barbeque lunch and tours of the research facility. The group visited Woodbine Racetrack to view the grass thoroughbred track in the afternoon.

The local arrangements committee was assisted by a great number of volunteers from the University of Guelph as well as the local turfgrass industry. The committee consisted of:

Rob Witherspoon (Chair)  
Ken Carey  
Pam Charbonneau  
Erica Gunn  
Trudi Ostler  
Megan Watson

### **ITRC - ACCOMPANYING PERSONS PROGRAM,**

The 2001 ITRC held in Toronto this July was a great week for everyone involved. The people who attended as part of the Accompanying Persons Program enjoyed a week of good weather and lots of activity. We were fortunate to have the use of the penthouse at the Harbour Castle Hotel as our morning meeting and planning room. There was a great turnout every morning and the participants were able to meet and mingle before the days activities began. On day one, a tour of the city of Toronto was a great success. Our first stop was the CN Tower. The CN Tower is one of the tallest freestanding structures in the world. On a clear day, you can see all the way to the United States across Lake Ontario. We were incredibly lucky with the weather and after the morning mist cleared the view was incredible. A little excitement was added by the appearance of a group of Greenpeace activists. They scaled the side of the tower to stage a protest and there were television cameras everywhere.

We visited Casa Loma, Toronto's only castle. The castle tour is quite fascinating - tour guides do not accompany the guests but recorders describing the different exhibits are available. We had to ask for recorders in five different languages because of our diverse crowd! After a delicious lunch at a local eatery, we toured all the eclectic neighborhoods that Toronto has to offer.

Day 2 was a little cloudy in the morning for the Toronto Harbour Tour. Toronto's Harbour is very beautiful and despite the weather, the tour was very enjoyable.

Day 3 was the highlight of our week. We traveled by coach to Niagara Falls, Ontario. The falls are an incredible sight and I hope no one minded getting a little "up close and personal". I think the "Maid of the Mist" (the boat that gets you "up close and personal") should be designated as a particularly exciting amusement park ride. We toured the Niagara Region including the beautiful town of Niagara-on-the-Lake and then went on to one of our famous local vineyards. It was a long day - we left the hotel at 9:00 a.m. and returned at 5:30 p.m., but everyone thoroughly enjoyed one of southern Ontario's most famous wonders.



Day 4 and Day 5 started off in the penthouse with coffee and juice and then the participants, after perusing available maps and guidebooks, went off to explore the city on their own.

All in all the week was a terrific experience for me and enabled me to be a tourist in my own city. I hope all the attendees enjoyed visiting a part of Southern Ontario.

Cinci Charters (Chair)

### **PROGRAM SPONSORS**

**A huge thank you goes out to our many sponsors. This conference could not have been a success without their financial support.**

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## ITS MID-CONFERENCE BOARD OF DIRECTORS MEETING

July 18 - 20, 1999  
Westin Harbour Castle  
Toronto, Ontario, Canada

**Sunday, July 18**

Board Members representing:

Pam Charbonneau, President  
Hermann Richter, Austria  
George Snyder, USA  
Brian Holl, Canada  
Martin Petersen, Denmark

Bill Adams, Wales  
Sven-Ove Dahlsson, Sweden  
Yutaka Noma, Japan  
Bernard Bourgoin, France

John Cisar, USA  
Alexander Richter, Austria  
Joe DiPaola, USA  
Keith McAuliffe, New Zealand

Regrets: Joon Soo Choi, South Korea  
Jim Beard, Historian  
Mike Canaway, Britain  
Ian McIver, Australia  
Peter McMaugh, Past President

Minutes: Teri Yamada, Secretary

Board members introduced themselves and described turfgrass research activity in their respective institutions or countries.

1. It was moved by Keith McAuliffe, seconded by Joe DiPaola  
**THAT** the minutes of July 26, 1997 Post-Conference Meeting be approved as circulated. **Carried**

8<sup>th</sup> ITRC Report and summary of financial accounts were presented by Pam Charbonneau on behalf of Peter McMaugh. Pam Charbonneau explained some of the background of the printing of the journal.

George Snyder expressed concern that the journal should really be paid from the membership fund since it is a membership benefit. Also, proceeds from the sale of journals should go into the membership fund of the ITS.

There is a balance of \$7,036.47 Australian remaining in the 8<sup>th</sup> ITRC conference fund. Board is to ask Peter McMaugh if there are other sponsorship monies that are not shown in the balance. Brian Holl also indicated that it is important to recognize any sponsorship.

Sven Ove-Dahlsson asked if it would be possible to compare travel and other expenses from other previous conferences. Board would like to see a breakdown of the expenses especially from the conference venues including the university. The audit committee comprised of Keith McAuliffe, George Snyder and Teri Yamada will approach Peter McMaugh to clarify the accounts.

Board discussed the journal editorial costs, accepted that the situation was exceptional and that future journal costs will be borne more by the ITS board. Pam reported that guidelines for a permanent editorial board are being developed by a subcommittee chaired by Bob Carrow.

Joe DiPaola suggested that the remaining balance in the 8<sup>th</sup> ITRC account should be used for current needs and that the audit should concentrate on how best to improve the next conference.

3. There exist 27 technical papers awaiting publication within the supplement proceedings. Four papers still require formatting for publication. Pam Charbonneau has the other ITS business materials that comprise the supplement. The Board recommended that Peter McMaugh be asked to establish a deadline of September 30, 1999 to complete and publish the supplement using the existing cloth. Competitive bids are to be forwarded to Pam Charbonneau. The August 1999 ITS newsletter will reflect these dates.

George Snyder has sent Dick Schmidt labels for the current membership to fulfill requirements for the second volume. It was clarified that the journal is a membership benefit and not an automatic benefit for attending the conference.

It was estimated that Volume I cost approximately \$30.00 US per copy. Volume II had a cost of approximately \$8.00 US.

4. Treasurer George Snyder explained that several years ago ITS funds were placed in two different funds. The decision at the time was to stay with very conservative investment vehicles. A balance of approximately \$75,000.00 is currently in two accounts. There are also two other accounts for handling current expenses. The Washington Mutual Money Market Account was initiated from funds remaining from the 7<sup>th</sup> ITRC and contains approximately \$15,600.00 as of April 1999. Another checking account was established for membership dues and expenses. As of June 1999, there is approximately \$45,925.00 in this account. Total funds currently available in all accounts are \$136,447.00.

George Snyder explained that more rigorous accounting of both the ITS as well as the accounting for the conferences by the host country is required by the US Internal Revenue Service. Therefore an accounting policy for future conferences should be developed for the host countries.

George Snyder reported that he will be retiring from the University of Florida in four years and recommended that we start to plan a replacement for the treasurer's role. It was recommended that Bruce Clarke of Rutgers University to be approached to become involved and perhaps serve as the treasurer in the future.

After some discussion it was clarified that sustaining membership would stay with a named company and their representative may change by direction of the member company.

The requirements for audited statements and their frequency for a not-for-profit organization were discussed. Joe DiPaola offered to investigate the basic national requirements and the logistics of keeping the corporation registered in Minnesota.

It was also explained that ITS would cover any shortfall from any conference. At this point, it was suggested that perhaps some guidelines be set with respect to both shortfalls and profits.

It was moved by Bill Adams, seconded by John Cisar

**THAT** ITS Board of Directors shall work with the host country to ensure a financially successful conference. Any surplus revenues over expenses generated by an International Turfgrass Research Conference will be returned to the ITS. Disbursement of such funds will be determined by the ITS Board of Directors in consultation with the host country. **Carried**

After discussions, it was agreed that requests for advanced loans to ITRC host organizations be handled on a case-by-case basis when accompanied by a budget showing specific requirements.

It was moved by Keith McAuliffe, seconded by John Cisar

**THAT** the financial report be accepted as presented. **Carried**

It was moved by George Snyder, seconded by Brian Holl

**THAT** in order for the ITS to maintain its not-for-profit status with the US Internal Revenue Service, the country hosting an ITRC must provide the ITS financial records of the income and expenses connected with the ITRC. **Carried**

5. John Cisar expressed the need for regional report submissions for the August newsletter ASAP. The directors and officers of the ITS are generally the major contributors to the newsletter. From now to the 9<sup>th</sup> ITRC, the newsletter will be used as an information outlet for the conference.

The newsletter has been very inexpensive to produce due to costs being absorbed by the Toro Company and the University of Florida. It was recommended that a note of gratitude be sent to Ellen Watson and Van Cline at the Toro Company in appreciation of their continued support.

The initial Call for Papers will be sent to members of C-5 American Society of Agronomy. To enhance this mailing list internationally, all ITS directors will submit mailing lists or labels to John Cisar. If lists are confidential, John Cisar will provide additional newsletters for board members to distribute within their home countries. President Charbonneau thanked George Snyder and John Cisar for their tireless efforts on behalf of the ITS with the finances and the newsletter, respectively.

6. Joe DiPaola presented the membership report. The ITS currently has approximately 217 members in 25 countries and not uniformly distributed. There are not many sustaining memberships.

Since most turfgrass researchers and other interested parties are e-mail accessible, it is proposed that an e-mail "Net Notes" with ITS interest be initiated. This provides sponsorship opportunities and also allows some more isolated colleagues an ability to communicate with ITS and its members. Joe proposes to have the first "Net Notes" ready by August. All board members are to send e-mail addresses to Joe DiPaola.

7. Keith McAuliffe reported that final financial information on the 8<sup>th</sup> ITRC is still pending. Keith will follow-up with Peter McMaugh. An external audit may be needed in the future and the need for an internal audit committee was questioned.

8. Brian Holl expressed regrets that the investment committee has not acted on the current portfolio. It was suggested that the committee submit a plan for the ITS investments to Pam Charbonneau for distribution to the Board by end of September.

Joe DiPaola will investigate the investment limitations of not-for-profit organizations.

9. Pam Charbonneau reported on the publicity committee activities. She asked for board members to publicize the ITRC in their own newsletters and other correspondence. Pam will be distributing an article about the ITRC to the Board members with the request that this be translated into the members' language for use in local correspondence. ITS and ITRC will be promoted at regional conferences and ASA meetings.

Chairman Charbonneau asked if the ITRC have a booth at the Golf Course Superintendent Association of America Conference. George Snyder expressed concern about the costs. Pam reported that the ITRC would be able to share booth space in the University of Guelph booth this year.

10. The proceedings of the 2<sup>nd</sup> and 3<sup>rd</sup> ITRC are currently out of print. Pam has investigated scanning the journals for reproduction purposes onto CD. However, this would not be searchable. Board suggested that the University of Guelph proceed with scanning the 2<sup>nd</sup> and 3<sup>rd</sup> volumes as a pilot project.

11. Bill Adams reported that representatives of the International Grasslands Congress and the 10<sup>th</sup> ITRC have discussed the possibility of an integration of the two meetings. The Grasslands Congress will probably have three satellite meetings and one main meeting in Dublin. The satellite meeting concerned with grass breeding may be of interest to some ITRC delegates. It has been contemplated that the 10<sup>th</sup> ITRC be situated before the Grasslands Conference around the last week in June. STRI has been approached to help co-ordinate a post-conference tour.

Accommodations are proving difficult at Aberystwyth. Some thought has been given to holding the conference at a new resort development called Celtic Manor that is more accessible with hotel and conference facilities in one place.

12. Report of the Nominating Committee was presented by Pam Charbonneau for Peter McMaugh. It was reiterated that Bruce Clarke from Rutgers University has expressed interest in serving on the ITS Board of Directors. It was agreed that a notice be placed in the next newsletter and on the website inviting our members to serve on the Board of Directors.

After some discussion, it was determined that in addition to Peter McMaugh and Pam Charbonneau, three people from other countries are required to serve on the nominating committee. It was proposed the following people be approached to serving on the nominating committee:

· Keith McAuliffe

- Martin Peterson
- Bill Meyer

13. It was decided not to register the ITRC with the International Meetings Association.

Current legal counsel is no longer available. It was decided that information on the reporting requirements for the IRS will help to determine the future needs for legal counsel. This matter was tabled until Joe DiPaola reports back to the Board of Directors.

After some discussions, it was decided that Pam will respond to Hawoith Press explaining the development of an editorial process and that an exclusive publisher for the ITS journal will not be considered at this time.

Pam will respond to Diversity magazine to inquire whether a discount would be available to the ITS membership for the turfgrass issue.

Having no further business, the meeting was terminated.

### **Tuesday morning, July 20, 1999**

Reports from committees involved with the planning of the 9<sup>th</sup> ITRC.

Pam changed order of agenda to accommodate Bob Carrow's presentation.

Present:

Julic Dionne	Teri Yamada	Alexander Richter	Brian Holl
Ken Carey	Rob Witherspoon	Cindi Charters	Tom Hsiang
Trudi Ostler	Joe DiPaola	George Snyder	Bob Carrow
Bernard Bourgoin	Bill Adams	Pam Charbonneau	John Cisar
Sven-Ove Dahlsson	Keith McAuliffe	Yutaka Noma	Martin Pederson
Hermann Richter			

### **EDITORIAL COMMITTEE REPORT - Bob Carrow**

Bob's task was to establish framework for editorial board & some guidelines for the journal - a quality journal that the society could be proud of. Countries that may not have the personnel to edit a large journal will have the opportunity to host while not having the responsibility of having to be responsible for the journal.

Proposed structure of ITS research journal was outlined. Modifications on the draft were made.

**BOARD:** Editor in chief (host country)

Co-editors for each category/discipline area (8-10). These could change from one conference to another, but should be coordinated so that it is clear where the papers go when they come in. Proposals may be adjusted as needed, but 8-10 are recommended so that the papers can be properly divided.

Pg. 2. Editorial board as proposed by committee - editor in chief (host country); coeditors for each of discipline areas, specific responsibilities are listed in the document. Co-editors would be taking the papers in their discipline areas and be responsible for doing science and style review as well as sending out for peer review; receive back and make decision on that paper. Doesn't go back to Editor-In-Chief. There is possibility of another category of coeditors (special symposia - depends on conference - option). Another way would be to have 1-2 keynote editors in each topical area. These people provide an overview in the discipline area. If using this option, no need to have special symposia editor.

Third category, co-editor of tech papers. Propose technical papers be handled differently than what's in this document. Not through peer review. Two different types of papers - research and technical. Research would be peer reviewed. Technical has, in the past, been reviewed by one person to see if style is okay. Published these technical papers in the Journal, but always noted which were technical and which were research. It was proposed that we would still want authors to submit technical papers for program committee. These submissions would then be handled by newsletter editor for next four years and published as needed instead of publishing in the journal. This approach takes the responsibility away from the editorial committee and adds value to the newsletter.

All other materials (p3-4). Specificity gives job description and timeline. Editor in chief would be appointed for four year term. Would need to come up with a co-editor as names are brought forward. Membership will need to be staggered so that there is an ongoing board with half leaving board at a time.

P6 - co-editor of special symposia. Papers may be in several disciplines. It's hard to put this out through different editors.

P7 - reminder to the board of costs that need to be considered in budget development.

Pam asked for questions/concerns.

Joe DiPaola - The term for co-editor will be 8 years once the cycle is going - that seems a terribly long time. Could we consider something shorter?? This is only two journals/cycles. Technical Papers are important because they're timely. If it takes four years to get printed through newsletter, data may be stale. Understands need for peer review, but concerned that proposal may relegate them to the waste basket.

George Snyder- date for announcement to be sent out.

Bob Carrow - discussion was along the line that a lot of papers are being received. Technical papers need to be presented. Buffer against that would be to go with published abstracts at the meeting. joe? Better than three years from now, seeing a paper regarding a product that's no longer registered is the risk you run. Who decides in what order they appear? Abstracts would be nice, but personal preference is that, unless followed up by ability to send entire presentation, they're not good. Clear address or email is needed so paper can be delivered upon request. Shouldn't that responsibility be on the person who submits the abstract? (Teri) Contact name/# of actual author should be available.

