



ISTRO INFO

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

June 2007

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ISTRO INFO – July 2007

It appears 2007 is moving by much faster than anyone can imagine. I am also sure you will note that this “June” issue of ISTRO INFO isn’t getting to you until July! In this issue you will find a report about ISTRO that includes not only summary information about the 2006 meeting in Kiel but also some of the history and future, exciting news about the impact of Soil and Tillage Research, a report from the Controlled Traffic Farming (CTF) Working Group, preliminary information about the 2009 ISTRO conference in Izmir, and other bits and pieces of information that will be of interest to you. As always, I encourage all ISTRO members to send me information about your research and outreach activities, Branch Meetings and Programs, Working Group Meetings and Workshops, as well as any other requests or opinions that you would like me to share with our colleagues. ISTRO-INFO is your newsletter, so please continue to help me make it useful and of interest to everyone.

Finally, please feel free to forward your copy of this newsletter to students or colleagues that may be interested in ISTRO activities and be sure to invite them to join our organization. Also, if you would like to translate this newsletter into other languages for better communication, please feel free to do so.

Cheers,

Doug Karlen, Assistant Secretary General

ISTRO – Past, Present & Future

The 17th Triennial Conference of the International Soil Tillage Research Organization (ISTRO) was held August 28 – September 2, 2006, on the campus of the Christian Albrechts University in Kiel, Germany, the capital city of Schleswig Holstein. Professor Dr. Rainer Horn, ISTRO President 2003-2006, was the Conference Chairman. The theme of the meeting was “Soil Management for Sustainability.” Approximately 300 participants from all continents except Antarctica attended. There were 160 oral

presentations and 157 posters divided among 13 symposia. Separately, a partners' program was held that took guests on tours around Kiel and surrounding areas. According to the bylaws of ISTRO, its goals are (1) to promote contacts among scientists undertaking research in soil tillage and related subjects, (2) to initiate conferences at which topics of soil tillage and related subjects are discussed, (3) to organize relevant workshops and demonstrations, and (4) to establish contacts and cooperation with organizations in other fields of science with similar purposes. The first international soil tillage conference was held in 1955, at Uppsala, Sweden (Dick, 1996). Early meetings of ISTRO often were held in conjunction with the World Ploughing Contest (Prof. Dr. Inge Håkansson, Swedish University of Agricultural Sciences, personal communication, August 29, 2006). At the 1973 conference, to ensure continued interaction among tillage workers, ISTRO was founded, and conferences have been held every three years (Table 1).

Table 1. *Conferences of the International Soil Tillage Research Organization ISTRO*

Number	Year	Place
First	1955	Uppsala, Sweden
Second	1958	Stuttgart-Hohenheim, Germany
Third	1962	Doorwerth, The Netherlands
Fourth	1965	Ås, Norway
Fifth	1970	Silsoe, United Kingdom
Sixth	1973	Wageningen, The Netherlands
Seventh	1976	Uppsala, Sweden
Eighth	1979	Stuttgart-Hohenheim, Germany
Ninth	1982	Osijek, Yugoslavia (now Croatia)
Tenth	1985	Guelph, Canada
Eleventh	1988	Edinburgh, Scotland
Twelfth	1991	Ibadan, Nigeria
Thirteenth	1994	Aalborg, Denmark
Fourteenth	1997	Lublin, Poland
Fifteenth	2000	Fort Worth, Texas, U.S.A.
Sixteenth	2003	Brisbane, Australia
Seventeenth	2006	Kiel, Germany
Eighteenth	2009	Izmir, Turkey

The ISTRO meeting in Kiel was well organized. Each day began with keynote lectures followed by the symposia. The thirteen symposia were: (1) Soil Dynamics and Traction. (2) Traffic, Tillage, and Soil Deformation. (3) Conservation Farming and Forestry. (4) Land-use Systems and Environmental Quality. (5) Soil Amendments. (6) Precision Agriculture. (7) Soil Erosion and Its Control. (8) Economical Aspects. (9) Soil Management Induced Global Change Effects. (10) Sustainable Land-use Management. (11) Soil Reclamation. (12) Soil Structure. (13) Soil Protection. The abstracts have been published (Horn et al., 2006a), and each abstract gives the names, addresses, and contact numbers of the authors. So the book of abstracts also serves as the list of participants. Full papers are published on a CD-ROM (ISTRO, 2006), and 59 of them have been published in a book (Horn et al., 2006b). The sponsors of the 17th Conference, who helped to defray the costs of the publications, were: Eijkelkamp (Agrisearch Equipment); Provinzial; UMS ("Measure to Know"); UGT (Umwelt, Geräte, Technik GmbH); EcoTech Umwelt-Meßsysteme GmbH; UP Umweltanalytische Produkte GmbH; Deutsche Bodenkundliche Gesellschaft; and Christian-Albrechts-Universität zu Kiel.

