

# **ISTRO INFO**

**A Publication of the  
International Soil Tillage Research Organization**

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## ISTRO INFO – SPRING 2005

The spring tillage and planting season is well underway in the U.S. Corn and Soybean Belt and throughout many other areas of the country. According to the National Agricultural Statistics Service (NASS) [<http://www.usda.gov/nass/aggraphs/crops.htm>], corn, soybean, wheat, cotton, sorghum, and rice for 2005 have been planted on 32.9, 29.9, 23.7, 5.6, 3.0, and 1.4 million hectares, respectively. Winter wheat production is forecast at 42.6 TG, up 6% from 2004. Based on May 1 weather conditions, the 2005 U.S. yield is forecast at 3.05 Mg per hectare, 119 kg per hectare more than last year.

With regard to tillage, the Conservation Technology Information Center (CTIC) 2004 Crop Residue Management Survey [<http://www.ctic.purdue.edu/CTIC/CTIC.html>] is now available. It shows the changes in the percentage of land planted using no-tillage, ridge-tillage, and mulch tillage in the U.S. during the past decade (Fig. 1) and the area where reduced or conventional tillage practices were used (Fig. 2).

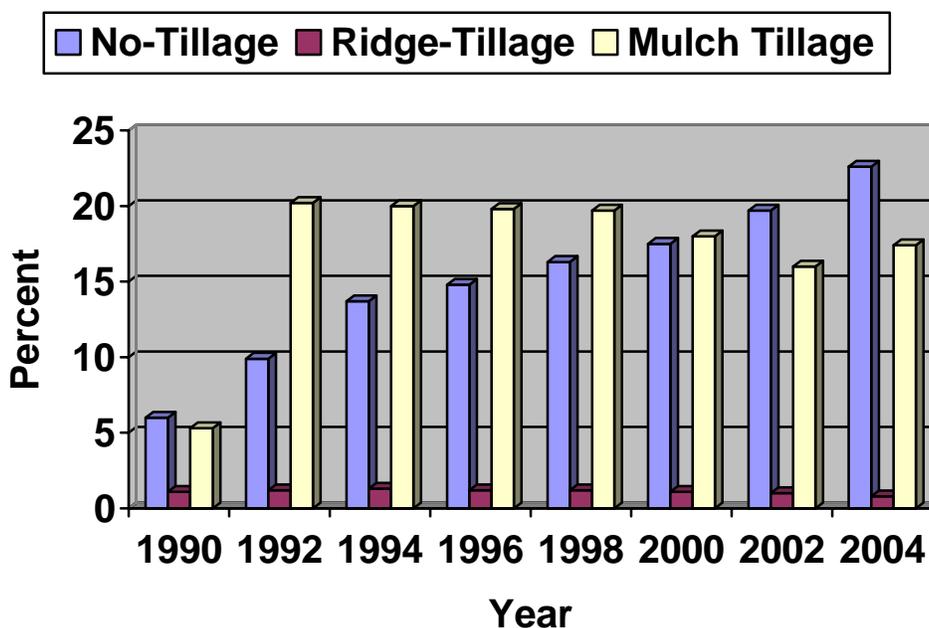


Figure 1. Changes in U.S. conservation tillage adoption between 1990 and 2004.  
(Source: CTIC National Crop Residue Management Survey for 2004)