Brian Holl timing is not insignificant - good point.

Bill Adams having coeditors for eight years gives editorial continuity of standards. Although it sounds like a long time, it's really only two conferences.

George would prefer to see technical information in supplement proceedings. Teri, timeliness is our main concern.

Volume-wise in technical papers - 30-35 in 93. 27 from 97. George doesn't think that tech papers should be published same as science. Produce abstract and contact information. People who submit abstract will have had to have presented these papers. Are there full time staff to handle this? Need abstracts available at time of conference, with contact information, and papers will be distributed through newsletter. Individual pages or book given out at meeting? Definitely a book - everyone will get a full set of abstracts. Abstracts of peer reviews as well? No, journal will be available at conference.

Brian, appropriate co-editor may want to consider page limit, with idea that page limit may grow, but not necessarily enormously.

Sven, very well prepared and is ready to support all of it. Must add that 3-4 countries are represented in co-author group. This means NA, UK & Aust/NZ. He feels that the people from Europe cannot contribute very much due to language problems. Pam, if Austria is hosting ITRC in 2009, I think this is a good opportunity to have more european interaction. We have always had a journal in English. Those serving as reviewers will perhaps take care of the language. Bob Carrow thought that coeditors should deal primarily with scientific/style and English and let other reviewers deal primarily with the science. This doesn't preclude co-editors, regardless of language.

Should language be stronger on editor in chief? Shouldn't "suggested" become mandatory? (John) Why does E- IC have to be from the host country? Pam, doesn't think anyone else would be able to do it. Tom - countries make bids eight years ahead. Hard to know what's going to be in place in 8 years in terms of personnel, but don't want to make that a hindrance for a country coming forward. If there is not somebody, we'll find somebody that would be acceptable. Pam - this document is a starting point, but flexibility has been built in. If problems arise, we can fix or amend it, but would like to go ahead with something from this meeting.

**MOTION:** TO ACCEPT BOARDS REPORT ON EDITORIAL COMMITTEE, with amendments.

MADE BY: GEORGE SECONDED: JOE

**CARRIED**

The decision has been made to go with disk and go with ASA formats. Website is available so that extensive information on style doesn't have to be published. Most important is document that defines types of papers. Should add here how technical papers are going to be handled/published. Pg. 4, change in submitting to clarify that final manuscripts will be on disk and hard copy. Up till that point, just hard copy so that it can be reviewed. Types of disk will have to be specified. Reprints: host country/board will set how many reprints can be ordered. Strongly suggest against being able to order reprints. Photos handled by electronic copy as opposed to hard copy.

George - Papers will be submitted camera-ready, but on disk. Can we print our own reprints? If it's on disk, printed out to that size, that's a reprint, unless headings, are in special print.

Ken - likely that we'll end up with digital copy of journal that will look exactly like the journal. It's very simple to take electronic version on a diskette and print it out very similar to original version.

**MOTION:** TO AMEND Bob's REPORT TO INCLUDE ABSTRACTS of technical papers to be published at time of conference with full technical papers to be included in newsletter over the upcoming four years.

MADE BY: Joe DiPaola SECOND - Bill Adams Bob will go back and review this and circulate to board members.

**CARRIED**

Thanks to Bob, Bill, Ken & Tom for all of their work.

LOCAL COMMITTEE ARRANGEMENTS - Rob Witherspoon

Hotel menus may change over time.

Tuesday night is difficult to forecast right now, but the plan at the moment was to go to Niagara on the Lake and taking buses for a winery tour and meal. This takes about one hour each way.

The large number of delegates make mid-conference tours difficult. Woodbine preliminary tour. From there, we could go out to a number of other sites of choice - sports fields, golf courses, etc for remainder of morning., large tent at GTI for lunch - afternoon stage people out to local sites in smaller numbers - many options of tours, sod farms for afternoon refreshments.

George wondered if we could get rid of some of the taxes that have to be paid, thus reducing the cost.

Keith - Costs seem very low, hope that they will be covered - labour through time of registration? Rob, costs in this area are low, but contingency plans are necessary.

George - Costs for memorabilia? Folders? Umbrellas? need to be included.

Pam indicated that there is a very great possibility for sponsorship. Rob, we're looking for sponsorships for breaks. Very strong industry support is present.

Keith - What sponsorship monies have we received in the past? Australia didn't achieve it's potential. Florida didn't find out that they were getting sponsorship dollars until very close to the conference. A meal and lunch was sponsored. Had already set registration fee in Feb. and had zero sponsorship at that time. Wound up spending the U.S. sponsorship money on Australian conference!! Need to find out what sponsorship will be before we set the fee for the conference.

George agreed that we must get sponsorship early on, before registration fee is decided on. Rob indicated that we've

been approaching all of our local suppliers and should have a good idea of sponsorship before fee is set.

Pam is certain that, with Clay Switzer as chair of local fundraising committee, we should expect strong sponsorship. He is very good at raising money. He'd like an idea for target amount of what we think we'll need. \$50,000 is not thought to be out of range. It might be a good idea to include some information about sponsorship on the Web Site.

John - How to show gratitude to sponsors? Signage at event, in conference program, invitations for key people to participate in the conference, web site links to their sites. In 1993 there were tables where sponsors could set up their paraphernalia. This might be good to try again. Pam - look into availability at University for posters.

Joe - What typically is done is that the entire programs' sponsorship is put on a full page. If there is a shot at a key spot, it should be mentioned. The Board needs to be pro-active in what it may oppose - cash bar? Invited speakers? Philosophical problems need to be specified up front.

Brian is looking for sponsorship for post-conference tour also. Already had one company express interest in organizing part of the tour. Want to be certain that we're not hitting different parts of the same company. This kind of selling "two-sheeter" would be something that would be a marketing tool.

Keith - Will send different packages that we would offer our sponsors for a domestic conference. Would it be ethical to have Toro demonstrate their equipment during the tours?

Pam - We can consider that.

A nice template was Grasslands Congress in Canada in 1997. Pretty professional package - platinum sponsorship very well laid out. Looking to this as a good template to follow for this ITS Conference.

John wondered if a budget could be forecasted for the reception. Rob - Based on broken down number of items roast hip of beef, \$250; sushi bar 3 pcs/person, what would cost be? Basing on 500 people, so cost would be reduced to a degree if there are less people.

At the time, George wrestled with cash vs. open bar. John finally lobbied for open and they were able to pull it off. We need an estimate of what this might cost to add to registration fee. It was almost a last minute decision in 1997. Brian commented that, certainly with wine industry in Ontario, this shouldn't be a problem.

Sven thought it would be wise to offer alternatives to mid-conference tour, so that people can concentrate and have more time to spend on what they're interested in. No rushing around.

#### PROGRAM COMMITTEE REPORT - Teri Yamada

Summary of meeting from last week of initial program committee. What we're trying to do is find an international multi disciplinary committee, which means that we're trying to identify general areas of interest, not necessarily specific disciplines. Started out looking at pathology, entomology, disease, weed science under the title of PESTS. Tried to do buddy system for each area of interest - one North American and one non-North American. However, we may end up with more people in some areas of interest.

Teri would like to appoint actual chairs of sessions right from the beginning as opposed to the night before.

So far, Tom Hsiang is also co-chair of editorial committee; Ron Duncan, breeder from U. Georgia will be working with someone from Australia for his section on genetics.

Teri is looking for an entomologist. Has approached one, but hasn't heard back yet.

Peter Stangle organizes contributions from US Golf Associations being used for research in area of wildlife & golf courses. Has background in wildlife and environmental biology, and thus a good perspective.

We had thought about these broad areas, thinking that the room was divided in half. Three sections presents the potential for three sessions to be run concurrently. We need to decide two issues: If we try to select three - posters in



middle & two speaking sessions. Two completely different disciplines. In theory we should be able to separate people - & something totally unrelated in the middle.

Something brought up in committee meeting was the idea of encouraging people from one discipline to be exposed to another discipline, to make a mixture of disciplines within the session. Or do you want to keep soil science here / environmental there?

Bob - One of the places this happens best is in the posters. If sessions are set up with enough space around them this is probably one of the best ways of trying to encourage number of posters by making stronger requests for people to submit their papers by poster. Option of posters/oral presentation available, but final decision is made by program committee.

Brian - Mass exodus of people when discipline papers change is very disruptive.

Teri - Other idea is to have plenaries. Or interactive sessions. Gets the feeling that people would prefer to keep it more discipline specific.

Bob, be careful on poster presentations to give adequate time and enough space so people can mingle. Refreshments to keep people there so they will go through every poster.

Pam indicated that we also have third meeting room available off to the side beside the office - could hold discipline that doesn't have a large number of people.

Bill asked if we should dedicate session time to posters? This worked very well in Sydney. Authors of posters should be there to speak to as a courtesy. Teri - Need to have time when they're standing by their poster, but posters will also be left up without author with them.

Julie, very important that posters be displayed all day and not just for a short time.

Sven asked if the poster session will be on all the time. Teri indicated that the room arrangements had changed. Initially was only two sessions, but now there can be three. This changes format somewhat. Poster session ALWAYS there, but a time will be designated time when there will be no spoken sessions, and people can come to see just posters. Didn't like long break after lunch when there was nothing going on.

Bob doesn't want a lot of dead time.

George agrees that there be a period when authors are there with their posters, but wondered if there could be a period when there might be public discussion of posters?

Teri indicated that this was one feature of Australia that was excellent. Will have to be very careful on how diverse we are with posters, as mayhem may occur when there are too many topics to fit into discussion period.

George thought that there may be enough posters that there might have to be changes every day.

Teri - Rooms will be re-configured each day, depending on how many of each we have in each discipline. Need better indication from editorial committee on how many and to which discipline they belong.

In 1993, the keynote address was at the beginning, but in Australia, they were scattered throughout the conference. Teri would prefer things a little more structured as she found this difficult to follow in Australia.

#### ACCOMPANYING PERSONS COMMITTEE REPORT - Cindi Charters

The first ingredient is having a room to go to in the morning to meet everyone else. One morning should be an actual breakfast where everyone can meet and discuss what we're going to do for the day.

Monday, city tour - very touristy and is best way to get an overview of the city. This is an off/on tour - ticket is valid

for 24 hours so can start and finish the tour at any time. If you find something very interesting, you can stay and just pick up the next bus that comes along. If people prefer to stay on tour, it's two hours long and fully narrated. \$29.99/adults; \$27 students; \$15 for children.

People could sign up as part of the spousal program. Cindi can explain this the first morning.

Tuesday, social event in the evening. Morning - waterfront tour. Toronto Islands are beautiful. Tour is fully narrated and tells about different points of history. Only takes one hour from start to finish. Because Tuesday night is going to be a big night, the afternoon is free to do whatever you want. Tour departs from right outside the hotel or at York Street. \$15.75/adults; \$11 seniors/ \$10 children.

Wednesday, accompanying persons are free to go to scientific tour or have a free day. Cindi will give out suggestions in the breakfast room for things to do for the day, including maps, prices, transit maps, independent tours.

Rob - we talked about having tours leaving from Guelph - one of those tours might be a local tour for accompanying persons.

Thursday, big tour to Niagara Falls. This tour lasts all day - 9.5 hours. Departs at 9, 10 or 1 p.m. from hotel. Takes 1.5 hours to Niagara Falls. First stop is optional, ride up Minolta tower - amazing view. Buffet meal at hotel overlooking falls, ride on Maid of the Mist right to the base of horseshoe falls from the Canadian side. Mixed in will be stops where people can wander off on their own. Cindi will make a list of things to see in the town of Niagara Falls - famous for it's wax museums.

Tour going along River Rd., to visit Niagara Gorge, floral clock. Country market stop on the way home, and drive through Niagara-On-the-Lake.

Costs: \$110/person; \$75/children & \$299 for family of four.

There may be a possibility of fundraising to offset this cost so that each family doesn't have to pay this total amount. Would probably get a better response if price was lower.

George - How are you going to handle costs for spouses and children who want to go to banquets and food functions that society has? In 1993, events were so expensive that spouses wanted to go, but didn't want to pay \$80 for banquet. We wound up saying that if they registered as accompanying persons, we would give them a discount on food function (subsidized). This is a problem that must be wrestled with, but feels that it is nice if the spouses/ kids can afford to go to banquets and parties.

John, for closing banquet, some people pay for this anyway, but others have left already.

Pam really wants to encourage everyone to bring families, so anything we can do to help make it affordable is welcome ... sponsorship is a good option to pursue to cover all bases in terms of these opportunities.

Rob - Childrens program? Make people aware of these within the hotel. Cindi - everyone will get a package with information regarding the Science Centre, Centreville on the Island, Royal Ontario Museum, Canada's Wonderland (buses to be arranged).

Keith - Waterslides?

Cindi - Wild Water Kingdom, Ontario Place, Wonderland, shows?

Bob, in newsletter for call of papers, highlights need to include these things to emphasize family programs and flexibility. The hotel has a magazine that may help educate people about available programs.

Pam - children's program in the hotel is a room that locks with some video games and toys. No windows. Calling it a childrens program is a bit of exaggeration - no supervision. Babysitting/ Activities for children will be arranged as necessary.

Cindi - Friday free day - will provide suggestions.

John - Is the city safe to let our families walk around?

Pam - during day 100%. At night, there are undesirable areas, but not necessarily unsafe. Cindi will mention where not to go.

Sven - \$110 tour seems quite much. John thought price was reasonable. Cindi, it's a full day and includes lunch, Hoping that spouses won't have to pay that full amount.

Pam, one thing that might be useful. How many people may want to go to resorts away from here after the conference? On our web site, link to resort web sites - i.e. Muskoka resorts that can be travelled to. John thought it would be nice to have this information published beforehand in the newsletter. John, anything with setting up golf or fishing, sporting events? Rob, talking to local golf superintendents to see if there are places for people interested in golf.

Cindi has posted her email address on the web site if anyone would like to contact her.

Clay Switzer was unable to attend this meeting, but some of the fundraising issues have been dealt with earlier on. Do people have more specific suggestions? Clay is very well versed with fundraising. Ideas and ethical suggestions have been received from Joe. Sponsors have been given choices. Target amount is necessary, but can be done at local level, \$50K is a good suggestion and certainly would help offset costs.

Publicity committee is really just our website at this time - Ken Carey

A lot of the material that will go on the website will come from this meeting. Interactive component is limited to registration on the web and people being able to download from the website the information about schedules, call for papers, format and style information, but payment will still have to be submitted by mail or by VISA/Mastercard. Registration form will be downloadable. If anyone has any ideas of things that should be, but aren't there, it's very easy to add material or adjust it, so please let Ken know if this is necessary.

Coming out of this meeting will be more information to put onto the web pages. We can also track how much traffic there is on the web as the numbers are on the server. Is it possible to know who's contacted website to know whether or not they're a member? Yes. We could also create a guestbook as well as membership information (on ITS page that George maintains).

After this meeting, Ken will contact other turf websites to try to get them to link through. Corporate websites? Bob - note on form regarding membership, contact George to join society.

Ken - you can have a secure website where only members can get at the information. However, we want it to be open in order to encourage new members.

Pam reported her ideas for publicity that will be noted in the Minutes that will be circulated.

PRE-CONFERENCE TOUR PROPOSAL - Julie Dionne, University of Laval

In the last weeks, I have discussed with Yves (Desjardins) about pre-conference tour and will show suggestions. People will be able to visit Quebec City, Montreal and come back to Toronto by bus. Price indication - app. \$550 - \$600 Canadian dollars to pay travel hotel, lunch & cruise. (Sven)

George - people on tour expected that all of their meals were going to be paid for. Trip from Montreal to Toronto is a long trip. Anything vastly unique about golf course or sod farm that won't be seen at the one here in Toronto? Is there something more touristy that people can see? Julie will discuss and will find something more interesting or touristy. Might find a sod farm different from the one in Toronto. Pam - maybe just a tourist attraction? Thousand Islands would add another 1 1/2 hours.