On the Tuesday evening of the Conference (August 29, 2006), a roundtable discussion was held concerning soil tillage, soil sustainability, global change, and arable and forest soil management strategies. Dr. Miroslav Kutílek, a soil physicist in Prague, Czech Republic, led the discussion. Others taking part in it were: W. Blum, D. Godwin, R. Hüttl, F. Makeschin, L. Montanarella, S. Nortcliff, D. Sparks, F. Tjink, and H. Wiggering. In his introductory comments, Dr. Kutílek made four points: (1) We need interdisciplinary research. (2) Should all agriculture be focused on yields? We need to consider sustainability, not just yields. (3) We are on our knees to "biodiversity," but we also should consider "pedodiversity." We need to define the characteristics of naturally fertile soils. We need to answer the question: Where are the boundaries of different taxonomic names? (4) In our research to reduce global warming through use of soils, we may forget many factors are involved. We have forgotten our geological education. What about continental drift? How do we explain warm periods in the Holocene or The Little

Ice Age that began in the 13th century? We need to be more critical in using our arguments.

On the Wednesday of the Conference, participants joined one of four excursions: (1) Soil forming processes and land management practices on light soils in the Northwest of Schleswig-Holstein. (2) Kiel -- ecological farming research station. (3) Animal research station of the University, Kakendamm, and fruit production research station, Jork. (4) Conventional agricultural research station, Hohenschulen on the Westcoast (Northsea).

The Conference banquet was held Thursday evening (August 31, 2006) at the Drathenhof Molfsee, a beautiful old farm house on the outskirts of Kiel. The guests were serenaded by a mandolin orchestra that played songs from around the world. Dr. Brennan Soane, organizer of the 1988 ISTRO Conference in Edinburgh, gave the toast. He asked if anyone in the audience had attended the first official conference of ISTRO in Uppsala in 1976. Dr. Håkansson, a world expert on the effects of machinery traffic on soils and crops, raised his hand. He organized that conference. Of interest to tillage workers is the new book on compaction of soils by Dr. Håkansson (2005). Dr. Soane noted the revolution in the way we communicate since 1976. Our lives are now dominated by e-mail and cell phones. But the common interest in tillage among the participants remains constant. At the closing ceremony on Friday afternoon, September 1, 2006, Dr. Horn made a similar comment. He said science has been changed by expensive, new equipment, but the most important thing in research is still the human brain—and that can be used with no cost.

At the business meeting on August 31, 2006, the new officers for 2006-2009 of ISTRO were announced: Secretary General: Jan van den Akker (The Netherlands); President: Engin Cakir (Turkey); Treasurer: H. Allen Torbert (USA); President-Elect: Oswaldo Ernst (Uruguay); Assistant Secretary-General: Douglas L. Karlen (USA); Past-President: Rainer Horn (Germany). The 18th ISTRO Conference will be held at Ege University in Izmir, Turkey, in 2009 (dates not yet set).