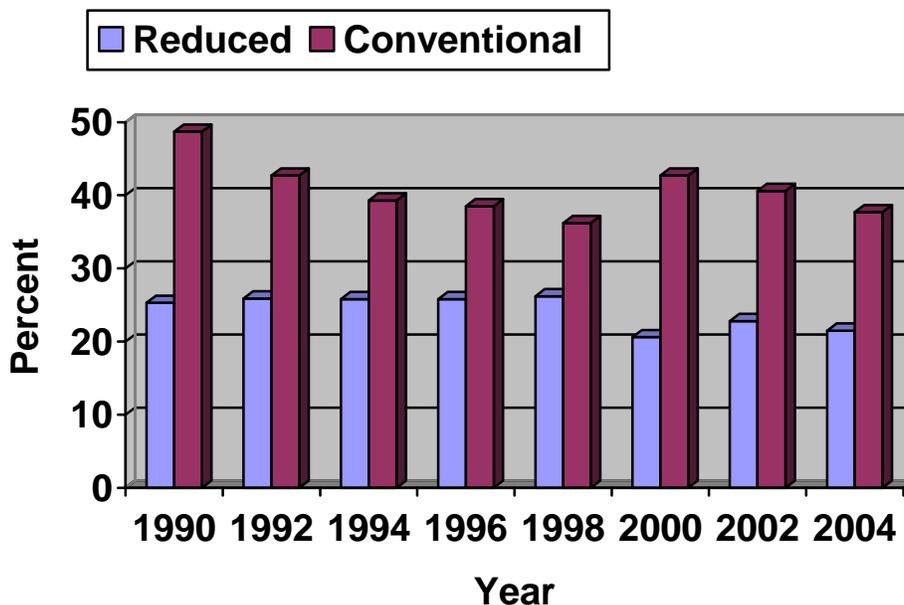


Figure 2. Changes in use of reduced and conventional tillage between 1990 and 2004.  
(Source: CTIC National Crop Residue Management Survey for 2004)

The states with the highest adoption of no-tillage practices are Illinois, Iowa, South Dakota, Indiana, Ohio, Nebraska, Kansas, North Dakota, Missouri, and Montana with 2.7, 2.1, 2.0, 1.9, 1.7, 1.7, 1.3, 1.2, and 0.8 million hectares, respectively. With regard to each crop, no-tillage was used for 11.8, 6.4, 2.7, 1.8, 0.9 and 0.7 million hectares of soybean, corn, winter wheat, spring small grains, cotton, and sorghum, respectively.

Finally, please continue to circulate ISTRO-INFO to non-members in your various institutions and organizations, invite them to see our website [www.ISTRO.org](http://www.ISTRO.org) and of course to join our organization. Please continue to send me information about your working groups, recent research activities, or Branch activities. Also, if you have any other ideas for this newsletter (such as a possible question and answer section) please submit some questions or other ideas.

Doug Karlen  
Assistant Secretary General

## INTER-CONGRESS MEETING REPORT

The ISTRO Board met in Kiel, Germany on April 21-22, 2005 and had a very productive inter-congress meeting. Kiel was chosen to give Board Members an opportunity to meet with the local organizing committee and to see the facilities for next years Conference which will be held from August 28<sup>th</sup> through September 3<sup>rd</sup> 2006 (Please see “Call for Papers”). The Board received a report from Elsevier on Soil and Tillage Research, selected a site for the 2012 ISTRO meetings, and discussed how to be most helpful to the various ISTRO Branches. Outcomes of these discussions are included elsewhere in the newsletter under their own headings.

## NORDIC TILLAGE CONFERENCE – MAY 2006

The Nordic Association of Agricultural Scientists would like all ISTRO members and others to be aware of their up-coming conference entitled “**Tillage Systems for the Benefit of Agriculture and the Environment**” that will be held May 29-31, 2006 at the Nordic Agricultural Academy, in Odense, Denmark. Accommodations will be provided by the Nordic Agricultural Academy. The target group for this conference is scientists, teachers, advisors and farmers who are interested in the impact of soil tillage systems on agricultural production and the environment. The official language will be English. All abstracts and presentations must be prepared and presented in English. Three keynote speakers, **Richard Godwin**, Cranfield University, Silsoe, UK, **Jim Orson**, Morley Research Centre, UK, and **Arild Vatn**, Norwegian University of Life Sciences, NOR have been invited to make presentations on *Crop Establishment and Machinery*, *Weed and Pest Management*, and *Resource Economics*, respectively. A ½-day excursion is planned on Tuesday May 30<sup>th</sup> to visit a tillage experiment involving four different tillage systems and four different crop rotations at Research Centre Flakkebjerg, and to visit a couple of farmers practicing reduced tillage.

