



ISTRO INFO

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International Soil Tillage Research Organization**

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ISTRO INFO – December 2009

This is my second issue of ISTROinfo. I am genuinely amazed with how active ISTRO members are. For an organization with a global membership in the mid-hundreds the range of things happening is really superb. In this issue are details of 3 conferences, to be held in 2010, organized by ISTRO members for (but not exclusive to) ISTRO members. These are in different locations (Estonia, Uruguay, and Croatia) and cover different themes and purposes but all are topical, relevant and are shaping up as excellent looking meetings. Members of the working group on controlled traffic farming have a field event planned in April. Further details and programme information for each of these event is provided in the following pages.

I cannot comment on the total scientific output of ISTRO members; indications can be seen simply by scanning the index of Soil & Tillage Research. New aims and scope for Soil & Tillage are presented below. Two recent major reports are also highlighted in this ISTROinfo. These reports, written by teams including authors who are ISTRO members, are aimed at raising awareness of the need for care in managing agricultural land and highlighting this with policy makers, scientists, farmers and the wider public. They are accessible via the web and provide useful international examples of the state of soil resources. There are probably other recent reports that ISTRO members have authored that I am not aware of? I invite members to notify me of any relevant reports, displays, etc that can be circulated to members.

As I write the Copenhagen climate conference is well under way with the various negotiations on climate change and environmental sustainability progressing. At the moment it all seems difficult and there will clearly be no easy, pain-free agreement that is acceptable to all. By nature I'm optimistic, and so I hope that some agreement can be reached. Whether or not an agreement is reached, it is clear that the challenges of managing soils and crops in a sustainable way to ensure food security for a growing population will continue to provide challenges. Active members of a vibrant ISTRO should be able to play a significant role in facing these challenges.

Blair M. McKenzie

Assistant Secretary General

New aims and scope for Soil & Tillage Research

After wide ranging discussion amongst members, editors and the publishers, including personal meetings at the Izmir conference, a revised text has been agreed for the aims and scope of Soil & Tillage Research. There are several reasons to update the text. One reason is that while Soil & Tillage Research is clearly a multi-disciplinary journal, the new text will allow contributors to the journal to point to the direct connections between the journal and the departments or institutions in which they work. For example, those involved in mechanization can now show Soil & Tillage is appropriate for engineering publications. As reviews of institutes, universities etc are now common place, the ability to demonstrate clear links between organizational mission statements and scientific publication will help some members. The agreed text now reads:

This ISTRO-affiliated journal examines the physical, chemical and biological changes in the soil caused by tillage and field traffic. Manuscripts will be considered on aspects of soil science, physics, technology, mechanization and applied engineering for a sustainable balance among productivity, environmental quality and profitability. The following are examples of suitable topics within the scope of the journal of Soil and Tillage Research:- The agricultural and biosystems engineering associated with tillage (including no-tillage, reduced-tillage and direct drilling), irrigation and drainage, crops and crop rotations, fertilization, rehabilitation of mine spoils and processes used to modify soils. Soil change effects on establishment and yield of crops, growth of plants and roots, structure and erosion of soil, cycling of carbon and nutrients, greenhouse gas emissions, leaching, runoff and other processes that affect environmental quality. Characterization or modeling of tillage and field traffic responses, soil, climate, or topographic effects, soil deformation processes, tillage tools, traction devices, energy requirements, economics, surface and subsurface water quality effects, tillage effects on weed, pest and disease control, and their interactions.

New report on the upcoming EU Soil Framework Directive

The EU Commission is preparing a proposal for a Soil Framework Directive with the purpose of protecting the soil resources in Europe. The proposal identifies six major threats to the sustained quality of soils in Europe. The Faculty of Agricultural Sciences at Aarhus University, Denmark, has published a report addressing the threats that are considered most important under the prevailing soil and climatic conditions in Denmark: compaction, soil organic matter decline, and erosion by water and tillage. For each of these threats, the relevance and damage to soil functions as well as the geographic distribution in Denmark are outlined. The authors suggest a procedure for identifying areas at risk. This exercise involves an explicit identification of: i) the disturbing agent (climate / management) exerting the pressures on soil, and ii) the vulnerability of the soil to those stresses. Risk reduction targets, measures required to reach these targets, and the knowledge gaps and research needs to effectively cope with each threat are discussed.