John, encourage you to include meals in tour package. People would have to pay for their own breakfasts.

Teri - Quebec & Montreal have excellent restaurants. Large groups limit where you can eat. Better to have a list of preferred restaurants with prices specified.

Julic - would like an idea of how many people she can expect.

George - planned a bunch of trips at last conference- only one of them had enough people to go.

Pam - Keith, comment on pre conf. tour - 40-60 people. Japan was about 40. (John) separated scientists and spouses for different tours and met at lunch and dinner so, that mingling was possible.

Bill - seems to be a lot of things going on. In relation to people going to different places to eat - don't be too ambitious. Calculate time you think it will take - and double it. Very easy to get out of step. If you've got people eating where they want, difficult to keep tabs on people. No one can go until everyone is present. Although it may be easier to give choice, must have absolute discipline on return time. Once people disburse, it's very difficult to get them back again.

Pam - If people have free night for dinner, they are already at the hotel. No bus to catch, just coming back to the hotel.

Sven mentioned that the time delay in New Zealand was the only negative thing. Happens every day. Don't be too ambitious on places to go. He would rather see less, but keep to schedule.

Julic - People all together. People are separate only on first day when they're arriving or in Montreal on the way.

#### POST CONFERENCE TOUR PROPOSAL - Brian Holl

Brian Holl, indicated that the concept of cost is totally unreliable at the moment. Presuming that cost from Toronto-Vancouver is not included? Where do you want to start the tour - Toronto? That cost might be too high.

Sven - Is there one Saturday evening or Sunday? Conference ends Friday night at the banquet. This would make Saturday the travel day and would save fare.

Vancouver, see a golf course that's managing poa annua. Research site, turf area. Yet another sod farm ... under slightly different conditions - bentgrass on sand ... salmon BBQ's at museum on point of land that overlooks Strait of Juan de Fuca ... touristy things, cruise with luncheon up the Squamish, free time, optional walking tour, white water rapids, tour along coast line. Whole tour is \$85 Canadian, group rates for 20 or more people.

Visit Whistler, ski and golf on the same day. Nice touristy place for families that don't want to look at turf. Useful to get people over to Victoria by Ferry. Site of Commonwealth games - nice soccer & lawn bowling facilities, beautiful historical museum.

Pickseed seed production fields through Washington into Oregon - by bus - potential for stopping in Washington Oregon. People would need Visas if this is necessary. Ideal time of year to go there, coming right into harvest season.

Sven, how many hours on the bus? About 8 from Vancouver and 2 to Oregon over two days. Seattle I wineries, shopping.

Banff Springs golf course has just been redone. Relatively near Olds College prairie turfgrass program accessible.

Option for train that runs through mountains from Banff to Vancouver, or take bus and stop at wineries along the way.

Teri suggests travelling from Toronto to Banff and take train to Vancouver. Would they have to stop at Jasper? Train would be quite different.

Brian, other possibility is that he's pretty sure the train runs from Edmonton to Jasper and then on to Vancouver.

Bill went on post conference tour in 1981. Program there was to fly to Calgary and bus to Vancouver via various stops along the way and then to Corvallis. There are not many people left who went on that trip, but it was a very successful one. Approximately 50 people went on that trip. Pam will be sure that Brio(n has that information. Probably aren't a lot of people who will be at this meeting who did go on the tour in 1981. If they're similar, 1981 was successful. Kananaskis golf club. 1 week tour.

Pam - there seems to be a fairly nice balance in the program. Day three sounds completely touristy. More touristy things? John would like to see that. More cultural things, what people are like - walk down some streets

## **Tuesday afternoon, July 20, 1999**

Present:

Bill Adams	Sven-Ove Dahlsson	Joe DiPaola
George Snyder	Pam Charbonneau	Alexander Richter
Hermann Richter	Keith McAuliffe	Yutaka Noma
Martin Pedersen	Teri Yamada	Bernard Bourgoin
John Cisar	Joe DiPaola	Brian Holl

### **1. Comments and discussion from ITS Board on 9<sup>th</sup> ITRC plans**

Pam - Room rate for this hotel is \$168 + 15 % tax for single or double. Negotiated in 1998 because there is a large group for 2001. Is there tax break for overseas people? How to apply for tax relief for those travelling from overseas. (Keith?)

Pam indicated that, in the package she gave out, there is a report from Joon Soo Choi on Korean Turfgrass research. Pam will pass on to John Cisar to go in next newsletter. Report from Ian McIver, his view of wrap up of 8<sup>th</sup> conference. Put in there for your information to have circulated at this meeting.

John asked to remind everyone that he's trying to get newsletter out right after this meeting. Please give him any information from your country, even if it's just tidbits of what people are doing... he's interested in hearing from people. Also if you have photos of what went on in your country, that's very helpful to break up the text. Would like to get names of people involved in projects.

Sven - information from Turfgrass Producers International? How can some of our activities be combined with their program? See very small possibility based on that paper.

TPI will overlap with our conference over a few days. If you've been outside the hotel, across the street there is a convention centre, which is where TPI headquarters will be. Will be in same hotel, but different facilities.

Could be good impact. Pam has very preliminary sketch of their meeting schedule. Wednesday, part of our tour at University of Guelph; Guelph Turfgrass Institute plots will be signed with details of experiments - TPI will also have two buses expected to go on the tour to the plots. No researchers there for TPI, but we are taking advantage of plots being signed for us.

On Thursday of their meeting, we have board meetings, and welcoming session. Sven asked if they have a trade show over there? Yes, they do. On Friday, they have a huge outdoor demonstration day that's going to be at Steve Schiedel's sod farm. This is an opportunity for people from our conference to take part in that one day of theirs. Risks involved there - we want to focus on our program.

George - would we want to have some invitation to their people for a couple of days of ours, particularly since science is involved. Pam - thinks that there is an opportunity to have daily registration fee for our conference and have some of their people come to ours. Don't know how many will take advantage, but opportunity should be available. May be interested in new technology. Don't see hoards of people crossing over.

A lot of our non-North American attendees at our conference would probably like to see the equipment demonstration on Friday's outdoor field day. George asked if they could provide a daily fee for our people? Pam - they're very

interested in co-operating and see this as a win-win situation.

Pam serves on their turf news editorial board for their magazine and has a lot of interaction with their society and they have some good communication going back and forth. There will be some mechanism for our members to buy a pass to their field day and vice-versa.

Saturday, Pam doesn't think that they would have a problem including ITS delegates in their TPI tour.

Interesting in the future to have (Alexander) share headquarters with TPI. George, we've had a lot of voluntarism in the society, we've been able to contribute a lot to society for free by using university services. We may in the future want to have an executive secretary. Major emphasis will be to connect researchers.

Sven - why just connect to sod growers, there are many organizations in similar positions. Alex - they have a structure similar. George - they've expressed an interest over 8 years. Alex thought it good to have an ITS office where you can coordinate over the year.

Pam - looking to the future. Don't know if we can resolve this now. Closer ties over conference. Maybe something we can look at in two years. Brian, isn't getting any easier to use university facilities as they're getting less and less available. Need membership.

Brian - any kind-of theme for the conference? Note in Minutes - Teri - ACTION ... if a good theme develops (George) ... obviously 2001 - first ITRC in New Millennium! 2001 - a Turf Odyssey!

Sven, member list - divide up the world and take care of our own countries. Could possibly double membership in various European countries? People are willing to recruit memberships within their own countries/regions. If we could get separate lists from countries, we could see first, who were members and have not paid and second, how to recruit new members. Joe has already done this and will mail to each director their appropriate list. Contact people that haven't renewed membership and find out why and recruit people who aren't on current list.

Brian - Canada west of Manitoba and Pacific NW

Pam - other ITS business outstanding ASA/CSSA meetings - our visibility - Salt Lake City, Oct. 99 - Pam will contact Leah Brilman who is the C5 Chair and ask that ITS get some time in the C5 business meeting and there are several things that we can do. Pam hopes that by then all the people will have part two of the journal and Pam can do update on ITS business and combine a powerpoint presentation of some of Julie's - Toronto Conference and some of post-conference tour.

George - good visibility at that meeting. Don't have a lot of time though.

Pam can show a lot in a short time on PowerPoint. George could also do it with a handout - Pam could print off a hard copy of her PowerPoint Show for a handout.

Keith - constitution states re membership. Possibility of looking at life membership to recognize contributions of some key people in the past? i.e., Jim Watson? Joe indicated that this has never been done. Pam will look in bylaws for provision for this. Would have to be a constitution change and couldn't be done until 2001, but just a thought. Sydney, in recognition of older statesmen, exemption to get to conference. Benefit in that??? George, would like to see something in journal - dedication in front page or two with photos and biographies in first couple of pages of journal?

Joe - right about studying the issue - falls under membership committee. Not "NOT allowed" - and probably have enough time to put together process that board would be comfortable with so that forethought and criteria are unique. Brian - not specified as exemption in the bylaws. George - people are getting to age where people should be getting some recognition. Society was formed in 1969 and they would be people in mid of their careers at that point - possibly founders are getting up to age where they deserve recognition. Can people around table think of people who would be considered for this?

Might be worthwhile having word with Jim Beard as historian. His views might be worth the boards consideration. George - something could be implemented at next meeting two years from now. Hopefully use email in the meantime?

Sven - idea for society came up at Jim's kitchen table one morning and some of his own money was put in to start it.

The Conference in Wales will be the 10<sup>th</sup> conference six years from now - that might be too late for some. Pam hopes that something can be put into place for two years down the road.

2. **MOTION:** Wrap-up of ITS business

MADE BY: Brian Holl SECOND: Bill Adams **CARRIED**

Thank you to everyone for coming to Canada. Pam looks forward to seeing you and your families in Toronto in 2001!

## **ITS PRE-CONFERENCE BOARD MEETING**

Sunday, July 15, 2001

Westin Harbour Castle - Dockside 1  
Toronto, ON Canada - 1:00 pm Eastern

### **MINUTES**

Present:	Pam Charbonneau, President	Martin Petersen, Denmark
	Joon Soo Choi, South Korea	John Cisar, USA
	James Beard, USA	Keith McAuliffe, New Zealand
	Joe DiPaola, USA	Alexander Richter, Austria
	Hermann Richter, Austria	Teri Yamada, Canada
	Bernard Bourgoin, France	Bill Adams, United Kingdom
	Peter McMaugh, Australia	Brian Holl, Canada
	Yutaka Noma, Japan	George Snyder, USA

Guests:	Gregg Allan	Bob Shearman
	Rob Witherspoon	Ken Carey
	Yves Desjardins	

Regrets: Ian Mciver, Australia  
Sven-Ove Dahisson, Sweden  
Michael Canaway, United Kingdom  
Robert Carrow, USA

Minutes: Shannon Rattray

### **1. WELCOME TO BOARD MEMBERS**

Pam Charbonneau welcomed the board members and asked them each for a brief introduction and description of turfgrass research activity in their respective institutions or countries. The order of the agenda was changed to accommodate guest speakers.

### **2. PRE-CONFERENCE TOUR REPORT**

Yves Desjardins reported that 18 delegates participated in the tour; somewhat less than anticipated. The delegates arrived Wednesday in Quebec City and stayed for two nights and attended a meeting at Laval University. As the weather in Quebec City and Montreal has been rainy for the past few weeks, they were unable to attend turf sessions so Dr. Desjardins prepared some slide shows. They toured the Plains of Abraham and went on a cruise of the St. Lawrence. They left for Montreal on Friday morning and visited Royal Montreal Golf Club and had dinner there and also went on a tour of the city of Montreal. On Saturday, they left to come to Toronto and stopped at Manderly Sod Farm. Dr. Desjardins left after his report.

### **3. EDITORIAL UPDATE**

Ken Carey reported that the IX ITRC Journal (Volume 9, Part 1 and 2) was divided into two parts due to size. There were 222 manuscripts originally submitted and assessed by 136 reviewers. A 73% success rate was achieved with 164 papers accepted for publication. Some of the title summary submissions were not peer reviewed. The Editorial Board may want to review this when publishing the next volume. Much of the information was exchanged in electronic format and that saved money, paper and grief.

The cost of the journal was \$47.00 each US. Included in this price was printing costs of \$28,000, editorial costs of \$5,000, software costs of \$300 and approximately £127 reimbursed to editors. 650 journals were printed and it is also available on CD-ROM. Peter McMaugh was concerned about the fact that the format of the journal is different every time it's published. James Beard replied that this decision was made as a committee that had been appointed mid-winter. Pam Charbonneau explained that this was the International editorial board that was convened for consistency from conference to conference, consistency of peer review and to ensure that host countries that do not have the ability to take this on could host the conference if there was a semi-independent body that looks after the



editing of the journal.

John Cisar stated that we may want to raise the dues as the cost of this journal has now doubled and our fee has not increased. Pam Charbonneau agreed that we must agree on a price that we are going to sell it for.

**MOTION:** It was moved by Brian Holl and seconded by John Cisar to charge non-members for the IX ITRC Journal, Parts 1 and 2 as a package only, \$175 US as a special conference price and \$195 US after the conference.

#### **CARRIED**

James Beard had a concern about the term technical papers. He believes they should be called observational notes as they are not research. Ken Carey is working on meeting with the Editorial Board to get an agreement and continuity on this issue and the recommendation from that Board will be submitted to this Board.

Pam Charbonneau offered thanks on behalf of the ITS board to Dr. Carey for his enormous efforts with regard to the journal.

Dr. Carey left the meeting at this point.

#### **4. IX ITR CONFERENCE UPDATE**

Rob Witherspoon, on behalf of the Guelph Turfgrass Institute, thanked the ITS for providing them with the opportunity to host this conference. He reported that it has provided good international exposure and has helped build and strengthen the team at the Guelph Turfgrass Institute.

There are 30 industry volunteers assisting with various duties and there will be 30 to 40 local industry people here on Tuesday.

Mr. Witherspoon noted that Clayton Switzer and his committee did a great job fundraising and then left the meeting.

Pam Charbonneau added that 340 participants registered from 22 countries and about 70 accompanying persons. Two new countries, Turkey and Egypt are among the registrants. The target for the IX ITRC was 300 to 400 participants and this was achieved.

#### **5. PROGRAM UPDATE**

Teri Yamada recognized the Program Committee members for all their work. It was the first time we had an international, multi-disciplinary committee which she felt worked very well and recommended that this be considered for future conferences.

The co-chairs did a great job and they were:

Stephen Baker, Nick Christians, Bruce Clarke, Ronny Duncan, Tom Hsiang, Martin Jones, Keith Karnok, Mike Kenna, Jim Murphy, Peter Stangel and Marco Volterrani.

#### **6. POST-CONFERENCE TOUR UPDATE**

Brian Holl acknowledged Bob Wick's efforts in putting together the tour. There are nine people signed up for the tour and two vans will be used instead of a bus.

Sunday consists of a reception at the home of WCTA president, Paul Stevens, in Vancouver.

Monday will be focused at UBC, Museum of Anthropology and a tour of the botanical gardens.

Tuesday will be a field day at Kwantlen University College.

Wednesday will be a visit to Safeco field in Seattle and the Seahawks training facility.

Thursday they will, visit Victoria and will enjoy some free time downtown. They will go to Butchart Gardens and have dinner at Cordova Bay Golf Club.

Friday they will visit Capilano Golf Club and then either take the TRAM to Grouse Mountain or to the Vancouver Aquarium and then on a harbour cruise.

