

# **ISTRO INFO**

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

March 2006

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## ISTRO INFO – March 2006

I hope everyone who reads this issue of ISTRO-INFO has had a very good winter (or summer for those “down-under”☺). I also hope that you are well on your way to planning to attend the 17th Triennial Conference of the International Soil Tillage Research Organization in Kiel, Germany from August 28<sup>th</sup> through Sept. 3<sup>rd</sup>. The program is coming together very well, the tours are going to provide a lot of opportunities to see different areas of Germany and of course the hospitality will be great!

This issue of ISTRO-INFO is a bit shorter than some because I have not received much information from the Branches or Working Groups. As always, I invite each of you to share your thoughts and experiences with others through this quarterly update. Just send me an email or better yet a word document with the information you would like to share. Don't worry about the grammar or writing style. I will gladly edit the information and if I have questions contact you before circulating the wrong information.

With the up-coming Conference, a significant portion of this issue is once again devoted to that event. I also encourage you to visit our website ([www.istro.org](http://www.istro.org)) for updates and additional information. Finally, I encourage you to let me know what other types of information you would like to see in the ISTRO-INFO. Our goal for this publication is to provide a means of rapid communication of new developments in tillage, upcoming meetings, and relevant research and technology results that have application to soil tillage. ISTRO-INFO is also available as a bulletin of news and information about progress in soil tillage research in its broadest sense and of other matters of interest to the membership of ISTRO.

Cheers,

Doug Karlen

Assistant Secretary General

## Financial Support for ISTRO Working Groups and Branches

A healthy organization requires active members not only at our meetings but also in the periods between the tri-annual conferences. To our regret there is a trend indicating a slow decrease in the membership of ISTRO. On the other hand our ISTRO journal *Soil & Tillage Research* is doing very well. ISTRO also has some active Working Groups and ISTRO Branches. I and the Board of Directors think there is a potential for more activity of ISTRO in the periods between triennial conferences. The financial position of ISTRO is sound and therefore it is possible to give some financial support for activities of ISTRO Working Groups and Branches. Therefore, at the mid-term Board meeting held this year in Kiel, Germany it was agreed to support active and official Working Groups and Branches of ISTRO based on the following rules:

1. The ISTRO Working Group or Branch must send the Secretary—General an indicative budget and/or an explanation where the money will be used for.
2. The ISTRO Branch must be officially registered and must have paid its fees.
3. The workshop or conference should be announced in ISTRO-INFO.
4. A condensed report (1 to 2 A4 size pages) about the meeting should be written as contribution to ISTRO-INFO.
5. The treasurer must confirm that there is enough money for this event.
6. The maximum total financial support to a Working Group or national Branch in the three years between the ISTRO conferences is 1000 EURO<sup>1</sup>
7. The decision will be made by the President, Secretary-General and Treasurer and must be unanimous
8. In case of a financial surplus of the workshop or conference, support from ISTRO should be refunded up to a maximum of the surplus or the support that was received.

Jan van den Akker, Secretary-General ISTRO

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<sup>1</sup> With good arguments exceptions can be made and more support than 1000 EURO is possible, however, this will require agreement of the total ISTRO Board.

## **17<sup>th</sup> ISTRO Conference Update**

Plans for the 17<sup>th</sup> ISTRO Conference (August 28<sup>th</sup> –September 3<sup>rd</sup>, 2006) at the Christian-Albrechts University in Kiel, Germany are progressing very well. By now, you should have received confirmation that your paper or poster has been accepted for presentation at the conference and a reminder that you need to be registered for the Conference by the end of March so that your presentation will not be cancelled and withdrawn from the CD. Currently we are anticipating more than 300 participants from all continents and various disciplines. In 13 different symposia sessions, presentations will be dealing with soils and land use as well as their impact on the environment. The Conference will provide a splendid opportunity to discuss recent results and new concepts related to your research, education, and outreach needs and interests.

## **Update on Scholarships for Young researchers**

A total of nine applications or nominations were received for the four scholarships to help young researchers attend the ISTRO conference. The information has been forwarded to the ISTRO Board members who will be making the difficult choice. As the applications/nominations came to me I was very impressed by the quality of our upcoming scientists. ISTRO will be in good hands for many years to come.