The conference is being organized because tillage is a management decision that has strong and complex impacts on agricultural production and the environment. Key

functions of the agroecosystem (such as nutrient cycling, disease and weed control, water infiltration and runoff, and soil structure formation and stabilization) are affected by tillage. These functions influence the quality of soil for plant growth (seedbed quality, nutrient and water supply, pest and weed control) and with regard to the impact of agriculture on the environment (biodiversity as well as nutrient, pesticide and soil loss). Farm economics are also strongly affected, as soil tillage is the most expensive element in crop production. Therefore, there is an ongoing effort to reduce costs (i.e. tillage intensity) while maintaining crop production and reducing the impact on the environment. In short, the multifaceted effects of tillage call for a multidisciplinary and interdisciplinary approach to advance our understanding of how the various functions are influenced. The objective of the seminar is to bring together scientists and participants from different fields to address soil tillage in an interdisciplinary perspective

Therefore, the organizing committee invites interested parties to submit papers and posters on (1) Crop Protection and Management, (2) Economics and Politics, (3) Crop Establishment and Machinery, (4) N and P loss, or (5) Soil Structure and Quality. All proposed titles and abstracts for either oral presentations or posters should be sent to the Organizing Committee (Lars J. Munkholm, [lars.munkholm@agrsci.dk](mailto:lars.munkholm@agrsci.dk)) before December 1, 2005. If accepted for the conference by the Committee, extended abstracts for both oral and poster presentations will be due on or before May 1, 2006. For additional information, please see the Nordic Association of Agricultural Scientists' webpage [<http://www.njf.nu>] and follow the links under the category "Seminars."

## **PLAN NOW TO ATTEND THE 17<sup>TH</sup> ISTRO CONFERENCE IN KIEL**

Plans for the 17<sup>th</sup> ISTRO Conference (August 28<sup>th</sup> –September 3<sup>rd</sup>, 2006) as well as the pre-, post-, and mid-conference tours are progressing very well. Recently the ISTRO Board met in Kiel to see the site and meet with the local organizing committee. The members were very impressed with the progress that is being made. The Conference will be held at the Christian-Albrechts University in Kiel, Germany. Founded in 1665, the

university today has approximately 22,000 students in nine faculty areas. The University is located 4 km from the heart of Kiel, close to the Kiel Harbour and the Kiel Canal. The city itself is the capital of Schleswig-Holstein and is located at the Baltic Sea. For more detailed information about the location please see [www.uni-kiel.de](http://www.uni-kiel.de) and be sure to stay informed about the Conference by viewing our homepage [www.soils.uni-kiel.de](http://www.soils.uni-kiel.de) which is also conveniently linked to the ISTRO homepage ([www.ISTRO.org](http://www.ISTRO.org)).

The Soil Science Institute is part of the Agricultural and Food Science Faculty. In addition to myself as the professor for soil science, there are three scientific assistants Drs. Peth, Fleige, and Wetzels, three technicians a secretary, and about 10 Ph.D. and Post-doctoral associates. The primary research projects address stress – strain analysis of structured, unsaturated soils; stress and strain distribution in soils under agricultural and forest machinery; and the consequences of stress and strain on soil physical and physicochemical properties. The evaluations are typically made using equipment such as the Multistep compression device, frame shear tests, tri-axial test devices and a load frame apart from the normal physical equipment facilitate such measurements. A new soil bin as well as a wind tunnel in a new lab-hall allows us to determine also under defined conditions the fundamental processes of stress distribution and changes in pore water pressure and to also analyse the inter-particle forces during wind erosion.