Pam Charbonneau advised that she has a gift for Bob Wick and Brian Holl offered to present it to Mr. Wick on Tuesday at the field day.

#### **7. APPROVAL OF MINUTES FROM MID-CONFERENCE BOARD MEETING**

A correction needs to be made to the Sunday, July 18, 1999 minutes as George Cisar should be George Snyder, Joe DiPaolo should be DiPaola and Yukata Noma should be Yutaka.

**MOTION:** It was moved by Joe DiPaola and seconded by Peter McMaugh to approve the minutes of the mid conference meeting dated July 18 - 20, 1999, as circulated.

## **CARRIED**

### **8. DISCUSSION OF OUTSTANDING ACCOUNTS FROM 8<sup>th</sup> ITRC**

Peter McMaugh reported that there was a balance of \$7,036.47 (Australian). There was a bank charge which reduced it to \$6,989.29.

Opening balance on July 1, 1999 was	7,191.20
Since then, printing proceedings	3,117.00 (extra cost of \$84.25)
Sending the proceedings to the USA	1,545.00
Balance (with accounting fees, taxes etc.)	\$2,438.82

The conference operated at an unintended loss. The reasons for this were they should have charged an extra \$25 per person; they overestimated the number of people who were coming from overseas (they budgeted for 300 people and only 286 registered) and a sponsor reneged on a \$15,000 promise.

James Beard suggested that the host country be accountable for the expenditures of money and we never received an accounting from Germany and that was one of the highest expenses from any conference in terms of registration. They simply refused to provide an accounting. As a board, we need to keep control of that and that the host understands that they have a responsibility and accountability to this organization. George Snyder stated that this is particularly important now as the accountants have informed us that we must report the conference registration fees as income as it is one of the major activities we have and that allows us to have the tax exempt status. This information should be received by the following May.

**MOTION:** It was moved by John Cisar and seconded by George Snyder that the host country shall agree to submit an accounting of all costs and revenues from the ITRC to the ITS by March 1<sup>st</sup> of the following year.

## **CARRIED**

### **9. TREASURER'S REPORT**

George Snyder put together the figures for the last four years and provided three handouts. He noted that under 1998 - journal Payment Residue, the figure should be changed to \$5,024.22. This item is money put in and not a payment. Prior to the Australian conference, he had removed \$22,000 from another account of which not all was needed for the journal payment and the \$5,000 was re-deposited into this account. The major expenses were the journal and reimbursement for the mid-conference meeting. Smaller expenses were to Ellen Watson for editing and printing costs. The only other expense was the membership plaques and perhaps this should be discussed.

He went on to explain the second handout. At the conclusion of the meeting in Florida, there was \$45,000 raised by Bill Myer which he didn't know he was going to receive until the day before the conference. Since it wasn't budgeted to spend, Mr. Snyder deposited it into an account. This amount is now down to \$15,000. The only deposits are membership dues (\$40,000 over the last four years) and the journals this year cost 30,550 and that's a big chunk of membership dues gone.

There is also money (inherited from Dick Schmidt eight years ago) that was in a Paine Weber account. Nothing has been done with this account which has increased slowly over the last four years to roughly \$83,000.

The third handout was regarding wire transfers. It was recommended that wire transfers no longer be accepted since we lose money on them. We are now able to accept foreign cheques and AMEX. We do not accept VISA and MC as we don't have enough transactions.

Net worth today is approximately \$51,658 (not including the investment money of \$83,000). However, \$16,000 will be required to pay for the journals.

**MOTION:** It was moved by John Cisar and seconded by Brian Holl to approve the Treasurer's Report as circulated.

## **CARRIED**

Membership dues were discussed and it was acknowledged that the dues had not changed for several years. An increase to cover the cost of inflation should be considered.

**MOTION:** It was moved by John Cisar and seconded by Alexander Richter to raise membership dues to \$200 US.

**CARRIED**

It was noted that George Snyder was opposed.

It was noted that certificates rather than membership plaques will be distributed in the future.

#### 10. NEWSLETTER REPORT

John Cisar started out by thanking the board for their support. There are thoughts of ceasing the printed version and going strictly to the net. The printed version costs about \$3,000. There was some discussion regarding the commitment to publish the technical papers in the newsletter. The increasing costs and the dependence on the generosity of the Toro Company is a great concern. The use of the ITS website and other publishing options were discussed.

**MOTION:** It was moved by Bill Adams and seconded by John Cisar to include the technical papers as part of the CD-ROM with no hard copy being available.

**CARRIED**

Further discussions about the current static state of the website followed and it was decided that a committee would be struck to deal with the website. Pam Charbonneau will write a letter of thanks to Toro, Ellen and Jim Watson for their continued support of the newsletter.

#### 11. NETNOTES REPORT/MEMBERSHIP REPORT

Joe DiPaola reported that ITS Netnotes started after the mid-conference meeting with the intent to broaden the membership base. This is why it is distributed to both members and non- members. Netnotes goes out monthly and only one month has been missed in 2001.

The goal right now is to [sell] sustaining membership. Currently the fee is \$800 every four years which is quite conservative.

Pam Charbonneau thanked Joe DiPaola for his good work and encouraged the board to provide any newsworthy reports and suggestions to Dr. DiPaola.

#### 12. INVESTMENT COMMITTEE REPORT

Pam Charbonneau announced that this report will be delivered at the post conference board meeting.

#### 13. UPDATE ON XITRC

Bill Adams described the venues being considered. The initial idea of the university has been dismissed. Reasons are accessibility, accommodation and the fact that the date clashes with their degree congregation week. Celtic Manor Resort was also being reviewed. Although it is palatial, the proposal provided by them was prohibitive (£30,000 a day). Registration fees would have to be raised 2.5 times from what this conference cost. It was decided that this was not suitable.

Dr. Adams then approached Llandudno in North Wales and they were very receptive. They have a conference centre but no accommodations; however, there are a wide range of hotels within walking distance and they will take care of booking arrangements. Some of the features are a 1,500 seated theatre, an exhibition hall, ability to cater the banquet and it is 70 minutes from Manchester Airport. They will also provide a shuttle service and the quote is £31 per day.

#### 14. XITRC PRE AND/OR POST CONFERENCE TOURS

Alexander Richter reported that the pre-conference tour will be continental Europe. The tour will start July 2, 2005 in Pisa, Italy and will visit the University of Pisa and other facilities. It will continue on to Florence for two nights, Venice for one day and night, through the Alps to Vienna and then to Manchester. The tour will take eight days in total.

#### 15. DISCUSSION ON XIITRC COUNTRIES

China and Chile will each be giving a presentation at the business meeting on Friday. Pam Charbonneau opened it up for discussion.

Ms. Charbonneau believes that there aren't many people working in turf in Chile whereas in China there are. John Cisar's concerns are not about the venue but rather the amount of contact they have had with the association and if they know how we operate. Ms. Charbonneau noted that there were some Chinese delegates in Australia and we do have a nomination for a Chinese delegate to sit on the board. James Beard noted that he had been to a conference in Argentina and that Argentina would be better able than Chile to organize a meeting such as this.

Peter McMaugh noted that China isn't unified in its interests and will probably be preoccupied with the Olympics.

John Cisar noted that most countries have had either a strong academic background or history within the society and these two candidates don't and it would be a risk. James Beard agrees and we shouldn't move into a country like that unless it is approved and has significant funds at a government level.

It was decided that a presentation can be made but not necessarily a final vote at this time.

#### 16. PROPOSED GLOBAL TURF RESEARCH ENDOWMENT

Gregg Allan, Syngenta Canada, made an overhead presentation. Syngenta is a global leader in turf and agriculture and the basis for their business is good, solid turf research. Funding for turf research is becoming more difficult and they are proposing an International Turfgrass Society Global Research Endowment. This endowment would annually support and recognize excellence in global turf research, partially fund travel for ITRC participation and attract additional sponsors.

Draft sponsorship commitment levels have been established on five levels: Charter (\$50,000) Platinum (\$40,000), Gold (\$25,000), Silver (\$10,000) and Associate (\$5,000). All these levels offer company logo placement in newsletter, website etc. The major difference is the Charter and Platinum level also includes one ITRC complimentary registration and sustaining membership in ITS and the Charter level is the only one to include a

seat on the nominating committee.

It is Syngenta's intention to be the first Charter member and would supply \$12,500 each year for the next four years and would like to announce this at this conference.

**MOTION:** It was moved by Keith McAuliffe and seconded by Peter McMaugh to accept the proposal in principle with details to be confirmed at a later date.

#### WITHDRAWN

There was extensive discussion as to the wording of the motion.

**AMENDED MOTION:** It was moved by Teri Yamada and seconded by Keith McAuliffe that the funding proposal from Syngenta be considered with a final decision to be made after discussion with ITS members and at the post conference board meeting.

#### CARRIED

#### 17. ELECTRONIC JOURNAL

Bob Shearman presented a proposal to develop an in-depth web-based journal that would be oriented toward in depth review and interpretation of scientific information relating to turfgrass science and culture. It would be a process that involves review so that it would stand on its own scientific merit and it would also be a process that includes a practicum. The orientation of this journal would be towards researchers, educators, outreach, agronomists, consultants, public and private sectors, technical representatives and practitioners.

Page 2 of the handout outlines the structure of the committee. If approved, there would be a policy committee that would involve representation from the Crop Science Society Division C-5 and they would determine who they would pick for members of the policy board. ITS would have two members, Michigan State Turf Information Center would have one representative and the person serving as editor-in-chief would sit on the policy board (as an ex-officio or non-voting member).

They are not asking for a financial commitment and the structure allows for voluntary approaches. Primarily, they are looking for support of the concept. All information would be peer reviewed and it would also be subject to review after a period of time.

ITS involvement is to set up a policy committee to help process the journal and the information. They would work to ensure the editorial and peer review process works and bring an international concept to this journal.

Dr. Shearman left the meeting at this time.

**MOTION:** It was moved by Brian Holl and seconded by George Snyder that the proposal for the electronic Journal be received and tabled for discussion at the post- conference board meeting.

**CARRIED**

#### 18. NOMINATING COMMITTEE REPORT

Pam Charbonneau reported that the directors that have agreed to stand for re-election for a second term are:

Hermann Richter - Austria  
Teri Yamada - Canada  
Brian Holl - Canada  
Joon Soo Choi - South Korea  
Yutaka Noma - Japan  
Sven-Ove Dahlsson - Sweden  
Bill Adams - United Kingdom  
Joe DiPaola - USA

The following slate for directors of ITS for 2001-2005 is recommended:

John Neylan - Australia  
Hermann Richter - Austria  
Teri Yamada - Canada  
Ken Carey - Canada  
Carol Muller-Turina - Chile  
Han Liebao - China  
Jean Pierre Leboucher - France  
Klaus Mueller-Beck - Germany  
Marco Volterrani - Italy  
Yutaka Noma - Japan  
Joon Soo Choi - South Korea  
Dr. Engelsjord - Norway  
Richard Gibbs - New Zealand  
Sven-Ove Dahlsson - Sweden  
Danny Thorogood - United Kingdom  
Stephen Baker - United Kingdom  
Joe DiPaola - USA  
Bruce Clarke - USA

James Beard struggles with this amount of nominees. Keith McAuliffe noted that the constitution doesn't state a maximum number.

The size of the upper limit of the board needs to be discussed with the future president.

**MOTION:** It was moved by Peter McMaugh and seconded by Keith McAuliffe to approve the Nominating Committee Report.

**CARRIED**

#### 19. OTHER BUSINESS

Keith McAuliffe wanted to address contributions made by long standing members as if there is a going to be a change to the constitution it had to be decided on at the AGM or SGM. Pam Charbonneau responded that since the agenda has already been put together for the AGM, it could be brought up under other business.

All business having been concluded, President Charbonneau thanked the board members for the support they have given her over the past four years and the meeting was adjourned.

## **INTERNATIONAL TURFGRASS SOCIETY QUADRENNIAL BUSINESS MEETING**

**Fri. July 20, 2001, 4:40 pm – 6:00 pm**

**Harbour Ballroom, Westin Harbour Castle, Toronto, Ontario, Canada**

### **1. Call to Order – Pam Charbonneau, ITS President**

Pam Charbonneau called the meeting to order and welcomed the ITS members. She outlined some of the accomplishments of the society over the last four years. One significant development was the establishment of an international editorial board for the journal. This editorial board would ensure the consistency and quality of the scientific journal regardless of the location of the quadrennial meeting. The editorial board will also reduce the pressure on the host country.

Another significant development has been Net Notes thanks to Joe DiPaola. The electronic newsletter has greatly improved the communication capabilities of the society and all members are encouraged to contribute to the newsletter contents. The website will require further development.

Membership numbers have remained fairly static and initiatives to increase membership will be needed. President Charbonneau thanked the Board for all their hard work over the last four years.

### **2. Presentation of Minutes of 1997 Quadrennial Business Meeting – Teri Yamada, Secretary**

It was moved by Bill Adams and seconded by Ronny Duncan

#### **THAT**

The minutes of the 8<sup>th</sup> ITS held July 25, 1997 in Sydney, Australia be accepted as circulated with the amendments as noted.

**CARRIED**

### **3. Secretary's Report – Teri Yamada**

A total of 388 delegates registered for the 9<sup>th</sup> ITRC including 25 industry delegate for Tuesday only and 111 accompanying persons.

The ITS Board of Directors met on Sunday July 15, 2001 and the following are a few items of interest for the membership:

- There are 164 peer-reviewed papers accepted from 222 submissions for a 73% acceptance rate.
- The journals will sell for \$175.00 US for non-members during the conference and \$195.00 US following the conference.
- The first member copy of the journal is included with a four-year membership in ITS. The price for subsequent copies will be established at the post-conference meeting and published in the next newsletter.
- The Board recommended that membership continue to be for a period of four years. It was also recommended that the membership fee increase from \$140 US to \$200 US for the four year period to better reflect the cost of maintaining communication with the membership and producing a quality journal.

### **4. Treasurer's Report – George Snyder**

Treasurer Snyder explained that he maintains the accounts for the ITS and not the ITRC (conference). The society has now paid all the expenses related to the journal from the 8<sup>th</sup> ITRC and about one third of the expenses for the 9<sup>th</sup> ITRC journal. The reserve fund from the Florida conference has been substantially depleted. He pointed out that the Board is not compensated and the society is registered as not-for-profit in the United States and therefore does not pay taxes. He thanked the Toro Corporation for continuing to absorb the costs of producing and mailing the ITS newsletter. He thanked the society for the experience serving as the treasurer.

Bob Shearman noted that \$54,000 in operating expenses and liquid assets are listed as \$138,000. He inquired as to the society's philosophy in maintaining operating revenue. Brian Holl answered that the investment committee had not been very active but would be presenting a strategy for the future shortly. (The full treasurer's report for 1997 - 2001 can be found on page 66).

It was moved by George Snyder and seconded by Brian Holl

**THAT**

The Treasurer's report be accepted as presented.

**CARRIED**

5. Historian's Report – James B Beard

Six ITS members were recognized as the longest supporting members of the ITS and its conferences. They were: Bill Adams, Martin Petersen, Dick Schmidt, John Shoulders, James Watson, and James B. Beard. The historian's report for 1997 - 2001 was presented by James Beard (see pp. 66-70).

It was moved by James B. Beard and seconded by Jim Watson

**THAT**

The historian's report be accepted as presented.

**CARRIED**

6. Resolutions Committee - Brian Holl

The resolutions committee report was presented by Brian Holl (see pp. 71-73).

It was moved Brian Holl and seconded by Phil Busey

**THAT**

The resolutions be approved as presented.

