

# **ISTRO INFO**

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

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## **ISTRO INFO – MARCH 2007**

I would like to begin this issue of ISTRO-INFO with a warm welcome to our new ISTRO members, especially those from Uruguay. We have had several new members from that country, presumably because Uruguay will be hosting the 2012 ISTRO meetings and their chapter is becoming increasingly active. For those who may not be familiar with ISTRO-INFO, this is a quarterly newsletter that is intended to keep ISTRO members informed and up to date on activities within our Branches, Working Groups, and among individual members. We try to send issues in March, June, September, and December of each year. Events such as Working Group meetings and Branch Conferences can be promoted through the newsletter. We also welcome research questions, new ideas, or articles that may be of interest to other members of ISTRO.

Within this issue be sure to look for information about the up-coming Soil Dynamics Workshop that will be held in Turkey, the site of our 2009 ISTRO meetings. There is also information about the 2006 ISTRO post-conference tour, a Branch conference sponsored by our Lithuanian Chapter, and a special tribute to founding members of ISTRO, Drs. Glover Triplett and Dave VanDoren. For this issue I have also included information submitted by members regarding research with cover crops and experiences with conservation tillage agriculture. As always, I encourage all ISTRO members to send me information about their research, outreach experiences, and opinions about the articles in the newsletter. ISTRO-INFO is your newsletter and my goal is to make it useful and meaningful for all our members. Please continue to send any articles, reports, or other types of information that you feel will be valuable to your colleagues. However, since the newsletter is produced quarterly, there may be some delay in getting any conference announcements circulated.

Finally, please feel free to pass on your copy of this newsletter and to invite your colleagues to join in the benefits of being a member of ISTRO. Also, if you would like to translate this newsletter into your local languages, please feel free to do so.

Cheers,

Doug Karlen, Assistant Secretary General

## **SOIL DYNAMICS WORKSHOP**

The Turkish Branch of ISTRO will host a Soil Dynamics Workshop on June 14 and 15, 2007 at the Agricultural Machinery Department, Ege University in Izmir, Turkey. The Workshop will include two days of technical sessions as well as time for touring the campus and city. The sessions will address: soil mechanics, soil dynamics as related to traction and transport, traction mechanics, soil/tool interactions, traction and transport as related to cropping systems, and energy efficiency. Studio type one-bedroom style accommodation will be offered at the Ege University's Guest House (US\$40 per night for bed and breakfast) within a short walking distance from the Conference venue. Hotel accommodation in the city centre will also be available upon request. The dinners will provide those attending with a taste of Turkish life style and delicious Turkish food. English is the official language for the Conference. The Conference registration fee is US\$50 for ISTRO and ISTRO branch members (US\$60 for non-members).

For those interested in presenting a paper at the Workshop, please submit your full paper by 1 May 2007. Papers should be submitted by email as an attached Microsoft Word file to [engine.cakir@ege.edu](mailto:engine.cakir@ege.edu). The file should be named using your SURNAME and first name. For more information, please contact Prof. Dr. Engin Cakir, Ege Universitesi, Ziraat Fakultesi, Tarim Makinalari Bolumu, Izmir, 35100, Turkey. The phone/fax number is +90 232 342 7642. You can also get more information by connecting to the Turkish Branch's website: <http://ziraat.ege.edu.tr/~istrotr>.

## **ISTRO 2006 POST CONFERENCE TOUR REPORT**

ISTRO Treasure, Allen Torbert prepared and submitted a Post-Conference Tour report for ISTRO Members to share. The file is appended to this issue of ISTRO-INFO and shows the wonderful hospitality that was extended by our colleagues in Germany. We certainly hope this will encourage other ISTRO members to participate in pre- and/or post-conference tours when the next ISTRO meetings are held in Turkey in 2009.

## **MID-CONGRESS ISTRO BOARD MEETING**

The Mid-Congress ISTRO Board Meeting will be held on June 15 and 16 following the Soil Dynamics Workshop in Izmir, Turkey. If you have any topics you would like to bring to the Board's attention, please send a message to the ISTRO Secretary General, Jan van den Akker at [janjh.vandenakker@wur.nl](mailto:janjh.vandenakker@wur.nl).