I have attended all ISTRO conferences since 1979 except the ones in Nigeria and Poland. Earlier conferences had exhibits, or were supported by, the equipment makers. For example, the 11th Conference in Edinburgh was financially supported by John Deere and Massey Ferguson. The 13th Conference in Aalborg was sponsored by The Goodyear Tyre & Rubber Company. Commercial exhibitors at the 15th Conference in Fort Worth, Texas, included John Deere and Case-DMI, and a major sponsor was Rome Plow Company. The 16th Conference in Brisbane was supported by John Deere. The absence of the equipment makers at the 17th Conference documents the breach that has occurred in recent years between those who want to protect the soil and those who want to make the best economical use of equipment. With larger equipment, a farmer has less cost for labor. However, the soil is being physically degraded in Germany because of the heavy farm machinery that the farmers are using. Some scientists are urging the federal government to limit the weight of the equipment. The largest sugar-beet harvester in Germany weighs, when loaded, about 60 tons, just as much as the biggest U.S. battle tank. A truck of that weight is not allowed on the German interstate roads, but no weight limit exists on arable fields (Prof. Dr. Rienk van der Ploeg, University of Hannover, personal communication, February 16, 2004). The damage done to soils by heavy equipment (and subsequent poor crop growth) is outlined by Ehlers et al. (2005). They point out that subsoil compaction is of particular concern. It is long-lasting and sometimes irreversible. Equipment with high-axle loads has only been available since about 1992. So the problem of subsoil compaction is recent. Along with the absence of farm-machinery makers, some agricultural engineers did not attend the ISTRO meeting in Kiel. The 2009 Conference in Turkey should show the direction that is going to be taken—i.e., whether governments will start to limit weight of equipment on soils for sustainability or if farmers will be allowed to continue to use heavy equipment.

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(Editor’s Note – I would like to thank Mary Beth for this excellent report. Capturing the events and historical changes within ISTRO is important information for all to know.)

STUDENT REQUEST

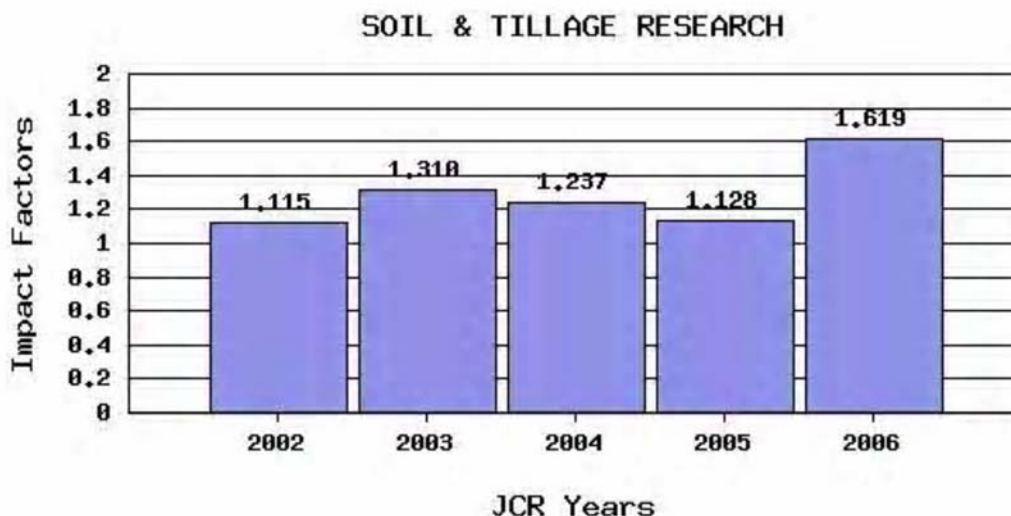
MD. ABDUL WOHAB, Senior Scientific Officer, Farm Machinery and Post-Harvest Process Engineering Division, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur-1701, Bangladesh, would like some guidance from other ISTRO members. He writes that his research work is on “Development of a combined tillage bed-former-cum-seeder for conservation tillage.” He goes on to ask if someone could please advise him on who to contact to learn more about bed cultivation and conservation tillage. If you are willing and able to help this student, please contact him by email at: wohabma@yahoo.com.

MID-CONGRESS ISTRO BOARD MEETING

The Mid-Congress ISTRO Board Meeting was held on June 15 and 16 following the Soil Dynamics Workshop in Izmir, Turkey. Financially, ISTRO remains in very good shape. In a report from our Branch Coordinator, Dr. John Morrison reported that Branch Members are very interested in having some type of nice certificate that acknowledges their membership in ISTRO and the fact that dues have been paid. This request was first made in 2003 and has not yet been fulfilled. (Note – action has been taken by the Board since that time and a template for such certificates is nearly complete). John also suggested that ISTRO honor each new Ph.D. in soil-tillage related fields with a free 1-year Associate Membership and an accompanying Introduction Packet and Certificate. If these students were nominated by their graduate advisors who are ISTRO Members, we would reach not all, but a many of the appropriate graduates. Finally, John asked the Secretary-General to secure a replacement Chair for this Committee as of 2009. He suggested that an ISTRO member located in Europe would be positioned for less expensive and easier access to many of our Branches. Anyone interested in this position should contact Secretary-General Jan van den Aker. Preliminary plans for the 2009 ISTRO meeting were also discussed.