**CARRIED**

7. Nominating Committee Report – Peter McMaugh

The nominating committee report was presented by Peter McMaugh (see pp. 74-75). Ian Chivers, Australia, was nominated to the directors slate from the floor. A motion was made and seconded for the report's approval. The motion carried. Directors who are leaving the board were thanked for their service and each was given a gift from the ITS.

8. Update on Xth ITRC – Bill Adams

Bill Adams presented an update to the meeting of the plans for the Xth ITRC in 2005 in Wales. The meeting is planned for the resort town of Llandudno in northern Wales, which has a large Conference Center, ample hotel space, and is close to major international airports and sites for potential tours. The update was enthusiastically received by the meeting.

9. Invitation from China to host XIth ITRC 2009

Dr. Han Liebao presented a multimedia invitation from China to host the XIth ITRC in 2009 in Beijing.

10. Invitation from Chile to host XIth ITRC 2009

Dr. Carol Müller-Turina presented a multimedia invitation from Chile to host the XIth ITRC in 2009.

After questions from the floor to both presenting delegations about local support, access, timing and other aspects of the meetings in the two host countries, a vote was taken by secret ballot. The first ballot resulted in a tie, so a second ballot was taken, in which Chile received the majority of the votes. Chile will thus be the host country for the XIth ITRC in 2009.

12. Passing of Gavel to Dr. Bill Adams, Wales

Pam Charbonneau passed the gavel to Bill Adams, the incoming President of the ITRC. The meeting gave a strong and unanimous vote of thanks to Pam for her work during her term as president, and welcomed Dr. Adams.

13. The meeting was terminated at 6 pm.

## ARTICLES OF INCORPORATION OF INTERNATIONAL TURFGRASS SOCIETY

I, the undersigned, of full age, for the purpose of forming a corporation pursuant to the provisions of Chapter 317A of Minnesota Statutes, known as the Minnesota Nonprofit Corporation Act, do hereby set forth the following Articles of Incorporation:

### ARTICLE I.

The name of this Corporation is International Turfgrass Society.

### ARTICLE II.

This Corporation is organized exclusively for charitable, educational, and scientific purposes, within the meaning of Section 501 (c) (3) of the Internal Revenue Code of 1986, including the advancement of turfgrass science. The objectives of this Corporation shall include, but shall not be limited to, the following:

1. To encourage research and education in turfgrass science, to further the dissemination of technical information, and to accept and administer funds for those purposes;
2. To organize conferences for presentation of the results of research studies;
3. To strive toward uniform terminology and standard research evaluation techniques;
4. To maintain liaison with other scientific and educational bodies having an interest in turfgrass science;
5. To support college and university educational, research, and scholarship programs that further turfgrass improvement and use;
6. To solicit funds and to accept gifts and contributions, to put to productive use all of the funds and property which this Corporation may own at any time, and to use and distribute income and property exclusively for the purposes set forth in this Article II;
7. To make distributions to organizations that qualify as exempt organizations under Section 501 (c) (3) of the Internal Revenue code, as amended from time to time; and
8. To do any and all things and exercise any and all powers, rights, and privileges for which a corporation may now or hereafter be organized under the Minnesota Nonprofit Corporation Act, as amended from time to time.

None of the provisions of this Article II shall be construed to permit this Corporation to carry on any business, or hereafter to exercise any power, or to do any act, which a corporation now or hereafter organized under the Minnesota Nonprofit Corporation Act may not at any time carry on, exercise or do; nor shall this Corporation carry on any business or exercise any power in any state, territory, or country which under the laws thereof this Corporation may not lawfully carry

on or exercise.

Notwithstanding any provision of these Articles of Incorporation, this Corporation shall not have the power, and shall not be authorized, to devote any substantial part of the activities of this Corporation to the carrying on of propaganda or otherwise attempting to influence legislation, or to participate in or intervene in (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office.

Notwithstanding any other provision in these Articles of Incorporation, this Corporation shall not carry on any activities not permitted to be carried on (a) by a corporation exempt from federal income tax under Section 501 (c) (3) of the Internal Revenue Code of 1986, as amended from time to time, or (b) by a corporation, contributions to which are deductible under Section 170(c) (2) of the Internal Revenue Code of 1986, as amended from time to time.

### ARTICLE III.

This Corporation shall not afford pecuniary gain, incidentally or otherwise, to its members.

No part of the earnings of this Corporation shall inure to the benefit of, or be distributable to, its members, directors, officers, or other private persons, except that this Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in Article II.

### ARTICLE IV.

The duration of existence of this Corporation shall be perpetual.

### ARTICLE V.

The location of the registered office of this Corporation in the State of Minnesota shall be at 8111 Lyndale Avenue South, Bloomington, Minnesota 55420.

### ARTICLE VI.

The name and address of the incorporator of this Corporation is James R. Watson, 3 Larkdale Drive, Littleton, Colorado, 80123.

### ARTICLE VII.

The members of this Corporation shall not be subject to any extent whatsoever to personal liability for the obligations of this Corporation.

### ARTICLE VIII.

This Corporation shall have no capital stock.

### ARTICLE IX.

All of this Corporation's property and all of its net earnings shall be distributed, used, and applied at the discre-



tion of its Board of Directors in such amount and at such times as its Board of Directors may determine for the purposes for which this Corporation was created; provided, however, that no part of the net earnings of this corporation shall inure to the benefit of any member, director, or individual.

#### ARTICLE X.

Upon the dissolution of this Corporation, the Board of Directors shall, after paying or making provision for the payment of all of the liabilities of this Corporation, dispose of all of the assets of this Corporation exclusively for the purposes of this Corporation in such manner, or to such organization or organizations organized and operated exclusively for charitable, educational, religious or scientific purposes as shall at the time qualify as an exempt organization or organizations under Section 501 (c) (3) of the Internal Revenue Code of 1986, as amended from time to time, as the Board of Directors shall determine. Any such assets not so disposed of shall be disposed of by the District Court of the county In which the principal office of this Corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

#### ARTICLE XI.

The Articles of Incorporation may be amended by the affirmative vote of two thirds of the members present at a meeting at which a quorum is present, provided that notice of the proposed amendment shall have been mailed to each of the voting members at least sixty days prior to the meeting at which the amendment is proposed to be adopted.

IN WITNESS WHEREOF, I have hereunto set my hand this 24th day of September, 1991.

James R. Watson  
STATE OF MINNESOTA  
COUNTY OF HENNEPIN

On this 24th day of September, 1991, before me personally appeared James R. Watson, to me know to be the person described in the who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

N. Jeanne Ryan  
Notary Public

## BYLAWS OF INTERNATIONAL TURFGRASS SOCIETY

### ARTICLE I.

#### Records

Section 1. 1 Membership Register. This Corporation shall keep at its registered office a membership register, giving the names and addresses of the Members.

Section 1.2 Records to be Kept at Registered Office. The records of this Corporation shall be kept at its registered office.

### ARTICLE II.

#### Members

Section 2.1 Eligible Members. Only individuals who are turfgrass scientists, or who are interested In turfgrass science, shall be eligible for membership, unless the Board of Directors determines otherwise.

Section 2.2 Class of Members. This Corporation shall have three (3) classes of Members, which shall be Individual Members, Student Members, and Sustaining Members.

Section 2.3 Individual Members. An Individual Member must be a turfgrass professional who is Involved with research, extension, teaching, or other recognized professional segments of turfgrass science.

Section 2.4 Student Members. A Student Member must be a graduate student. An individual cannot remain in this category for more than four (4) years.

Section 2.5 Sustaining Members. A company or organization interested in the objectives of this Corporation may designate one (1) individual to represent it as a sustaining member. The person designated must qualify as an Individual Member in his/her own right.

Section 2.6 Dues. The Board of Directors may set an amount for the annual dues that each Member must pay to become a Member of the particular class.

Section 2.7 Term. Each Member shall continue as a Member as long as he/she satisfies the conditions of his/her membership, except that a Member may be removed as provided for in Section 2.10 of this Article.

Section 2.8 Resignation and Transfer. A Member may resign at any time. No Member may transfer, voluntarily or involuntarily, his/her membership, or any right arising therefrom, and all such rights shall cease upon termination of his/ her membership.

Section 2.9 Powers. In addition to the powers and authority conferred upon them in these Bylaws, the Members shall have the power to do all acts necessary and expedient to the conduct of the affairs of the Corporation.

Section 2.10 Removal. A Member who is four (4) years in arrears in dues at the time of any quadrennial meeting shall be removed as a Member.

A Member may be removed, with or without cause, by the majority vote of the Members present at a meeting at which a quorum exists. The meeting notice for the meeting must state that removal of the Member will be an agenda item at the meeting.

Section 2.11 Policy Recommendations. Members of this Corporation shall recommend policy to the Board of Directors.

Section 2.12 No Participation in Management- Except as otherwise specified in these Bylaws, Members of this Corporation.

Section 2.13 Certificates. This Corporation shall not Issue membership certificates to Its Members.

### ARTICLE III.

#### Meetings of Members

Section 3.1 Place of Meeting. Meetings may be held at any place designated in the call of the meeting.

Section 3.2 Quadrennial Meeting . The Members shall meet once every four years, for the appointment of directors and for the transaction of such business as may properly come before the meeting, at such time and such place as may be designated by the Members. At each such meeting, in addition to the appointment of directors, the President and treasurer shall report on the activities and financial condition of the Corporation; and the Members shall consider and act upon other matters, including naming the host country for future quadrennial meetings, as may be raised consistent with the notice of the meeting.

Section 3.3 Special Meetings. Special meetings of the Members may be held at the registered office of the Corporation or at such other place as may be designated, and at such time as shall from time to time be determined by the Members. The Chairperson of the Board, or in his/her absence the President, shall call such meetings.

Section 3.4 Notice of Meetings. Written notice of each meeting of Members, stating the time and place thereof, and, in the case of a special meeting the purpose thereof, shall be given not less than five days in advance of the meeting, to each Member.

Section 3.5 Waiver of Notice. Any Member may make written waiver of notice of any meeting before, at, or after the meeting. Appearance at a meeting is deemed a waiver of notice thereof, unless it is solely for the purpose of asserting the irregularity of the meeting.

Section 3.6 Quorum. A quorum for a meeting of Members is the attendance of the lesser of (a) thirty (30) Individual Members at the meeting, or (b) ten percent (10%) of the Members entitled to vote at the meeting. If a quorum is present when a duly called or held meeting is convened, the Members present may continue to transact business until adjournment, even

though the withdrawal of Members originally present leaves less than the proportion or number otherwise required for a quorum.

Section 3.7 Voting Rights. At all meetings, each individual Member and each Sustaining Member shall have one (1) vote. Student Members shall not have the right to vote. Proxies shall be permitted at meetings of Members. There shall be no cumulative voting. Unless otherwise provided by law, a majority of the votes cast shall govern in every election and matter voted upon. A secret ballot shall be conducted for all contested elections and to decide the country to host the next quadrennial meeting or meetings.

Section 3.8 Action Without Meeting. Any action which may be taken by the Members at a meeting of Members may be taken without a meeting if authorized by a writing or writings signed by all of the Members who are entitled to vote at such meeting, and such action shall be effective on the date on which the last signature is placed on such writing or writings, or such earlier effective date as is set forth therein.

### ARTICLE IV

#### Directors

Section 4.1 Class of Directors. There shall be but one (1) class of directors and their voting and other rights, interests, and privileges shall be equal.

Section 4.2 Number of Elected Directors. The number of elected directors of this Corporation shall be at least seven (7).

Section 4.3 Past President and Elected Officers as Directors. The past president and each of the elected officers designated in Section 7.1 of Article VII shall be a member of the Board of Directors for such period of time as he/she shall serve as past president or an elected officer. When such person ceases to serve as past president or an elected officer, he/she shall also cease to be a member of the Board of Directors, if he/she was a board member solely by virtue of being past president or an elected officer.

Section 4.4 Election of Directors. The directors of this Corporation, other than a director who serves by virtue of being a past president or an elected officer, shall be elected by the Members of this Corporation. At least four (4) countries shall each have an elected director on the Board of Directors and no more than two (2) elected directors shall be residents of one (1) country.

Section 4.5 Term. Each director shall serve for a term of four (4) years. A director may be reelected as a director. A director who has served two four-year terms shall not be eligible thereafter to serve as a director, except that a past president or an elected officer of this Corporation shall be eligible to serve as a director as long as the person serves as past president or an elected officer, notwithstanding that the person may already have served two four-year terms as a director.

Section 4.6 Eligibility. Any adult natural person is eligible to serve as a director. There shall be no corporate directors.

Section 4.7 Chairperson of the Board. A chairperson of the Board of Directors, who shall be a member of the Board of Directors, may be elected from the members of the Board of Directors.

Section 4.8 Duties of Chairperson of the Board. The chairperson of the Board of Directors, if one shall be elected, shall preside at meetings of the Board of Directors, and shall have such other authority, duties and responsibilities as the Board of Directors shall, by resolution, provide.

Section 4.9 Removal of Directors. The Members, by a majority vote of those entitled to vote at an election of directors, may, with or without cause, remove a director or the entire Board of Directors from office. Neither a director nor the entire Board of Directors shall be removed from office unless the notice of the meeting at which removal is to be considered states such purpose. When the Board of Directors or a member of the Board of Directors has been removed, new directors or a new director may be elected at the same meeting.

Section 4.10 Vacancies. Any vacancy or vacancies in the office of a director, either through death, resignation, or any other reason, may be filled by the remaining members of the Board of Directors, except for vacancies filled pursuant to section 4.9. The term of a director so appointed expires at the end of the term that the director is filling.

Section 4.11 Resignation and Transfer. A director may resign at any time. No director may transfer, voluntarily or involuntarily, his/her office as director, or any rights arising therefrom, and all such rights shall cease if a person serving as a director ceases to be a director.

## ARTICLE V

### Meetings of Directors

Section 5.1 Place of Meetings. Meetings may be held at any place designated in the call of the meeting.

Section 5.2 Annual Meeting. The annual meeting of the directors for the appointment of officers and for the transaction of such other business as may properly come before the meeting shall be held at such time and place as may be designated by the directors. At each annual meeting, in addition to the appointment of officers, the president and treasurer shall report on the activities and financial condition of the Corporation; and the directors shall consider and act upon other matters as may be raised consistent with the notice of meeting.

Section 5.3 Regular Meetings. Regular meetings of the directors may be held at the registered office of the Corporation or at such other place as may be designated, and at such time as shall from time to time be determined by the directors. The Chairperson, or in his/her absence the President shall call such meetings.

Section 5.4 Special Meetings. Special meetings of the directors may be called by the Chairperson or in any manner prescribed by law.

Section 5.5 Notice of Meetings. Written notice of each meet-

ing of directors, stating the time and place thereof, and, in the case of a special meeting the purpose thereof, shall be given not less than five (5) days in advance of the meeting, to each director.

Section 5.6 Waiver of Notice. Any director may make written waiver of notice of any meeting before, at, or after the meeting. Appearance at a meeting before, at, or after the meeting. Appearance at a meeting is deemed a waiver of notice thereof, originally present leaves less than the proportion or number otherwise required for a quorum.

Section 5.7 Quorum. A majority of the directors currently same country, holding office is a quorum for the transaction of business. If a quorum is present when a duly called or held meeting is convened, the directors present may continue to transact business until adjournment, even though the withdrawal of members originally present leaves less than the proportion or number otherwise required for a quorum.

Section 5.8 Voting Rights. At all meetings, each director shall have one (1) vote. Proxies shall not be permitted at meetings of directors. There shall be no cumulative voting. Unless otherwise provided by law, a majority of the votes cast shall govern in every election and matter voted upon.

Section 5.9 Action Without Meeting. Any action which may be taken by the directors at a meeting of directors may be taken without a meeting if authorized by a writing or writings signed by all of the directors who would be entitled to vote at such meeting, and such action shall be effective on the date on which the last signature is placed on such writing or writings, or such earlier effective date as is set forth therein.