The determination of swell shrink processes and the consequences for the hydraulic properties are used to quantify the boundary conditions and for the application of the van Genuchten equation. Under in situ conditions we analyze the time and depth dependent changes in pore water pressure and link those results with the water balance by including also the tensor functions of the hydraulic conductivity. One of the most important projects that will be carried out in Kiel is the analysis of how hydrophobicity affects soil mechanical and hydraulic processes and how to model them. We are also conducting a project attempting to link the effect of fly ash application on the hydraulic properties of forest soils.

As the President of ISTRO, I want to make sure, that your participation in this 17<sup>th</sup> ISTRO Conference. The University in Kiel is not only interesting but also gives you the possibility to have strong and fruitful discussions with colleagues and friends and to enjoy the beautiful city in the vicinity of the Baltic Sea. By now, you should have received the 2<sup>nd</sup> call for papers. **PLEASE NOTE** – the deadline for receipt of the Abstracts is August 1, 2005. Finally, I look forward to see you all here in Kiel and remain with my best regards to you

Yours sincerely

Rainer Horn

## **SCHOLARSHIPS FOR YOUNG RESEARCHERS**

The ISTRO Board unanimously agreed to once again help young researchers (under the age of 40, with demonstrated superior research accomplishments) attend the 17<sup>th</sup> ISTRO conference by sponsoring four (4) scholarships. One scholarship is open to young scientists from all countries, while the other three are for researchers from all countries except those classified as being “high-income.” This listing is found at the website [http://www.worldbank.org/data/countryclass/classgroups.htm#Low\\_income](http://www.worldbank.org/data/countryclass/classgroups.htm#Low_income). The scholarships include the Cees van Ouwkerk scholarship and will cover the costs of airfare (lowest cost possible), registration, the Conference Dinner and a contribution of 35 EURO per day toward the hotel accommodation. Scholarship candidates must be current members of ISTRO themselves and nominated by current members of ISTRO.

Nominations including supporting material documenting their research activities (e.g. two recent journal or conference publications), a curriculum vitae listing education and all publications, presentations and teaching activities, and the Abstract for a paper to be presented at the 2006 ISTRO Conference must be submitted to the Assistant Secretary-General (Doug Karlen) by February 1, 2006. The selection committee will consist of the two new Board Members (Allen Torbert and Laura Alakukku). After the selection, the scholarship winners and losers will be informed by the Assistant Secretary-General who will also notify the Conference Organization. Heiner Fleige (Organizing Committee) will then assume all correspondence with the winners.

## SPONSORSHIP FOR ISTRO BRANCHS

The challenges facing some of the ISTRO Branches was an important discussion point at the recent inter-congress Board meeting. Among the issues discussed were how to get more scientists interested in the ISTRO activities, how to become linked to other societies and Unions, and how to improve communication between the ISTRO Board and Branches in various countries throughout the world. Currently there are official ISTRO Branches in Bulgaria, Czech Republic, Estonia, Hungary, Kenya, Nigeria, Pakistan, Poland, Romania, Slovakia, St. Petersburg/Russia, Turkey, and the Ukraine. Scientists in several other countries (Iran, Lithuania, Latvia, Morocco, Argentina, Zimbabwe, Mexico, and China) have had some preliminary discussions regarding the formation of ISTRO Branches.

National Branches of ISTRO were first formed in the 1990's and new Branches are under consideration for organization. ISTRO Branches link geographically or economically isolated soil and tillage researchers as full Members of ISTRO and acquaints researchers within common-language national or regional groupings for technology exchanges, cooperative studies, and professional development. The Branches simplify the maintenance of membership records, collection and payment of annual dues, and correspondence with ISTRO.

In some countries the economic situation is very bad and members of the national ISTRO Branch can not pay their fee. As a matter of principle, ISTRO can not discharge ISTRO Branches of paying fees. However, during the mid-term meeting in Kiel, 2005, the ISTRO Board agreed that sponsorship of Branches might be a good possibility to overcome their financial problems to pay the fee. Persons or institutions willing to sponsor an ISTRO Branch can contact the Secretary-General of ISTRO Jan van den Akker ([janjh.vandenakker@wur.nl](mailto:janjh.vandenakker@wur.nl)).