## **Bobby Brock Retires from USDA-NRCS**

Mr. Bobby Brock, a dynamic leader in promoting conservation with an emphasis on soil quality and carbon management recently retired from the USDA-Natural Resources Conservation Service (USDA-NRCS). One of the many legacies that Bobby leaves behind is the Soil Quality Newsletter. His efforts to maintain this newsletter are greatly appreciated and the newsletters themselves are an excellent source of information on soil quality issues. Although many of the examples in the newsletter are from conditions in the Southeast USA, the principals will apply anywhere in the world. The newsletters on soil quality were written from 1997 to the present. They contain a wealth of information that can be beneficial to conservationists around the world. The website for

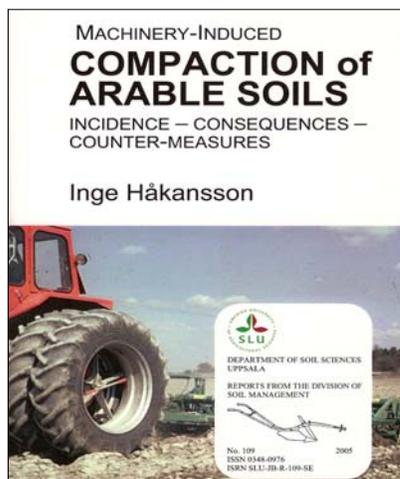
the “library of newsletters is given below. To be sure this information was available I verified the website on March 15, 2006. It worked and I encourage you to learn more about the practical aspects of soil quality from this valuable resource.

<http://www.nc.nrcs.usda.gov/technical/TechRef/soilqualitynewsletter.html>

## **ISTRO INFO HELPS CONNECT RESEARCHERS**

Shortly after distributing the December 2005 issue of ISTRO INFO, I was contacted by Dr. Al Nakshabandi who was seeking other scientists who may be interested in working with him to better understand the “Effect of Salinity on Thermal Conductivity” in soils. By using ISTRO INFO in this way I was able to put him in contact with a co-worker and an Iowa State University (ISU) soil physicist. Both exchanged email with Dr. Nakshabandi, thus providing a benefit for everyone involved. Again, I encourage everyone to use this newsletter as a means for rapid communication among both known and un-known colleagues.

## New Book Available



**Håkansson, I., 2005.**  
***Machinery-induced Compaction of Arable Soils, Incidence – Consequences – Counter-measures.*** Swedish University of Agricultural Sciences, Dept. of Soil Sciences, Reports from the Division of Soil Management, No. 109, 154 pages, ISSN 0348-0976, ISRN SLU-JB-R-109-SE.

The book can be ordered from SLU, Dept. of Soil Sci., P.O. Box 7014, SE-750 07 Uppsala, Sweden, **e-mail:** [Britt-Luoise.Atterdagsdotter@mv.slu.se](mailto:Britt-Luoise.Atterdagsdotter@mv.slu.se) or Inge Håkansson, Morkullv. 84, SE-756 52 Uppsala, Sweden, **e-mail:** [hakansson.inge@spray.se](mailto:hakansson.inge@spray.se)

Price: 30 € plus (when applicable) 7-10 € for postage and VAT.

This book is written as an introduction and concise reference book to soil compaction problems for people involved in agriculture and environmental protection and for other people interested in sustainable use of our natural resources. The author, Professor emeritus **Inge Håkansson**, worked at the Swedish University of Agricultural Sciences, SLU, Uppsala, from 1954 to 1995, most of the

time as Research Leader for soil tillage research throughout Sweden. He carried out extensive research into various soil tillage problems such as soil structure, primary tillage, seedbed preparation and sowing. He is an acknowledged world expert on the effects of machinery traffic on soils and crops. In this book, he uses his extensive experience to summarise and evaluate current knowledge on the effects of machinery traffic on soils and crops from both a scientific and a practical point of view. He also discusses the environmental impact of soil compaction by machinery during crop production and suggests measures to alleviate or prevent negative effects of short-term or permanent character.