Section 5.10 Electronic Communications. A conference among directors by means of communication through which the participants may simultaneously hear each other during the conference is a meeting of the directors, if the same notice is - given of the conference as would be required for a meeting and if the number of persons participating in the conference is a quorum. Participation in the meeting by this means is personal presence at the meeting.

A director may participate in a meeting of the Board of Directors by means of communication through which the director, other persons participating, and all persons physically present at the meeting may simultaneously hear each other during the meeting. Participation in the meeting by this means is personal presence at the meeting.

Section 5.11 Compensation. The directors shall serve without compensation.

Section 5.12 Nominating Committees. The Chairperson of the Board, or the President if there shall not be a Chairperson of the Board, shall appoint a nominating committee within two (2) years after each quadrennial meeting of the Members for the purpose of nominating eligible candidates for the office of director. The nominating committee shall canvas the Members for suggestions.

The nominating committee shall consist of a minimum of five (5) members, including the immediate Past President who shall

serve as chair, the current President, and at least one (1) member from each of three (3) countries, other than the country of the Past President and the President. If the Past President is unable to serve, a replacement shall be named from a country not represented on the committee and a chair shall be appointed from within the committee. The committee shall provide an opportunity for members to submit names in writing for consideration as nominees, provided the individual whose name is submitted has consented to serve if elected and has indicated a willingness to attend board meetings and general meetings of the Society.

Nominations will be accepted from the floor provided the individual is eligible to serve, has consented to serve, and the election of the nominee will not result in more than two (2) elected members of the Board of Directors being citizens of the same country.

The nominating committee shall advise the Members in writing prior to the quadrennial meeting of the names of the nominees.

If the nominating committee fails to follow the foregoing procedures, the Chairperson of the Board, or the President if there shall not be a Chairperson of the Board, shall take action early at the quadrennial meeting to ensure that a nominating committee functions, that opportunity from Members to submit names for consideration as nominees is provided, and that the names of nominees are posted as early as possible at the meeting.

Section 5.13 Other Committees. From time to time the Board of Directors may create such standing and special committees as it may see fit, and may designate the duties and powers of such committees; provided, however, that no such committee shall be given authority to amend the Articles of Incorporation or to amend the Bylaws of this Corporation. Each such committee created from time to time by the Board of Directors shall submit to the Board of Directors each year at the annual meeting of the Board of Directors, or at such other meeting(s) as the Board of Directors may designate, a report of the actions and recommendations of such committee.

Section 5.14 No Loans to Directors. This Corporation shall not lend any of its assets to any member of the Board of Directors of this Corporation. If any such loan be made, the officers and members of the Board of Directors who make such loans, or assent thereto, shall be jointly and severally liable for repayment or return thereof.

## ARTICLE VI.

### Powers of Directors

The general government, management, and direction of this Corporation shall be vested in the Board of Directors, which shall be authorized to exercise all corporate powers except as limited by statute, the Articles of Incorporation of this Corporation, or by the Bylaws of this Corporation.

## ARTICLE VII.

### Officers

Section 7.1 Designation and Election. The Board of Directors shall elect the President, President Elect, Vice President, Treasurer, Secretary, and Historian. Preference shall be given to having the President be a citizen of the country in which the next meeting of the society will be held, and to having the President Elect be a citizen of the country invited to host the meeting following the next meeting.

Section 7.2 Term. Each officer shall serve for a term of four (4) years. An officer may be reelected for one (1) additional, consecutive term, except that an officer who has served two (2) or more consecutive terms shall be eligible for election to the offices of President and President Elect, and except that the Treasurer and Historian may be reelected for unlimited consecutive terms.

Section 7.3 Duties of President. The President shall be the chief executive officer. He/she shall preside at all meetings of the Members, and at meetings of the Board of Directors, if a Chair of the Board has not been elected. He/she shall have general charge, supervision, and control of the business and affairs of this Corporation, subject, however, to the control of the Board of Directors.

Section 7.4 Duties of President Elect. The President Elect shall advise the President and the Board of Directors with respect to plans pertaining to the second upcoming quadrennial meeting of the Members.

Section 7.5 Duties of Vice Presidents. The Vice President shall, during the absence or disability of the President, perform the duties and exercise the powers of President.

Section 7.6 Duties of Secretary. The Secretary shall attend all meetings of the Board of Directors and all meetings of the Members, and record all votes and keep minutes of all proceedings. He/she shall give, or cause to be given, notice of all meetings of the Members and the Board of Directors.

Section 7.7 Duties of Treasurer. The Treasurer shall have custody of this Corporation's funds and securities and shall keep full and accurate account of the receipts and disbursements in books belonging to this Corporation, and shall deposit all moneys and other valuable effects in the name and to the credit of this Corporation in such depositories as may be designated by the Board of Directors or by the President in the absence of designation by the Board of Directors.

Section 7.8 Duties of Historian. The Historian shall maintain the historical record of the activities of this corporation and shall present a written report at each quadrennial meeting.

Section 7.9 Removal of Officers. Any officer may be removed by the Board of Directors with or without cause. Such removal, however, shall be without prejudice to the contract rights to the person so removed.

Section 7.10 Compensation. The salary or compensation of all officers shall be fixed by the Board of Directors.

Section 7.11 Special Powers. Any officer may be vested by the Board of Directors with any power and charged with any duty not contrary to law or inconsistent with the Articles of Incorporation of this Corporation or these Bylaws.

Section 7.12 No Loan to Officers. This Corporation shall not lend any of its assets to any officer of this Corporation. If any such loan be made, the officers and members of the Board of Directors who make such loan, or asset thereto, shall be jointly and severally liable for repayment or return thereof.

#### ARTICLE VIII.

##### Corporate Seal

This Corporation shall have no corporate seal.

#### ARTICLE IX.

##### Amendment of Articles of Incorporation

The Members of this Corporation shall have the right to amend the Articles of Incorporation of this Corporation, as provided in Article XI of the Articles of Incorporation. The directors of this Corporation, by a majority vote, also may amend the Articles of Incorporation of this Corporation at a duly constituted meeting of the Board of Directors. Notice of the meeting and the proposed amendment must be given to the directors.

#### ARTICLE X.

##### Amendment of Bylaws

The directors of this Corporation shall have the right to amend the Bylaws of this Corporation as provided by law, without membership approval; and the Members of this Corporation shall have the right to amend the Bylaws of this Corporation as provided by law.

#### ARTICLE XI.

##### Miscellaneous

Any procedures not covered by the applicable provisions of the Minnesota Nonprofit Corporation Act, the Articles of Incorporation of this Corporation, or these Bylaws, shall be governed by Roberts Rules of Order, as amended from time to time.

#### ARTICLE XII.

##### Place of Records

This Corporation shall keep at its registered office correct and complete copies of its Articles and Bylaws, according records, and minutes of meetings of Members, Board of Directors and committees having any of the authority of the Board of Directors.

# FINANCIAL SUMMARY, 1998 - 2001

G. H. Snyder  
Treasurer, ITS

Statement of cash receipts and disbursements, not including journal sales  
For period January 1, 1998 to July 9, 2001, USA dollars

<b>Checking Account Item</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Starting balance	\$ 23,325.85	45,652.35	41,901.32	43,903.68
Membership Dues	21,956.20	8,484.14	4,715.90	5,201.34
Petty cash deposit	534.98	0.00	0.00	0.00
Funds transfer from savings account	5,024.22	0.00	0.00	0.00
Expenses	5,188.90	12,235.17	2,713.54	16,105.12
Ending balance	\$ 45,652.36	41,901.32	43,903.68	32,999.90

<b>Summary of expenses</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Membership plaques	\$ 3,030.00	0.00	0.00	0.00
Postage for mailing plaques	868.51	238.81	140.55	194.75
Bank fees	120.00	33.00	107.50	40.00
Newsletter editing	440.00	300.00	680.00	310.00
Newsletter printing	0.00	0.00	682.00	0.00
Newsletter postage	283.89	191.61	541.13	105.15
Office supplies	421.50	0.00	42.36	99.50
Minnesota corporation fee	25.00	25.00	0.00	0.00
Mid-conference hotel expenses	0.00	3,395.54	0.00	0.00
Board member expense reimburse	0.00	2,570.26	520.00	0.00
Reimbursement to STRI	0.00	0.00	0.00	195.72
Journal printing (partial)	0.00	5,200.00	0.00	15,000.00
Funds transfer to journal account	0.00	0.00	0.00	160.00
Refund to American Express	0.00	280.95	0.00	0.00
Total expenses	\$ 5,188.90	12,235.17	2,713.54	16,105.12

<b>Savings Account Item</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Starting balance	\$ 38,086.60	15,566.66	15,382.48	15,607.41
Withdrawals	23,009.00*	464.40**	0.00	0.00
Interest	489.06	280.22	224.93	50.87
Ending balance	\$ 15,566.66	15,382.00	15,607.41	15,658.28

\* Withdrawn for journal printing, with unused balance deposited in checking account.

\*\* Transferred to checking account due to mistaken deposit in savings account.

## Paine Webber Investment Account

<b>Asset summary</b>	<b><u>December 1998</u></b>		<b><u>December 1999</u></b>		<b><u>December 2000</u></b>		<b><u>April 2001</u></b>	
	<b>% of portfolio</b>	<b>Value</b>	<b>% of portfolio</b>	<b>Value</b>	<b>% of portfolio</b>	<b>Value</b>	<b>% of portfolio</b>	<b>Value</b>
Money funds	49.72	\$ 37,276.75	54.23	40,957.68	55.74	45,411.92	56.02	46,818.92
Mutual funds	50.28	37,690.93	45.77	34,567.15	44.26	33,046.83	43.98	36,753.04
Total		74,967.68		75,524.83		81,458.75		83,571.96

## HISTORIAN REPORT OF THE INTERNATIONAL TURFGRASS SOCIETY

Friday, July 20, 2001

This quadrennial Historian Report is presented in accordance with the Bylaws of the International Turfgrass Society (ITS).

**ITS Officers.** A summary of the individual members who have served as officers on the Executive Committee of the International Turfgrass Society for the first nine 4-year terms from 1969 through 2001 are summarized in Table 1. The officers who have served, represent 21 different countries from throughout the world. Included are: Australia, Austria, Canada, Denmark, France, Germany, Japan, Netherlands, New Zealand, South Korea, Sweden, United Kingdom, and United States. In most cases, the President of ITS has been from the country scheduled to host the International Turfgrass Research Conference (ITRC), although that is not a specific requirement in the ITS Bylaws.

**ITRC Participation.** Sponsorship of the International Turfgrass Research Conference at four-year intervals is the primary function and activity of the International Turfgrass Society. A total of 81 participants from 12 countries were represented at the first conference in 1969. During the second through eighth conferences from 1973 to 1997, the attendance has been in the range of 239 to 814 participants (Table 2). A maximum of 23 countries have been represented at any one conference, although a total of 38 countries have been represented over the period of the eight International Turfgrass Research Conferences (Table 3). Nine countries have had representatives at all nine International Turfgrass Research Conferences, including Canada, Denmark, Germany, Japan, Netherlands, Sweden, Switzerland, United Kingdom and United States. A total of 2,894 participants have attended the first nine International Turfgrass Research Conferences.

**ITRC Host Committee.** A great deal of time is contributed by ITS members serving on the Host Committee for the International Turfgrass Research Conference. These individuals merit special recognition. Thus, a summary list of names is presented in Tables 4.

Special thank you's go to the 2001 Canadian Host Committee of P. Charbonneau, T. Yamada, K. Carey, R. Witherspoon, T. Ostler, E. Gunn, M. Watson, C. Switzer, C. Charters, Y. Desjardins, J. Dionne, L. Simard, B. Holl, and B. Wick (Table 4).

**ITRC Journal Editor.** Another group that has contributed a substantial amount of time is the Editors and Associate Editors involved in the review and preparation of the Journal and Proceedings for each of the International Turfgrass Research Conference. The contributions of these individuals are gratefully acknowledged and their names are presented in Table 5.

The length of the journal/proceedings has ranged from 530 to 1432 pages. A total of 163 peer-reviewed papers and 60 technical reports were presented and published in 2001, with 117 being oral presentations and 106 being posters.

**Charter Members Acknowledged.** There were 81 charter members when the International Turfgrass Society was formed in 1969. Certificates of Appreciation were presented to six members who have attended all nine International Turfgrass Research Conferences from 1969 through 1997. They are:

Dr. William A. Adams - U. K.  
Dr. James B Beard - U. S. A.  
Mr. Martin Petersen - Denmark  
Dr. Richard E. Schmidt - U. S. A.  
Prof. John E. Shoulders - U. S. A.  
Dr. James R. Watson - U. S. A.

**Congratulations!**

Respectfully submitted,  
James B Beard, Historian, ITS

**Table 1. SUMMARY OF EXECUTIVE COMMITTEE MEMBERS SERVING THE INTERNATIONAL TURFGRASS SOCIETY from 1969 to 1997.**

Executive Committee Position	Conference - Year - Country								
	First 1969	Second 1973	Third 1977	Fourth 1981	Fifth 1985	Sixth 1989	Seventh 1993	Eight 1997	Ninth 2001
	U.K.	U.S.A.	W. Germany	Canada	France	Japan	U.S.A.	Australia	Canada
President	J.B. Beard	R.R. Davis	P. Boeker	C.M. Switzer	P. Mansat	Y. Maki	J.R. Watson	P. McMaugh	P. Charbonneau
Vice-President	B. Langvad	B. Langvad	J. P. van der Horst	H. Vos	H. Vos	W.A. Adams	W.A. Adams	R.N. Carrow	R.N. Carrow
Secretary	J.R. Watson	J.F. Shoulders	F.B. Ledebøer	F.B. Ledebøer	J.F. Shoulders	J.F. Shoulders	J.R. Hall III	J.R. Hall III	T. Yamada
Treasurer	J.R. Escritt	R.E. Schmidt	R.E. Schmidt	R.E. Schmidt	R.E. Schmidt	R.E. Schmidt	R.E. Schmidt	G.H. Snyder	G.H. Snyder
Past President	-	J.B. Beard	R.R. Davis	P. Boeker	C.M. Switzer	P. Monsat	Y. Maki	J.R. Watson	P. McMaugh
Directors	-	W.H. Daniel	K. Ehara	W.A. Adams	W.A. Adams	F. Lemaire	F. Lemaire	B. Bourgoin	W.A. Adams
		C.M. Switzer	R.E. Engel	K. Ehara	Y. Maki	P. McMaugh	P. McMaugh	P.M. Canaway	B. Bourgoin
		J.P. van der Horst	A.C. Ferguson	W.W. Huffine	R.W. Sheard	R.W. Sheard	W. A. Meyer	J.L. Cisar	P.M. Canaway
			R.L. Morris	P. Mansat	T.R. Siviour	A.J.P. van Wijk	A.J.P. van Wijk	K.W. McAuliffe	J. Choi
			W. Skirde	D.K. Taylor	J.R. Watson	J.R. Watson	H. Yanagi	W. A. Meyer	J.L. Cisar
								M. Peterson	S. Dahlsson
								H. Yanagi	J.M. Dipola
									B. Holl
									K.W. McAuliffe
Historian	-	-	J.B. Beard	J.B. Beard	J.B. Beard	J.B. Beard	J.B. Beard	J.B. Beard	J.B. Beard