SOIL & TILLAGE RESEARCH IMPACT FACTOR INCREASES

Thanks to the many excellent papers that members of ISTRO and others are submitting, the “impact factor” for Soil and Tillage Research has risen to 1.62 and currently ranks 6th among journals focusing on Soil Science. Journals currently ranked above our ISTRO-sponsored journal are Soil Biology and Chemistry (2.62), Geoderma (2.12), European Journal of Soil Science (2.00), Applied Soil Ecology (1.93), and Soil Science Society of America Journal (1.87). For those who may not know how journal impact factors are calculated, it is the ratio of papers cited divided by papers published during the past two years. The 2006 impact factor thus shows that in the 194 publications for 2006, there were 110 and 204 citations of articles published in 2005 and 2004, respectively (*i.e.* $314/194 = 1.619$). The five-year fluctuation in the impact factor for Soil and Tillage Research is shown in the figure below.



Soil and Tillage Research is currently available to ISTRO members for a reduced subscription price of \$85 per year. Subscribing to read your colleagues' work and submitting your manuscripts to this journal will help it continue to increase in stature among soil science journals. Thanks for your contributions and support.

HUNGARIAN BRANCH DEVELOPS NEW WEBPAGE

Dr. Marta Birkas, Szent Istvan University, Department of Soil Management in Gödöllő, Hungary, invites ISTRO members to stay in touch with Hungarian ISTRO Branch activities by going to their new website at <http://mtt.szie.hu>. Be sure to take a look at their exciting events and upcoming activities. Also, other ISTRO Branches may want to prepare similar sites for their members.

COMMENTS ON THE PLOW

The March 2007 issue of ISTRO INFO included a short essay asking "Has the Plow Become Obsolete?" As desired for this Newsletter, ISTRO Member Peter Smart responded to the essay with the following comments. I encourage others to also weigh-in on the topic so that we can continue this exchange in future issues of ISTRO INFO.

Peter writes "It was surprising to read that "no one has ever advanced a scientific reason for plowing" (ISTRO-INFO, March 2007).

Some pros, mostly to be found in textbooks, are:

1. Loosen soil: ease root penetration; make spaces for fauna.
2. Control moisture, aeration and temperature.
3. Destroy weeds.
4. Destroy or control pests.
5. Bury trash; incorporate manure.
6. Rectify compaction and poaching.
7. Reduce the use of herbicides.
8. Produce a nice-looking effect.

Some cons are:

1. Reduce the direct use of fuel.
2. Reduce capital outlay: smaller tractor.
3. Improve efficiency of other work: more suitable tractor.
4. Avoid compaction and plough pans.
5. Preserve soil structure.
6. Avoid harm to fauna.
7. Reduce erosion.
8. Avoid over-loosening soil.
9. Reduce dependence on weather windows.

The choice depends on land, climate and cropping. We need more long-term comparative studies, not fewer.”

CZECH BRANCH TO HOST TILLAGE CONFERENCE

Dr. Jaromír Procházka, President, and Ing. Barbora Badalíková, Secretary, of the ISTRO Czech Republic Branch invite you to attend the “Soil Tillage – New Perspectives” conference in Brno, Czech Republic, on June 30th through July 2nd, 2008.

The conference will provide opportunities for exchange of the latest results on soil management in natural and agricultural systems. The program will include two days of scientific paper presentations addressing four topic areas and a one day professional field trip. The four topic areas for which papers can be submitted are:

1. Perspective methods of soil tillage systems (mechanization of agriculture, energy inputs, economy)
2. Changes of soil fertility (soil quality, physical, chemical and biological aspects)
3. Risk elimination of deleterious factors and plant protection (soil erosion, soil compaction, plant conditions, pests, weeds)

4. Systems of farming (ecological aspects, risk elements in soils, remediation and revitalization of soils, information systems)

A copy of the “Call for Papers” is included in this issue of ISTRO INFO. For those desiring to make either a poster or oral presentation of their research at the conference, please return this form no later than August 30th, 2007. If tentatively selected, a full Abstract will be due on 10-30-07. Authors will be notified if their Abstracts have been accepted by 12-31-07 and if so, the full text for publication will be due 3-30-08. All registration payments will be due 4-30-08 with the final conference program published on 6-13-08.