## **INTERESTED IN LEARNING ABOUT ARGENTINA AGRICULTURE?**

The FAO representative in Argentina is pleased to announce that the Argentine agribusiness consultant company Agro Austral is willing to organize field tours for foreign farmers, entrepreneurs, researchers and agro-business people to visit, to understand and to broaden your view on the agricultural and cultural perspective of Argentina, one of the world's fastest growing countries and a leading food and commodity producer. The tailor-designed tours will provide an overview of conservation agriculture, farming, cattle and biofuel industries of the country. If timing is correct the tour would also include a visit to the mega agricultural show EXPOAGRO, visits to well-established farms practicing conservation agriculture, dairy and cattle operations, agricultural research and development, and a seminar on "Agribusiness Investment Opportunities in Argentina." Recreation and sight-seeing events will also be included in the tour packages. For cost and further information, please contact the company at: [inquiries@agroaustralweb.com.ar](mailto:inquiries@agroaustralweb.com.ar). Please copy any correspondence to Jose R. Benites at [Jose.Benites@fao.org](mailto:Jose.Benites@fao.org).

## **ZERO TILLAGE – BRAZIL'S OWN GREEN REVOLUTION**

ISTRO member Dr. Don Reicosky submitted the following website to ISTRO-INFO as information that members may be interested in. The site:

<http://www.scidev.net/Features/index.cfm?fuseaction=readFeatures&itemid=576&language=1> takes the reader to an article by Bernardo Esteves. The article discusses how zero tillage is spreading from large Brazilian farms to small farmers in that country and around the world. The key to adoption on smaller farms has been development of cheaper seeding machines as well as educational efforts by farming organizations and individual agronomists. It stresses how zero tillage protects the land from intense

rainfall, often cutting soil erosion by 90%, increases infiltration by 30 to 60%, leaves cleaner surface waters and helps recharge aquifers. ISTRO member Rolf Derpsch is quoted in the article regarding his experiences in promoting zero tillage around the globe. Rolf states that “the mindset is the main barrier to no-till adoption in countries where deep-rooted traditions hinder the abandonment of tillage and the plough.” The article may be useful for those promoting less tillage in their countries. As always, ISTRO-INFO is also open to opposing opinions or experiences that would differ from those outlined in this article.

### **INTERESTED IN COVER CROPS?**

Cover crops can provide many environmental benefits but also present management challenges for some producers. Researchers at the USDA-ARS National Soil Tilth Laboratory have developed a PowerPoint presentation that outlines their research experiences and recommendations for using “small grain winter cover crops in corn-soybean rotations.” The presentation has been converted to a “pdf” file and is attached to this issue of ISTRO-INFO as information for our readers. If you have any questions about the research please feel free to contact Dr. Tom Kaspar at [kaspar@nstl.gov](mailto:kaspar@nstl.gov).

### **LITHUANIAN BRANCH INFORMATION**

The Lithuanian Branch of ISTRO held a conference entitled “Agricultural Systems and Environmental Quality” at the Lithuanian University of Agriculture on November 16<sup>th</sup> and 17<sup>th</sup>, 2006. The conference was very successful and resulted in the exchange of a lot of excellent information. For the benefit of those who could not attend, the conference report is appended to this issue of ISTRO-INFO. The report is also posted on the website: <http://af.lzuu.lt/mokveikla/report.pdf>. Also, if you have any questions about the report or the outcomes of the Conference, please contact Professor Kestutis Romaneckas at [Kestas.Romaneckas@lzuu.lt](mailto:Kestas.Romaneckas@lzuu.lt).