**Table 2. SUMMARY OF PARTICIPATION AT THE INTERNATIONAL TURFGRASS RESEARCH CONFERENCES from 1969 to 1997.**

Category	First 1969 Harrogate, U.K.	Second 1973 Blacksburg, Virginia, U.S.A.	Third 1977 Munich, W. Germany	Fourth 1981 Guelph, Ontario, Canada	Fifth 1985 Avignon, France	Sixth 1989 Tokyo, Japan	Seventh 1993 Palm Beach, Florida, U.S.A.	Eighth 1997 Sydney, Australia	Ninth 2001 Toronto, Ontario, Canada
Number of Registrants	8 1	248	265	239	266	814	368	241	331 **
Number of Countries Presented	12	1 5	19	18	2 1	1 8	23	22	22 *
Number of Papers Presented	99	80	92	81	86	98	149	168	223
					(76 oral 10 poster)		(109 oral 40 poster)	(76 oral 92 poster)	(117 oral 106 poster)
Number of Papers Published in Proceedings	99	7 1	59	62	84	98	149	144	163
Number of Pages in Proceedings	610	602	530	564	870	458	1035	1432 *	1061 *
Proceedings Supplement Stages					110	163	83	260	

\* Published in two parts, \*\* Pre registered



**Table 3. SUMMARY OF PARTICIPATION AT THE INTERNATIONAL TURFGRASS RESEARCH CONFERENCE BY COUNTRY from 1969-1997.**

Country	Conference - Year - Country									Total
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	
	1969 U.K.	1973 U.S.A.	1977 W.Germany	1981 Canada	1985 France	1989 Japan	1993 U.S.A.	1997 Australia	2001 Canada	
Argentina	-	-	-	-	-	-	1	-	-	1
Australia	-	1	2	3	5	6	15	67	17	116
Austria	-	1	3	3	2	2	-	1	3	15
Belgium	-	2	1	-	3	-	3	-	2	11
Canada	1	12	5	35	4	1	5	7	66	136
Chile	-	-	-	-	-	-	-	1	2	3
China	-	-	-	-	-	3	2	3	6	14
Czechoslovakia	1	-	1	-	-	1	-	-	-	3
Denmark	1	1	2	1	2	1	2	1	3	14
Egypt	-	-	-	-	-	-	-	-	1	1
Finland	-	1	-	1	-	-	-	-	1	3
France	-	12	29	17	95	8	20	4	7	192
Germany	7	11	75	9	8	2	9	4	6	131
Greece	-	-	1	-	1	-	-	-	-	2
Hong Kong	-	-	-	-	3	-	-	3	-	3
Israel	-	-	-	1	-	-	1	-	-	2
Italy	-	-	2	2	5	-	2	3	9	23
Japan	2	8	20	16	21	711	23	11	7	819
Netherlands	10	12	21	11	16	2	4	-	-	76
New Zealand	1	1	1	-	-	4	3	11	4	25
Norway	-	-	1	1	-	-	1	-	2	5
Philippines	-	-	-	-	-	-	1	-	-	1
Poland	1	-	-	-	1	-	-	-	-	2
Russia	-	-	-	2	-	2	1	-	-	5
Saudi Arabia	-	-	-	-	-	-	-	-	1	1
South Africa	-	-	-	-	1	-	-	4	1	6
South Korea	-	-	-	1	-	13	6	3	6	29
Spain	-	-	-	-	2	-	-	-	-	2
Sweden	4	2	4	4	3	2	2	2	4	27
Switzerland	2	1	7	1	5	1	1	1	2	21
Taiwan	-	-	-	-	-	-	-	1	-	1
Thailand	-	-	-	-	-	-	1	-	-	1
Tunisia	-	-	-	-	1	-	-	-	-	1
Turkey	-	-	-	-	-	-	-	-	1	1
Turks & Caicos Is.	-	-	-	-	-	-	2	-	-	2
United Kingdom	16	8	13	6	3	4	14	4	11	89
United States	31	175	76	125	177	50	249	111	226	1120
Venezuela	-	-	-	1	-	-	-	-	-	1
Yugoslavia	-	-	1	-	1	-	-	-	-	2
Grand Total	81	248	265	240	266	814	368	242	388	2912

**Table 4. SUMMARY OF LOCAL ORGANIZING COMMITTEE FOR THE INTERNATIONAL TURFGRASS RESEARCH CONFERENCES from 1969 through 2001.**

Activity	First 1969 U.K.	Second 1973 U.S.A.	Third 1977 West Germany	Fourth 1981 Canada	Fifth 1985 France	Sixth 1989 Japan	Seventh 1993 USA	Eighth 1997 Australia	Ninth 2001 Canada
Chair(s)	J. Escritt	J. Shoulders	P. Boeker	R. Sheard	P. Mansat	F. Kitamura	G. Snyder J. Cisar	P. McMaugh	R. Witherspoon T. Ostler
Vice-Chair	J. Shildrick	-	-	-	R. Thomas	H. Ide S. Kakuda Y. Maki K. Ueki	-	I. McIver	-
Secretary	-	-	-	-	Mrs.Balfourier- Quesnoy	-	-	-	-
Program Committee	J.Beard, Ch. W. Bishop R. Taylor	S. Bingham R. Blaser H. Couch A. Powell Jr.	R. Brunner Chr. Eisele E. Grundler R. Hansley C. Mehnert W. Opitz von Boberfeld R. Pictsch W. Stride G. Voigtlande W. Weber	J. Eggens S. Futsey M. Sears	M. Arnaud F. Lemaire J. O'Sullivan C. Pottier	H. Ide, Ch. K. Ebara K. Fijisaki F. Kitamura Y. Maki A. Misawa	R. Carrow, Ch. P. Busey G. Landry J. Rogers III R. Shearman D. Waddington T. Watschke	P. Martin P. McMaugh	T. Yamada, Ch. S. Baker N. Christians B. Clarke R. Duncan T. Hsiang M. Jones K. Karnok M. Kenna J. Murphy P. Stangel D. Stubbs M. Volteranni
Finance Committee	M. Wood	R. Schmidt	-	D. Bod	B.dePonteves	T.Katagiri, Ch. M.Abe S.Kakuda Y.Maki H.Mori K.Nakayama S.Yamamoto H. Yanagi	W.Myer, Ch. R.Hurley M.Jackson M.Kemp-Fraser B.Rehberg V.Waddell	M. Eade P. McMaugh I. McIver D. Worrad	C. Switzer, Ch. G. Allan R. Craig D. Goudy R. Kowalski T. Sawyer
Publicity Committee	J. Beard	R. Davis	-	C. Switzer	-	T. Onishi, Ch. N. Kondoh Y. Maki T. Sasaki S. Yamashita S. Yosia	M. Welterlen,Ch. M.Bailey P. Hayes D. Jones F. Lemaire P. McMaugh A. van Wijk H. Yanagi	I. McIver	P. Charbonneau, Ch E. Gunn M. Watson
Pre and Post Conference Tours	J. Beard,Ch. P. Boeker B. Langvad R. Morris G. Ruychaver	J. Beard,Ch. W. Daniel,Ch. D. Duff R. Engel R. Miller P. Rieke J. Simmons	P. Mansat,Ch. J. P.van der Horst,Ch.	W. Cordukes,Ch. D. Taylor,Ch.	J. D'Amonville Y. de Chevigny C. Famechon V. Negri A. Pannella F. Veronsei	Y. Maki, Ch. H. Yanagi	B. McCarty S. Braun S. Cockerham M. Engelke V. Gibeault C. Peacock	K. McAuliffe P. McMaugh A. van Wijk	Y. Desjardins J. Dionne B. Holl B. Wick
Spouse Committee	-	Mrs.R.Shoulders	-	Mrs. G. Sheard	Mrs. Thomas	K. Fujisaki, Ch.	Mrs.T.Cisar, Ch. Mrs.C.Snyder	Mrs. F. McIver	C. Charters

**Table 5. SUMMARY OF EDITORS AND ASSOCIATE EDITORS FOR THE INTERNATIONAL TURFGRASS RESEARCH CONFERENCE PROCEEDINGS from 1969-1997.**

Contribution	First 1969 U.K.	Second 1973 U.S.A.	Third 1977 W.Germany	Fourth 1981 Canada	Fifth 1985 France	Sixth 1989 Japan	Seventh 1993 U.S.A.	Eighth 1997 Australia	Ninth 2001 Canada
Editor(s)	JR. Escritt	E.C. Roberts	J.B. Beard	R.W. Sheard	F. Lemaire	H. Takatoh	R.N. Carrow N.E. Christians R.C. Shearman	P.M. Martin	K. Carey
Associate Editor(s)	J.B. Beard B. Langvad	J.B. Beard R.E. Blaser JR. Watson W.W. Huffine W.R. Kneebone O.R. Lunt JR. Watson V.B. Youngner	S.W. Bingham R.L. Goss N.R. Goetze W.R. Kneebone P.E. Rieke R.W. Schery R.E. Schmidt J.M. Vargas,Jr. JR. Watson		B. Bourgoin M. Courtillot W.W. Huffine J. Dujardin J. Guem M. Masson E. Szymczak T. Okinaka S. Watanabe	K. Fujisaki N. Hagiwara C. Denninger T. Katsuno M. Kondo H. Koshimizu T. Ohkubo	M.S. Welterlen M. Hatsukade	S.W. Baker J. B Beard R.N. Carrow T.K. Danneberger R.R. Duncan R.E. Gaussoin R.J. Gibbs T. Hsiang M.P. Kenna P.J. Landscoot G.R. Stephenson A.J. Turgeon P. Vittum	

**Table 6. SUMMARY OF STANDING COMMITTEES OF THE INTERNATIONAL TURFGRASS SOCIETY from 1985 through 1997.**

Committee Activity	Fifth , 1985 France	Sixth, 1989 Japan	Seventh, 1993 U.S.A.	Eighth , 1997 Australia	Ninth, 2001 Canada
Nominating	C. Cenci (Ch.) J. Shoulders H. Vos	J. Shoulders (Ch.) B. Bourgoin S. Dahlsson I. MacIvor Y. Maki	Y. Maki (Ch.) B. Bourgoin K. McAuliffe J. Neylan J. Watson	J. Watson (Ch.) P. McMaugh W. Meyer P. Rieke J. Shoulders H. Yanagi	P. McMaugh (Ch.) W. Adams P. Charbonneau J. DiPaola K. McAuliffe H. Richter
By-Laws			J. Shoulders (Ch.) J. Beard S. Dahlsson P. Hayes F. Lemaire J. Kaufman Y. Maki P. McMaugh J. Vargas		
Publications	F. Lemaire	H. Takatoh	R.N. Carrow N.E. Christians R.C. Shearman M.S. Welterlen	P.M. Martin	K. Carey
Resolutions	W. Adams (Ch.) M. Peterson J. Shoulders	W. Adams (Ch.) H. Koshimizu A. Misawa M. Peterson J. Watson	W. Adams (Ch.) I. MacIvor R. Rieke A. van Wijk	J. Hall (Ch.)	
Historian	J.Beard	J.Beard	J.Beard		J.Beard

## **RESOLUTIONS OF THE 2001 QUADRENNIAL MEETING OF THE INTERNATIONAL TURFGRASS SOCIETY**

The following resolutions were presented and passed at the business meeting on a motion by F.B. Holl, seconded by Phil Busey.

### **Resolution 1:**

- Whereas: The International Turfgrass Society has been effectively directed by the International Turfgrass Society President over the past four years, and
- Whereas: The President has provided effective leadership in developing the planning and arrangement for the conduct of the 9th International Turfgrass Research Conference in Toronto Canada;
- Be it resolved: That the membership of the International Turfgrass Society extend their sincere appreciation and thanks to Pamela Charbonneau for her untiring effort and leadership during her tenure as President of the Society.

### **Resolution 2:**

- Whereas: The organisation and programming of the 9th International Turfgrass Research Conference were ably developed and effectively executed by the Conference Planning Committee;
- Be it resolved: That the members of the International Turfgrass Society expression their appreciation and thanks to the membership of the committee which includes, R. Witherspoon, K. Carey, E. Gunn, T. Ostler, M. Watson, T. Yamada, S. Baker, N. Christians, B. Clarke, R. Duncan, T. Hsiang, M. Jones, K. Karnok, M. Kenna, J. Murphy, P. Stangel, D. Stubbs, and M. Volterrani for their leadership and exceptional effort in making the 9th International Turfgrass Research Conference an outstanding success.

### **Resolution 3:**

- Whereas: Individuals and family members who accompany turfgrass professionals to the International Turfgrass Research Conferences contribute significantly to the overall conference experience, and
- Whereas: The accompanying persons program is an important element of the overall conference programming, and
- Whereas: The accompanying persons program was effectively developed under the direction of Ms. Cindi Charters;
- Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to Ms. Charters and to all the volunteers who have assisted in the development and execution of an outstanding program for accompanying persons.

### **Resolution 4:**

- Whereas: The pre-conference tour in the province of Quebec contributed significantly to the overall scientific and social experience of the 9th International Turfgrass Research Conference, and
- Whereas: The pre-conference tour was ably organized and directed;
- Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to the organizers of the tour Drs. Julie Dionne, Claude Dubois and Yves Desjardins, as well as all the volunteers associated with the management and conduct of the pre-conference tour.

### **Resolution 5:**

- Whereas: The organization of the 9th International Turfgrass Research Conference was effectively

supported by the Guelph Turfgrass Institute under the direction of Rob Witherspoon, and

Whereas: The support of the Guelph Turfgrass Institute contributed to the overall success of the conference and to the global dissemination of information on the science and culture of turfgrass;

Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to the Director and staff of the Guelph Turfgrass Institute for their effort and dedication in contributing to the effectiveness of the 9th International Turfgrass Research Conference.

**Resolution 6:**

Whereas: The activities of the 9th International Turfgrass Research Conference were effectively supported by a fund raising committee headed by C. Switzer, and including, G. Allan, R. Craig, D. Goudy, R. Kowalski, and T. Sawyer, and

Whereas: Members of the local and global turfgrass industry have through their effort and financial resources contributed to the success of the 9th International Turfgrass Research Conference by their generous support and sponsorship of conference organisation and events, and

Whereas: That fund raising efforts and industry sponsorship enhanced the experience for participants at the 9th International Turfgrass Research Conference;

Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to the members of the fund raising committee and to the numerous industry sponsors who have contributed to the success of the conference, and supported the exchange of turfgrass knowledge.

**Resolution 7:**

Whereas: The International Turfgrass Society exists in part to encourage the exchange of turfgrass knowledge - worldwide, and

Whereas: The International Turfgrass Society Newsletter operates as an effective vehicle of communication to the International Turfgrass Society membership, and

Whereas: Dr. John Cisar has continued to do an outstanding job of editing the International Turfgrass Society Newsletter, and

Whereas: The Toro Company through the guidance and publication expertise of Jim and Ellen Watson, respectively, have graciously printed the newsletter since 1990;

Be it resolved: That the membership of the International Turfgrass Society extend their sincere thanks to Dr. John Cisar, Dr. Jim Watson, Ellen Watson and the Toro Company for their efforts in ensuring that the newsletter of the Society continues to be an effective vehicle of communication among the diverse global membership of the International Turfgrass Society.

**Resolution 8:**

Whereas: The International Turfgrass Society exists in part to encourage the exchange of turfgrass knowledge - worldwide, and

Whereas: The development of International Turfgrass Society NetNotes has provided an effective vehicle for electronic communication to the International Turfgrass Society membership and

Whereas: Dr. Joe DiPaola has been instrumental in developing, producing and disseminating NetNotes since their inception;

Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to Dr. DiPaola for his energy and effort in developing this additional vehicle for communication of turfgrass information to our membership.