In addition, Dr. John Morrison (Branch Development Committee Chair) recommended that an **active** Branch Mentor System would be the most effective way to maintain professional and effective contact between the ISTRO Board and the Branches. This volunteer mentorship would require established ISTRO members who are willing and

able to work diligently to keep in contact with their respective Branch. To be effective and successful, mentors must be able to visit their respective Branches and participate in their major activities each year. This one-on-one professional contact is crucial, especially until a Branch is well-established and functioning in a professional manner with a strong leadership corps. As always, the Board welcomes any other suggestions that members can provide.

## **18<sup>TH</sup> WORLD CONGRESS OF SOIL SCIENCE**

Please remember to submit your abstract for the 18<sup>th</sup> World Congress of Soil Science by September 15, 2005. They can be submitted at [www.18wcoss.org](http://www.18wcoss.org). The Congress will be held July 9-15, 2006 in Philadelphia, Pennsylvania, USA, and feature plenary sessions, symposia, poster sessions, scientific and technical exhibitions, and working sessions of the IUSS Divisions, Commissions, Working Groups and Standing Committees. Cultural tours/events for accompanying participants and an array of scientific tours throughout the USA are also being planned. For more information or to register on-line please see the website at [www.18wcoss.org](http://www.18wcoss.org). The current cost is \$550 but will increase on both February 1<sup>st</sup> and May 1<sup>st</sup>, 2006.

## **SOIL QUALITY CONFERENCE IN IRAN**

The Department of Soil Science at Isfahan University of Technology in Iran is planning an international conference entitled "Human Impacts on Soil Quality Attributes in the Arid and Semi-arid Regions" for September 12-16, 2005. For more information about the conference, please see the website [www.iut.ac.ir/cesoil](http://www.iut.ac.ir/cesoil) or contact Dr. Mohammad Ali Hajabbasi, Associate Professor of Soil Science, Isfahan University of Technology, Isfahan, Iran 84154. Phone: +98-311-3913477; FAX: +98-311-3913471; E-mail: [hajabbas@cc.iut.ac.ir](mailto:hajabbas@cc.iut.ac.ir).

## **SOIL & WATER CONSERVATION SOCIETY (SWCS) MEETING**

The 2005 SWCS conference will be held in Rochester, N.Y., USA from July 30<sup>th</sup> through August 4<sup>th</sup>. The conference will focus on four key topics: managing landscapes for environmental quality; assessing and communicating the effectiveness of conservation and environmental programs; the growing debate around water use; and consumer demand and policy effects on agricultural resources. For more information please see: [www.swcs.org](http://www.swcs.org).

## **XII INTERNATIONAL RAINWATER CATCHMENT CONFERENCE**

Water is indispensable, not only for the survival of all life forms, but also for any kind of human activity. Worldwide, pressure on water resources continues to mount, as population growth, industrialization, urbanization, increasing consumption, ubiquitous contamination and climate change take their toll. The over exploitation of ground water has resulted in the lowering of water table and the means of its natural replenishment have been hindered by relentless human activity. Water shortage and scarcity eventually leads to low agricultural production and productivity while demand is growing – a case of “double jeopardy!”

To address these issues, the International Rainwater Catchments Systems Association (IRCSEA) is organizing the XII International Conference. This biennial Conference will be held in New Delhi, India from November 15 to 18, 2005. India is an appropriate venue for this conference because practically all agro-climatic zones found on earth are also found in India. Addressing water problems will also provide stimuli for addressing issues of socio-political injustice and inequity. Water problems all over the world reflect these undercurrents and the effect they have on human lives. All people interested in rain water harvesting, experts, academicians, technocrats, administrators, legislators, civic bodies, farmers, industrialists, householders are invited to participate.