The book is largely based on experience from Sweden and other Scandinavian countries, where field experimentation on soil and crop responses to machinery traffic has been more extensive than in most other parts of the world, but the situation in other climatic zones of the world is also considered. In nine chapters, the following subjects are discussed: 1) traffic intensity in arable fields, 2) stress distribution under wheels and tracks, 3) extent and persistence of soil compaction, 4) effects of compaction on soil properties and processes, 5) effects of compaction on crop growth and yield, 6) ecological and environmental effects of compaction, 7) methods to minimise compaction or its negative effects, 8) economic consequences of compaction and 9) present situation and need of load limits.

## **Controlled Traffic Farming (CTF) Working Group Update**

A second meeting of the ISTRO Working Group on Controlled Traffic Farming was held in Denmark from 16-18 November 2005. The Workshop was kindly organized and hosted by [Hans Henrik Pedersen](#) of the Danish Agricultural Advisory Service based in Århus. Twenty two people from seven countries attended the workshop. Nearly half of the participants were commercial farmers with others representing the advisory and extension industries, precision guidance and agriculture industries and a number of research organizations.

On the first day we visited the vegetable farm of Axel Månsson who has been striving to achieve controlled traffic for his year round operations. So far he has been able to maintain the system for three successive crops within a season, but further planning is needed to indefinitely maintain controlled traffic. They were the first farm in Denmark to buy into satellite auto steering and presently have the John Deere Starfire SF2 system. Unfortunately, it is not able to meet their need for an absolute accuracy of 2-3 cm. For the next season they will upgrade to RTK from John Deere or an alternative supplier. The principal barrier to sustained controlled traffic is a perceived or real need for mouldboard ploughing and deep tillage to 45 cm prior to producing vegetable crops. With CTF, Mr. Månsson may not need so much heavy tillage.

A lively afternoon discussion forum at our Agricultural School accommodation at Hammerum continued well into the night, despite the very early start that some had made! These discussion periods, and equally important, the opportunity of talking to fellow participants on a one to one basis during mealtimes and bus travel were invaluable.

Presentations were given about farm-based projects on controlled traffic, including the organic production of vegetables in the Netherlands and an arable rotation in the UK. Both of these projects are likely to expand in the near future and most importantly, are being taken up by farmers. The project in NL has confirmed more workable days and higher productivity with CTF and improvements in soil structure that deliver vital, high

yielding crops while reducing N emissions. In the UK, soil structure has visibly improved compared with conventional practice on the 40% clay soil where the project is based.

We also visited the farm of Ole Green of Green Agro ([www.green-agro.dk](http://www.green-agro.dk)) who has set up a complete controlled traffic system based on a track width of 2.75 m. Machinery costs were kept at a reasonable level by rebuilding old machinery including an early 1980s Massey Ferguson 210 kW 4840 articulated tractor. The main cost is the RTK, 2 cm AutoFarm auto steering system. Growing crops of winter wheat, spring barley and oats interspersed with green manures, Ole considered that he would easily “break even” with his investment in CTF if he realizes average yield increases of 8% and fuel reductions of 25%. He couldn’t understand why people haven’t adopted controlled traffic before!

Ongoing research was also demonstrated at the Danish Research Centres at Foulum and Bygholm, where we saw work on stresses below tyres, the effect of minimum tillage on crop production and the environment and the assessment of different satellite guidance systems. Some of this work will be reported in detail at ISTRO 2006 and a full report of the CTF workshop can be found at

<http://www.controlledtrafficking.com/content/istro.html>

### **Key messages from the workshop**

- European farmers are not aware of the negative impacts of soil compaction because of many years using heavy machines. Very few are aware of CTF as a solution.
- The main argument for CTF is in the wallet. It’s not about tillage or track widths, it’s about organizing and engineering cost-effective methods of not driving all over the soil.
- Creating and staying on permanent wheel ways is helped considerably by satellite guidance, but cannot address the problem of slipping off when high loads are carried in moist conditions. Research and innovation are needed to combat this problem.