The registration fee will be 300 € for ISTRO members and 330 € for non-members. Fees for participants will include: participation in the scientific program, conference proceedings, CD, welcome reception, lunches, coffee break, and professional field trip. Accommodations will be available in Hotel Myslivna or Student hostels. The hotel rate will range from approximately 46 € (economy class – single) to 72 € (superior class – double). Student hostels will range from 21 to 32 € per night for single or double occupancy in a double bedroom. **Every participant must book and pay for his/her own accommodations.**

For more information, please see the website (www.vupt.cz) or contact:

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REGISTRATION FORM
(PLEASE USE BLOCK LETTERS
OR TYPEWRITER)

Surname:

Name:

Title/position: **male/female**.....

Workplace address:

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Telephone: **e-mail:**

Fax:

Yes, I want to submit a paper

Oral Poster Other (please, cross)

Title of paper, authors and topic no:

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CTF WORKING GROUP HOLDS SUCCESSFUL MEETING

ISTRO member Tim Chamen, Chair of the Controlled Traffic Farming (CTF), submitted an excellent report on activities at the Workshop held May 23-25, 2007, in the Netherlands. The report is briefly summarized below. To access a PDF copy of the full report, [click here](#). Should this link not work for you, cut and paste the following URL into your web browser: [http://www.controlledtrafficfarming.com/downloads/NL CTF Workshop Report.pdf](http://www.controlledtrafficfarming.com/downloads/NL_CTF_Workshop_Report.pdf).

A major reason why controlled traffic farming (CTF) is becoming of interest to many growers is that stresses in the soil at the 40 cm depth caused by horses or machinery have increased from just 0.1 bar in the 1930s to nearly 2.5 bar today. This is causing enormous problems, reducing crop yields, increasing energy demands, increasing costs and resulting in significant environmental damage in many countries. Controlled traffic, which is simply a term for the practice of running vehicles in the same place year in year out, is one way of counteracting these problems.

The overriding message coming from this workshop was the need to develop harvesting systems that are compatible with vegetable crops and CTF. An encouraging message from the growers themselves was that this is not a technical problem, it is one of economics. Individual growers often do not have enough area to justify designing or developing machines themselves, but in the Netherlands, the number of growers using seasonal controlled traffic farming (SCTF) is now approaching the point where a contractor might be encouraged to make the investment. Certainly, a harvester designed for controlled traffic would still be perfectly suitable for random traffic systems, so any contractor making such an investment would have the potential for a new as well as an existing market. The other positive message is that SCTF is delivering benefits despite random traffic being used for harvesting and primary cultivation. It can only be speculated what extra benefits might be gained from a full CTF system! It was also noted that growers were still pretty much on their own when it came to the machinery needed for CTF. It is in the interests of all involved in CTF that its benefits are circulated

and growers encouraged to raise the subject of CTF with their machinery suppliers. Only when there is confidence from the machinery industry that there is a significant product demand will appropriate machines be designed and built. The subjects of research, education and extension were well represented by attendees at the workshop and Jan van den Akker (Secretary General of ISTRO) in closing the meeting, brought our attention to ISTRO as a key umbrella organization that could bring people together from across the world to discuss and address particular aspects of CTF. Research of this nature would provide growers with the management information they needed, particularly in the subject area of soils and to the crop responses arising from the low input systems that were possible with CTF.

FINAL COMMENTS

Thank you to all of the ISTRO members who have sent information to me for the ISTRO INFO newsletters. Please continue to do so. With increasing global interest in harvesting crop residues for agro-energy and uses other than soil protection, I would like to have members send me information regarding how this is or might be affecting soil and tillage needs in your countries. I also encourage other Branches and Working Groups to send information about your activities that can be shared with your colleagues.

Doug Karlen
Assistant Secretary General