### **CONTROLLED TRAFFIC FARMING (CTF) WORKING GROUP MEETING**

ISTRO member Tim Chamen, Chair of the ISTRO CTF Working Group, invites anyone who is interested to join the CTF Working Group at a Workshop on May 23-25, 2007 at

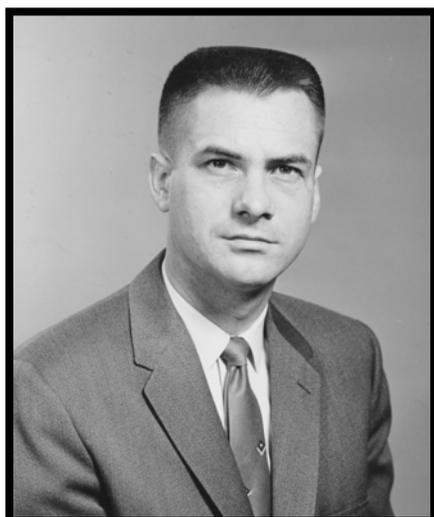
Wageningen, The Netherlands. Objectives for the Workshop are to (1) exchange knowledge about the potential and practical implementation of CTF and Seasonal Controlled Traffic Farming (SCTF which is defined as CTF without using the traffic lanes for harvesting and primary soil tillage) and (2) discuss bottlenecks in applying CTF and how to solve those challenges through research. The cost for the Workshop is €110.00 and will cover the expenses for local transportation, meeting accommodations and lunch. Hotel accommodations will be at the Hotel De Nieuwe Wereld at a cost of €80.00 per night inclusive of breakfast and dinner. As for previous CTF Working Group meetings, the emphasis for this Workshop will be on the practical implementation and use of CTF with visits to three different farms and presentations on satellite guidance. Organic vegetable production with CRF will be the key focus for this Workshop. Field tours will include stops at (1) the BioTrio farm which is a 200 ha area developed from the merger of three organic farms in 2005; (2) the Nieuw Bonaventura farm which is a biodynamic farm specializing in growing witloof chicory roots; and (3) farms owned by Keij-van den Dries, Anton van Vilsteren and the partnership of Van Strien and Doggen. All have practiced CTF or SCTF for several years. Both tired and tracked equipment will be observed. The Registration deadline is 12 April, 2007. For more information about the Workshop please contact Tim Chamen at [Tim.Chamen@btclick.com](mailto:Tim.Chamen@btclick.com).

## **FOUNDING ISTRO MEMBERS HONORED**

Drs. Glover Triplett and Dave VanDoren were pioneers in the development of crop production techniques that would reduce soil erosion and save labor and time. It is now clear that no-tillage and rotation are excellent technologies for maintaining high crop yields and sustaining soil quality. The Triplett-VanDoren experimental plots represent the oldest continuously maintained comparison in the world between no-tillage and plow tillage. Long-term data from the site shows that after 18 and 36 years, the amount of carbon stored in soil is much greater for no-tillage than plow tillage. Carbon is the basic component of soil humus and increased carbon concentrations significantly improve the quality of soil. Unfortunately, these historic plots are vulnerable to loss because of pressure to convert the land to other uses and because of the lack of resources committed to their maintenance. To ensure these historic plots are maintained, the Ohio



State University Development Office has established a fund (#405639) to which tax-deductible donations can be made. Dr. Steve Slack, Director of the Ohio Agricultural Research and Development Center (OARDC) has pledged to match the first \$5000 received in support of this appeal. For more information, please contact ISTRO member Dr. Warren Dick at [dick.5@osu.edu](mailto:dick.5@osu.edu). Also, please see the following article.



## HAS THE PLOW BECOME OBSOLETE?

At one time, the use of the plow for seedbed preparation and weed control was considered synonymous with agriculture. Hieroglyphics found in the pyramids of Egypt show farmers plowing their fields with a wooden plow pulled by a team of oxen. However, during the war year of 1943, Edward Faulkner wrote a book called *Plowman's Folly* that challenged traditional agricultural theory and practice and helped spark a revolution in agriculture.