The conference objective is to create a platform for interaction among all those working for dissemination of information on improvement of rainwater catchment systems technology for its greater and wider acceptance. Topics will include rainwater harvesting structures in different geo-hydro-thermo and agro-climatic zones, managing rain roof water in urban areas, rainwater supply, sanitation and water quality concerns, and the use of GIS and remote sensing for water harvesting. Registration is US\$ 300. For more information please contact the Conference Coordinator, Dr. Namrata Pathak at the Action for Food Production (AFPRO) [ircsamail@afpro.org](mailto:ircsamail@afpro.org) or [afprodel@afpro.org](mailto:afprodel@afpro.org).

## **VISUAL SOIL EXAMINATION & EVALUATION NEWSLETTER**

ISTRO Working Group F 'Visual Soil Examination and Evaluation' recently distributed their May 2005 Newsletter. This Working Group was formed more than 20 years ago by Tom Batey, with the primary focus being to promote the visual-tactile assessment of soil condition in the field. The May Newsletter includes articles entitled "Soil Examination by Framers, VSEE Packages for Vineyard Managers and Graziers, Sand and its Difficulties for Interpretation in Profile Examination, and a Report on the Use of VSEE by Australian Soil Scientists for Experimental Work." For a copy of the Newsletter or to become involved with this Working Group, please contact the Group Secretary (Brian Murphy) [Brian.W.Murphy@dipnr.nsw.gov.au](mailto:Brian.W.Murphy@dipnr.nsw.gov.au) or the Group Chairman (David McKenzie) at [d.mckenzie@soilmgt.com.au](mailto:d.mckenzie@soilmgt.com.au).

## **SOIL QUALITY NEWSLETTER AVAILABLE**

The North Carolina (USA) Soil Quality Team recently issued Volume 8, Edition 1 of their Newsletter. It includes articles entitled "Soil organic carbon contents increase in long-term tillage plots" by Dr. Jeff Novak, USDA-ARS, Florence, South Carolina; "Glomalin – the Scummy Soil Builder" by Dr. Kris Nichols, USDA-ARS, Mandan, North Dakota; and some additional information. For a copy of this and/or other issues of the Newsletter, go to <ftp://ftp-fc.sc.egov.usda.gov/NC/NCweb/Technical/sqnl/sqnl-5-05.pdf> or view them at <http://www.nc.nrcs.usda.gov/technical/TechRef/soilqualitynewsletter.html>

## MEET YOUR BOARD MEMBERS



H. Allen Torbert  
Board Member



Rolf Derpsch  
Board Member



Engin Cakir  
President-Elect

Dr. H. Allen Torbert grew up on a cotton farm in Opelika, Alabama, USA. He received a B.S. (1983) and M.S. (1985), Agronomy and Soils, Auburn University, and a Ph.D. (1989), Agronomy and Soils, University of Illinois. From 1989 to 1992, Dr. Torbert was a Research Associate USDA-ARS, Auburn, AL, and from 1992 - 2001, he was a Soil Scientist at USDA-ARS, Temple, TX. Presently, Dr. Torbert is a Lead Scientist at the USDA-ARS National Soil Dynamics Laboratory, Auburn, Alabama. Dr. Allen Torbert has authored over one hundred scientific publications, most of which have been refereed journal articles. His work includes: (1) improved soil, water, and crop management for controlling runoff and erosion, protecting water quality, minimizing soil compaction, and restoring and maintaining the productivity of crop and rangelands, (2) impact of farm management alternatives on fertilizer use efficiency, carbon and nutrient cycling, and atmospheric CO<sub>2</sub> capture (global change mitigation), and (3) animal waste management strategies that are environmentally sound. He leads an interdisciplinary team that is studying the interactions of crop and soils, with his principal scientific contribution being soil chemistry, with emphasis on soil fertility, crop residues, tillage requirements, and animal waste management.