**Resolution 9:**

- Whereas: The publication of the International Turfgrass Society Research Journal Volume 9 was effectively prepared and published in time for distribution at the 9th International Turfgrass Research Conference, and
- Whereas: The papers in the International Turfgrass Research Conference Research Journal have been peer reviewed and edited by a cooperative multinational team of editors and reviewers, and
- Whereas: The preparation of the journal was ably directed by an editorial team that included, K. Carey (Editor-in-chief), Editors - S.W. Baker, J.B. Beard, R.N. Carrow, T.K. Danneberger, R.R. Duncan, R.E. Gaussoin, R.J. Gibbs, T. Hsiang, M.P. Kenna, P.J. Landschoot, G.R. Stephenson, A.J. Turgeon, P. Vittum, Editorial Assistant E. Gunn and more than 130 individual reviewers;
- Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to the Editorial Committee and the reviewers for their extensive efforts in the production of the International Turfgrass Society Research Journal, Volume 9.

**Resolution 10:**

- Whereas: The general oversight and direction of the International Turfgrass Society is vested in the Board of Directors during the period between the Quadrennial business meetings, and
- Whereas: The following members of the Board have completed their terms, or have decided not to stand for re-election:
- Bernard Bourgin  
Michael Canaway  
John Cisar  
Brian Holl  
Keith McAuliffe  
Ian McIver  
Martin Petersen  
Teri Yamada, and
- Whereas: Dr. George Snyder has decided to step down as Treasurer of the International Turfgrass Society after eight years of effectively managing the financial transactions of the Society;
- Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to the retiring directors, and to especially to Dr. George Snyder for their years of devoted service on behalf of the Society.

**Resolution 11:**

- Whereas: The journal of the International Turfgrass Society is an important vehicle to communicate information on the turfgrass science and culture among members, and
- Whereas: Dr. R. Schmidt has been responsible for coordinating the maintenance and distribution of past issues of the journal for a number of years;
- Be it resolved: That the membership of the International Turfgrass Society extend their appreciation and thanks to Dr. Schmidt for his contribution to the dissemination of information on turfgrass science to the global community through his coordination of journal distribution.

Submitted by:  
F.B. Holl  
A/Chair, Resolutions Committee  
July 2001

## NOMINATING COMMITTEE REPORT

### ITS Director's Slate 2001-2005

At the quadrennial business meeting of the International Turfgrass Society the membership must elect directors to serve the Society for the next four year period. The business meeting will be conducted at the IXth International Turfgrass Research Conference to be held in Toronto, Ontario, Canada in July 2001.

The ITS bylaws stipulate several requirements which the nominating committee must follow. The immediate past president serves as chair of the nominating committee. If he is unable to serve, a previous president, or an officer appointed by the president may serve as chair. The nominating committee has two major functions: to nominate the individuals to serve as directors and to suggest individuals to serve as officers of ITS. The officers are elected by the newly elected directors at their first board meeting held immediately after the conference.

The Board of Directors must have a minimum of seven directors from four countries with no more than two from any one country. However, a country may have additional representations if one is elected as an officer.

Those directors who have completed two terms (eight years) are not eligible for election to a third term; however, they, as well as those who have served one term (four years) as director, are eligible to hold an elected office. Also, persons who have served two successive terms (eight years) are eligible to serve as a director after a period of four years. The offices of treasurer and historian are exceptions to these restrictions. Those officers may be elected for unlimited consecutive terms.

The bylaws also provide for the election of a president elect whose duties shall be to advise the president and board of directors with respect to plans pertaining to the second upcoming quadrennial meeting of ITS membership (2009). The bylaws further state that preference shall be given to having the president to be a citizen of the country in which the next meeting (2005) of the Society will be held. The president-elect must be a citizen of the country which the membership will have chosen at the current meeting (2001) to host the next conference to be held four years hence (2005). Wales will host the ITRC in 2005. Chile and China have extended invitations to the Society to host ITRC in 2009.

All nominees are in compliance with the conditions specified in the bylaws and all nominees recommended by the nominating committee have agreed to election as a director of ITS. The slate is open for nominations from the floor during the quadrennial business meeting of the ITS.

Those officers and directors who completed their second term in 2001 are:

Canada	Pam Charbonneau
Denmark	Martin Petersen
France	Bernard Bourgoin
New Zealand	Keith McAuliffe
UK	Michael Canaway
USA	George Snyder

The directors who have served one term and have chosen not to stand for re-election for a second four year term are:

Australia	Ian McIver
Canada	Teri Yamada and Brian Holl

We sincerely thank these retiring directors for their loyalty and service over the past eight years. Their contributions to the board and to the society have been invaluable. Dr. George Snyder (Treasurer) has given freely of his time, paid all the bills in a timely manner and deserves a special thanks from the membership and the Board of Directors for all his efforts.

Those directors who have served one term and have agreed to stand for re-election for a second four year

term are:

Austria	Hermann Richter
Korea	Joon Soo Choi
Japan	Yutaka Noma
Sweden	Sven-Ove Dahlsson
Wales	Bill Adams
USA	Joe DiPaola

The following slate for directors of ITS for 2001-2005 is recommended:

Australia	John Neylan
	Ian Chivers [nominated from the floor]
Austria	Hermann Richter
Canada	Ken Carey
Chile	Carol P. Müller-Turina
China	Han Liebao
France	Jean Pierre Leboucher
Italy	Marco Volterrani
Japan	Yutaka Noma
Korea	Joon Soo Choi
Norway	Dr. Engelsjord
New Zealand	Richard Gibbs
Sweden	Sven-Ove Dahlsson
United Kingdom	Danny Thorogood
	Stephen Baker
USA	Joe DiPaola
	Bruce Clarke

The nominating committee recommends to the Board of Directors the following slate of officers to serve ITS for 2001-2005

President	Bill Adams, Wales
Vice-President	Bob Carrow, USA
President Elect	To be determined [Carol P. Müller-Turina, Chile, elected at Post-conference Board Meeting]
Treasurer	John Cisar, USA
Secretary	To be determined [Ken Carey, Canada, elected at Post-conference Board Meeting]
Historian*	Jim Beard, USA
Past President	Pam Charbonneau, Canada

\*Dr. Beard has agreed to continue serving as Historian.

A newsletter editor will be appointed by the President.

Respectfully submitted by the nominating committee:

Peter McMaugh, Chair  
Pam Charbonneau  
Hermann Richter  
Keith McAuliffe  
Bill Adams  
Joe DiPaola



## INTERNATIONAL TURFGRASS SOCIETY POST-CONFERENCE BOARD MEETING

July 21, 2001

Westin Harbour Castle Hotel - Toronto, Canada

### Present:

Bill Adams, United Kingdom	Ian Chivers, Australia	Marco Volterrani, Italy
Hermann Richter, Austria	Yutaka Noma, Japan	Jean-Pierre Leboucher, France
Carol Müller, Chile	Bruce Clarke, U.S.A.	Stephen Baker, United Kingdom
Danny Thorogood, United Kingdom	Pam Charbonneau, Canada	John Cisar, U.S.A.
Joon Soo Choi, Korea	Robert Carrow, U.S.A.	Richard Gibbs, New Zealand
Ken Carey, Canada	James Beard, U.S.A.	Joe DiPaola, U.S.A.
Klaus Mueller-Beck, Germany	Alexander Richter, Austria	Morten Engelsjord, Norway
Han Liebao, P.R. China	Brian Holl, Canada	

1. The meeting was convened by Bill Adams at 9:12 am.
2. Members introduced themselves and the officers of the ITS were confirmed:  
President: Bill Adams  
Vice-President: Bob Carrow  
Past President: Pam Charbonneau  
President Elect: TBA  
Secretary: TBA  
Treasurer: John Cisar  
Historian: James Beard

Following a brief discussion, Brian Holl agreed to act as the Secretary *pro tem* for the Post-conference meeting.

Ken Carey was nominated by James Beard, seconded by Bob Carrow to become Secretary of the ITS immediately following the Post-conference Board meeting.

Carried

Carol Müller was unanimously approved as the President Elect.

### 3. Newsletter & NetNotes

John Cisar reported on the Newsletter, indicating the desirability of retaining a printed version. George Snyder was confirmed as the new Editor of the Newsletter. Following some discussion of frequency, it was moved by Bob Carrow, seconded by Ken Carey that the Newsletter be issued a minimum of two times per year.

Carried

It was also noted that the onus is on ITS Directors to ensure the submission of content to assist the Newsletter Editor.

Joe DiPaola reported on NetNotes - this electronic vehicle had been issued at approximately monthly intervals since its inception. Its intent is to reach out beyond the society in addition to communicating to members. Joe is willing to continue as the "editor" and re-iterated the need for Directors to take a lead role in ensuring that information about the membership was forwarded to him for inclusion.

Beard suggested that at least twice a year, NetNotes be used to list new members of ITS. DiPaola indicated that this was done.

### 4. Technical paper Publication

The mid-conference Board meeting in Toronto had determined that the Technical papers from the 9<sup>th</sup> ITRC would be published over time in subsequent Newsletters. Because of the numbers of possible papers and the time required to include all the papers, it was decided that a more appropriate route would be to include these papers in the CD-ROM of the journal that was being produced. There was some discussion of the various options for publication. Ken Carey indicated that he had not received that many e-versions of these technical papers by the conference deadline.

Carrow moved and DiPaola seconded - that the available technical papers (as of the conference deadline date) be included in the CD-ROM of the ITRC journal, and that there be no further solicitation of e-versions of the text for these papers.

Carried.

## 5. Journal CD-ROM

Ken Carey reported on the journal CD-ROM. It would be sent to authors in lieu of reprints. DiPaola suggested that CD-ROM should be available to members at nominal pricing, and to non-members only with the purchase of the hard copy journal.

Moved by Charbonneau, seconded by Carrow - that the printed journal and CD be marketed as a single unit.  
Carried

There was some additional discussion about getting the journal wider distribution to libraries etc. Directors were encouraged to approach their respective institutional libraries to initiate requests to purchase the journal. A similar request would be disseminated to members through NetNotes, and Beard would check with his publishers regarding any strategy to access wider library distribution through that route.

## 6. Editorial Arrangements for the 10<sup>th</sup> ITRC Journal

Ken Carey reported that the editorial arrangements for the 9<sup>th</sup> ITRC journal worked effectively through the editorial board. He will be providing a more detailed report to the new Editor-in-Chief but made the following points:

- more co-editors may be desirable, particularly in certain areas so that the numbers of papers that must be handled by an individual editor do not exceed 15.
- Electronic communication was helpful
- Copies of reviews and editorial feedback should be provided to the Editor-in-Chief to ensure some overall assessment of quality control
- Time line control was challenging both with authors and reviewers

Danny Thorogood has agreed to act as Editor-in-Chief for the 10<sup>th</sup> ITRC journal. Gibbs suggesting putting the key information from this experience into a handbook for subsequent editors. Beard made a plea for editors to work to assist in raising the quality of the papers submitted to the journal, particularly in light of the global nature of the society. Cisar suggested including a representative from Chile into the editorial board to provide some experience for them prior to the 11<sup>th</sup> meeting of the ITS in 2009.

## 7. Review of 10<sup>th</sup> Conference Venue in Wales (Bill Adams)

As he had indicated at the pre-conference Board meeting, the Wales group had chosen Llandudno as the site for the conference on the basis of cost, location and facilities. Adams briefly summarized the features of the location. Alexander Richter provided an overview of the pre-conference tour to start approximately July 2 in Pisa and continue through Florence, Venice, into the Alps and on to Vienna.

Danny Thorogood noted that the International Grassland Congress was to be held in Dublin shortly before the ITRC meeting. Pam Charbonneau suggested that an appropriate link be included on the conference web site to ensure that the timing of the two meetings was noted by the membership.

## 8. ITS Web Site

The ITS web site is currently maintained by George Snyder in Florida. The ITRC site for the 10<sup>th</sup> meeting would be established in Wales. There was some discussion regarding the consolidation of the two sites as well as the function of the ITS site.

Ken Carey has agreed to become the Web maintainer for the ITS site.

On a motion by Carrow, seconded by Clarke, a committee was established to investigate the location of the ITS web site and to determine its appropriate function. Ken Carey was to head the committee and was given the power to co-opt as required.

Carried.

## 9. Electronic Journal (Carrow)

Bob Carrow described the background to a proposal for a turf review e-journal that had been proposed involving the ITS, C5 division of Crop Science and the MSU-Turfgrass Information File.

There was some discussion of the nature of the proposal and the commitment that was being asked of the ITS.

Beard suggested assigning two directors to act as a liaison with this group to target a decision by the Oct/Nov. C5 meeting. Charbonneau and Carrow agreed to act as the liaison committee. Beard noted that if it was decided to proceed with the e-journal, that at that time the ITS Board would make the appointment of the two members who would serve on the Editorial policy board.

## 10. Bylaws

It was noted that there were a number of by-law related issues that needed to be considered with respect to

publications, representation of the Executive, and Board size. The By Laws have not been reviewed for some time and Bill Adams proposed that a committee be established to look at these issues.

Carrow moved and DiPaola seconded that a committee be established to review the by laws and to bring a report back to the mid-conference Board meeting. The committee would include: Beard (Convenor), Richard Gibbs, Joe DiPaola and Stephen Baker.

Carried

11. Bill Adams initiated a general discussion on the future of the ITS and how the society might develop into new geographic areas. i.e. what vehicles are available for promotion of the society?

P. Charbonneau volunteered to look into the issue of membership recruitment and would be assisted by Carol Müller, Joon Soo Choi, Ian Chivers and Klaus Mueller-Beck. They would bring a report/proposal to the mid-conference Board meeting, as well as communicating with the by laws committee to ensure that the proposals were consistent with the ITS by laws.

12. Journal pricing - members

Charbonneau moved and Gibbs seconded that the member price for additional copies of the 10<sup>th</sup> ITRC journal be set at US\$ 100.00

Carried.

13. Holl presented a proposal (attached) for managing the ITS finances over the next four years. The information would be used by the Treasure to bring a formal proposal to the Board.

14. In planning for the 11<sup>th</sup> ITRC in Chile, the Board requested that Carol Müller bring to the mid-conference Board meeting in Wales a provisional business plan that outlined the organizational structure and membership for the meeting, the tentative financial arrangements, and confirmation of support from appropriate institutions in Chile.

15. The Mid-conference Board meeting will be held in July 2003 at or near Llandudno.

16. The meeting was adjourned at 11:55 am.

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#### Proposed Investment Framework for the International Turfgrass Society July 2001

**Note:** All values are rounded for simplicity and are in \$US.

***Current assets:***

Bank (chequing)	32,000.00
Bank (savings)	15,600.00
Paine Webber (Investment)	
Money Market	47,150.00
Mutual Funds	36,840.00
Journal A/C (Schmidt)	6,000.00
<b>Total</b>	<b>137,590.00</b>

The annual draw for the ITS is approximately \$10,000 and there are currently approximately \$25,000 in outstanding expenses as accounts payable for the 9<sup>th</sup> ITRC that will be drawn from the chequing account leaving a balance of approximately \$7,000.

This proposal suggests a starting cash balance in the chequing account for each fiscal year of approximately \$10,000, with a three year operating reserve of \$30,000 to be maintained in a money market fund. The balance of the funds would represent an investment reserve to be distributed as 60% equity and 30% bonds/fixed income in appropriately selected mutual funds or other investment vehicles.

At the end of the fiscal year, if there is a balance in excess of \$10,000 in the chequing account, then the excess would be transferred to the cash reserve (40%) and the investment reserve (60%).

For the current overall balance, the distribution would be as follows:

Accounts payable	(25,000.00)
Cash in bank	10,000.00
Cash reserve (Market)	30,000.00
Investment reserve	
Equity	40,200.00
Fixed income	26,390.00
Journal A/C	6,000.00
Total	137,590.00

The following additional recommendations are proposed:

- That the Treasury prepare a quadrennial budget for the ITS to provide more effective communication of the financial management of the society
- That the investment strategy for the ITS, and particularly the distribution and performance of the investment reserve, be reviewed annually by the ITS Executive