- CTF in Europe will make little progress if solutions are limited to 3 m tracks. Options allowing tractors with tracks of around 2 metres need to be promoted.
- Setting up CTF often needs long term planning because most farms cannot afford to change all machinery in one season.
- CTF is logical and simple – it doesn't need rocket science – just some planning and commitment



The ISTRO CTF working group on the farm of Ole Green near Ringkøbing, Denmark, November 2005 (photo: John Christensen, Maskinbladet)

Tim Chamen  
Chairman, ISTRO CTF Working Group  
December 2005

For further information visit <http://www.controlledtrafficfarming.com>

## **Farming Systems and Environmental Quality Conference**

An international conference, sponsored in part by the Lithuanian Branch of ISTRO, will be held on November 16<sup>th</sup> and 17<sup>th</sup> at Lithuanian University of Agriculture, near Kaunas, Lithuania. Kaunas is approximately 100 km (1½ to 2 hours by bus or train) from Vilnius, the capital of Lithuania. The official Conference languages will be English and Lithuanian, but all abstracts and manuscripts must be prepared in English. Abstracts of not more than 300 words should be written in English and submitted as a Word file before May 1, 2006. The computer file should be named with your SURNAME and sent by email to [farmingsystems@lzuu.lt](mailto:farmingsystems@lzuu.lt). Full-length manuscripts will be reviewed and published in the scientific journal of the Lithuanian Institute of Agriculture and Lithuanian University of Agriculture.

The main topics for the Conference are: (1) Soil Tillage and Environment; (2) Crop Rotations; (3) Weed Control; (4) Conservation and Organic Farming Systems; and (5) Economic Prognosis and Modelling. The registration fee is 30 Euros and will include a welcoming reception, conference proceedings and refreshments. Accommodations will be available in Hotel "Santaka" where the rate is 80 to 100 Euros per night for single or 100 to 120 Euros per night for double rooms or at the Hotel (Takiuji Neris" where the rate is 25 EUR per night for single or 41 EUR for double rooms. There is also a Student hostel available at a rate of 12 to 15 EUR per night.

A registration form has been incorporated into this issue of ISTRO INFO, but for more information, please contact Kestutis Romaneckas, Lithuanian University of Agriculture, Soil Management Department, Studentu 11, Akademija, LT-53361 Kaunas, Lithuania. Phone (370 37) 752233 or 752211; FAX (370 37) 752233 or 742271; or e-mail [farming.systems@lzuu.lt](mailto:farming.systems@lzuu.lt).

## Farming Systems and Environmental Quality Registration Form

SURNAME \_\_\_\_\_

FIRST NAME \_\_\_\_\_

INSTITUTION/ORGANIZATION \_\_\_\_\_

Position \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone (including country code) \_\_\_\_\_

FAX (including country code) \_\_\_\_\_

E-mail \_\_\_\_\_

Accompanying person(s) name(s) \_\_\_\_\_

Preliminary title(s) of presentation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**My preferred presentation:**      **Oral** \_\_\_\_\_      **Poster** \_\_\_\_\_

Please return with your Abstract by May 1, 2006

Send to: [farming.systems@lzuu.it](mailto:farming.systems@lzuu.it)

## Final Comments

As always, be sure to let me know if you have ideas or information that will help improve the usefulness of ISTRO INFO. Again, I want to encourage the Working Groups and individual members to provide updates on your current activities and recent findings. The information from the Controlled Traffic Farming (CTF) Working Group is an excellent example that I challenge the other Working Groups to follow.

I also look forward to meeting with many of you at the Conference in Kiel and sharing the research that I am involved with regarding soil quality and some new projects looking at the soil resource response to removing crop residues for biofuels production. I am sure that other members would like to know about your studies addressing soil compaction, carbon sequestration, or simply tillage response to yield. If you have encountered or written any books or other publications that you would like to review for ISTRO INFO, I am open to those types of contributions as well. If you are encountering any interesting questions from farmers or others interested in tillage or other aspects of soil management, consider sending them to me to solicit additional opinions on.

My vision for ISTRO INFO is that it should be a useful and exciting newsletter in which we can exchange current information quickly and in an informal manner. Please do not hesitate to send ideas or information that you would like to see included in future issues. Provided I continue to get material from you, Becky and I will continue to do our best to prepare and distribute ISTRO INFO on a quarterly basis.

Cheers,

Doug Karlen

Assistant Secretary General