Faulkner wrote, "The moldboard plow which is in use on farms throughout the civilized world, is the least satisfactory implement for the preparation of land for the production of crops...The truth is that no one has ever advanced a scientific reason for plowing. Many learned teachers have had embarrassing moments before classes of students demanding to be shown why it would not be better to introduce all organic matter into the surface of the soil than to bury it, as is done by the plow. The entire body of 'reasoning' about the management of the soil has been based upon the axiomatic assumption of the correctness of plowing. But plowing is not correct. Hence, the main premise being untenable, we may rightly question the validity of every popularly accepted theory concerned with the production of any crop, when the land has been plowed in preparation for its growth."

Today, 23% of the cropland in the United States is managed using no-tillage, and the practice has been extended to nearly every agricultural country in the world. Indeed, no-tillage has become essential for production of crops in countries like Brazil, where soils are fragile and tillage leads to erosion and other types of soil degradation.

No-tillage (also called direct-drilling or zero-tillage) is defined as a procedure whereby a crop is planted directly into the soil with no primary or secondary tillage since harvest of the previous crop. It was only after World War II when herbicides were developed that no-tillage became practical on a large, agronomic scale. Now farmers had a tool to control weeds without tillage. The other major problem that had to be overcome was the development of a planter that could consistently place seed in the ground at the proper depth and with good soil-seed contact.

No-tillage provides many benefits for the soil. It conserves water from being evaporated from the soil surface, thus boosting crop yields. It protects soil from erosion

by wind and water. It sequesters carbon, thus helping to reverse the greenhouse effect. It improves soil and water quality. It reduces labor, fuel, and equipment costs. No-tillage also helps provide suitable habitat for wildlife.

Scientists with The Ohio State University/Ohio Agricultural Research and Development Center (OARDC) had a large role in the development of the no-tillage revolution in the late 1950's and early 1960's. Two early no-tillage pioneers were Dr. Glover Triplett, a weed scientist, and Dr. Dave VanDoren, a soil physicist. They began to experiment with growing crops without any tillage. Their initial objective was to determine how much tillage, if any, was necessary to obtain satisfactory crop yields. Their second objective was to determine how crop rotations and tillage interact during the production of corn.

Their work led the way in the development of no-tillage, and in 1962 they initiated a series of experiments in Ohio that investigated the interaction of tillage and rotation on not only corn production but also soybean, oats, and hay. These plots have been maintained to the present time and represent the longest continuously maintained no-tillage plots in the world. It has now been 44 years since the plots were tilled by any means other than by the small slot created by the planter. Yet results have clearly shown that yields under no-tillage have not only kept pace with yields found where soils are plowed, but in many cases have exceeded the plow-tillage yields.

Dr. Triplett and Dr. VanDoren were honored at a ceremony in Wooster, Ohio at OARDC June 19<sup>th</sup>, 2003 at the Midwest Conservation Tillage Conference. The Triplett-VanDoren No-Tillage Experimental Research Plots were formally dedicated at this time.

## **STUDENT SEEKS RESEARCH FUNDING**

Mr. Md. Abdul Wohab contacted me after reading one of the recent issues of ISTRO-INFO to ask if there were any sources of funding to help him carry out his Ph.D. research in Bangladesh. He is working on the "Development of a Combined Tillage Bed-Former-Cum-Seeder for Upland Farming." The target for his study is to introduce Conservation Tillage (CT) into his country. To date, he and his colleagues have converted about 3455 ha of land to CT. Farmers at the project sites are very interested in adopting reduced tillage technology, but they do not have sufficient resources to

extend the technology further. If any readers know of possible resources to help this young researcher, please contact him at [wohabma@yahoo.com](mailto:wohabma@yahoo.com).

## **FINAL COMMENTS**

Once again, I want to thank all of the ISTRO members who have sent information to me for this and previous newsletters. Please continue to do so. ISTRO-INFO is your newsletter, so please do your best to provide the news! I wish everyone a very successful 2007 and look forward to seeing you at the 2009 ISTRO meetings in Turkey. I anticipate the dates will be set at the mid-congress meeting in June so that everyone can begin to plan for the meeting. Welcome again to all new readers of ISTRO-INFO!

Doug Karlen

Assistant Secretary General



The historical Triplett – VanDoren research plots where no-tillage techniques were first demonstrated to the world.