Rolf Derpsch was born in Chile to German parents in 1937 and has both Chilean and German nationality. He studied agronomy at the Universidad de Chile in Santiago and

the Instituto Superior de Agricultura Adolfo Matthei in Osorno, Chile and obtained a M.Sc. degree from the University of Reading, UK. Rolf worked for GTZ, the German Agency for Technical Cooperation from 1966 to 2001. Between 1977 and 1984 he worked as Team Leader of the Soil Conservation Project at the Research Institute of Paraná, IAPAR, in Londrina, Brazil. From 1993 to 2001 he worked as Senior Advisor to the MAG - GTZ Soil Conservation Project, which was a joint venture between the Ministry of Agriculture and Livestock of Paraguay and GTZ. Since September 2001 he is working as Freelance Consultant. Rolf has working experience in Paraguay, Brazil, Argentina, Bolivia, Chile, Honduras, Colombia, Cuba, Somalia and Germany. He was among the first to research the No-tillage technology in Brazil and Latin America in 1971. His areas of specialization include: conservation agriculture, development and diffusion of sustainable agricultural production systems with permanent soil cover, green manure cover crops and crop rotations, on farm research and technology development, and wind and water erosion control. He speaks, reads and writes German, Spanish, English and Portuguese fluently, and has a fair knowledge of French and Italian. Rolf is author/ co-author of 57 publications from 1990 to present

Dr. Engin Cakir was born in Konya Turkey. He completed his undergraduate training (1983), a MSc. (1986), and Ph.D. (1989) in Agricultural Engineering at Bornova, IZMIR and a second Ph.D. in Agricultural Engineering at Auburn University (Auburn, Alabama USA) in 1995. His major areas of expertise include soil dynamics, tillage, tractor hydraulics, direct drilling, simulation modeling and properties of agricultural materials. Engin speaks English and German as well as his native language and enjoys reading, hiking, classical guitar and swimming. He is a member of the ASAE, ISTRO, Alph Epsilon, and the Honor Society of Agricultural Engineering. Engin has more than 40 technical publications and was recognized in Who's Who among Student in American Universities and Colleges and is currently an Associate Professor in Agricultural Engineering at Ege University. He is also looking forward to meeting many ISTRO members at both the 2006 meetings in Kiel and in 2009 when the 18<sup>th</sup> ISTRO meetings are held in Turkey.

## URAGUAY TO HOST ISTRO 2012 MEETING

The ISTRO Board chose Uruguay as the site for the 2012 ISTRO meetings based not only on the material sent by the nominees, but also on the fact that the South American colleagues are increasing their level of participation in the international soil community and are increasingly involved in the international exchange of knowledge and writing of papers published by *Soil and Tillage Research* and other prominent soil science journals.

## ALLEN TORBERT CHOSEN AS ISTRO TREASURER

Guy Richard has assumed a new position in the Unit of Soil Science of INRA in Orléans, France (see February ISTRO INFO) and therefore decided to resign as Treasurer of ISTRO. At the mid-conference meeting, the ISTRO Board unanimously voted to have Dr. Allen Torbert serve as Treasure for the remainder of his time (through 2009) on the Board. Allen's address is 411 S. Donahue Dr., Auburn, AL 36832-5806.

## FINAL COMMENTS

As always, I want to thank everyone who submitted information for me to include in this edition of ISTRO INFO. I hope that all of you are also busy preparing your Abstracts for the meeting in Kiel and having a very good year gathering data for publication in *Soil and Tillage Research*. As I neared completion of this issue, I received the Board minutes from the inter-conference meeting in Kiel. In the next edition of ISTRO INFO, I will summarize several of the issues addressed at that very productive meeting. Also, please continue to send announcements, working group reports, and information about your research and technology transfer activities. Communication is the key to having an effective **International Soil and Tillage Research Organization**, and people sharing their ideas, concerns, successes and failures will help all of us improve our research and technology transfer programs. Finally, if there is any way that I can improve the quality and usefulness of ISTRO INFO, please let me know.