The evaluation of the threats is based on soil resilience to the imposed stresses. Subsoil compaction is considered a severe threat to Danish soils due to frequent traffic with heavy machinery in modern agriculture and forestry. The soil content of organic matter is critically low for a range of Danish soils, which should be counteracted by appropriate management options. Soil erosion by tillage, and to a lesser degree by water, adversely affects soil quality on much of the farmland because degradation rates are much higher than generation of soil.

As soil tillage and traffic are key regulators of the processes involved in all threats discussed, this report is regarded relevant for ISTRO members. The report has general international interest because it includes a conceptual Chapter on the need to explicitly identify the disturbing agents (weather and management) as well as soil characteristics (the disturbed system) in assessment of risk areas. The authors criticise the current high focus in EU-papers preparing the EU Soil Framework Directive to be biased in terms of descriptive monitoring of soil characteristics and a lack of focus on soil management.

The report can be downloaded (pdf) or a physical version ordered (110 Danish Kroner) at <http://web.agrsci.dk/djfpublikation/index.asp?action=show&id=1073>

Schjønning, P., Heckrath, G. & Christensen, B.T. 2009. Threats to soil quality in Denmark. A review of existing knowledge in the context of the EU Soil Framework Directive. DJF-Report Plant Science No. 143. The Faculty of Agricultural Sciences, Aarhus University, Denmark, 121pp.

Report on the state of soils in England

The Royal Agricultural Society of England commissioned a report on The Current Status of Soil and Water Management in England. As a result of the commissioning process the key conclusions leading to recommendations were specifically for England and not for the UK as a whole. However, there appears to be resonance with comments from ISTRO members in many places.

Agricultural production in general and soil and water management in particular, face a considerable challenge in meeting the demands of i. increasing food production and security at both national and international level, ii. the demand for alternative fuels, iii. climate change, iv. soil protection, v. flood and pollution control and vi. the availability of water resources for crop and animal production combined with the diminishing supply of labour. The reduction in labour force will continue the drive for larger machines, increasing the average weight of the national fleet.

Currently due to various issues of both policy and economy linked to the retirement of key applied physicists and engineers, there is a much depleted professional body of specialists who can address the research, extension and training issues required to support the farming community and work with the environmental bodies. The career structure for new entrants to these professions is poorly defined, and this discourages entry. Immediate attention needs to be given to the provision of a small cohort of professionals that can supply the necessary expertise, whilst there is sufficient time for them to be mentored by those (now mostly retired) with a proven field record.

There is a considerable store of fundamental research information available and whilst there is a need for some further supplementation, the prime requirement is to use and develop this existing information, linking in with field experiences elsewhere, to address current problems. Future emphasis, therefore, needs to be given to applied research and development, conducted by personnel with a good understanding of agricultural and environmental needs who can “design” innovative solutions to practical problems. These professionals need also to be encouraged to provide extension advice and practical training for farmers and agronomists.

The specialists require suitable academic backgrounds in engineering or applied physical science including soil science together with a good base and support structure (possibly at colleges or universities or within a Government Agency) and need to be in regular contact with farmers and farming problems.

The full report is available at

http://www.rase.org.uk/activities/core_purpose_work/soil_full_report.pdf

Estonian Branch conference 8-10 June 2010

Plans are well underway for the Estonian Branch conference in early summer. Members and others interested are invited to participate in the Estonian Branch conference “Risks in Agriculture: Environmental and Economic Consequences” for June 8-10, 2010, in Tallinn, Estonia. Planned sessions include Environmental Strategy (chair: Anto Raukas, Estonia); Weather and Soil Resources (chair: Gyorgy Varallyay, Hungary); Crop Production (chair: Jean Rogr-Estrade, France); Food Quality and Safety (chair: Fred Stoddard, Finland) and Economic Consequences (chair: Volkhard Scholz, Germany). A field tour of the Kuusiku region will be on 10 June.

Details and regular updates are on the website at [\(http://www.eria.ee/index.php?page=273&\)](http://www.eria.ee/index.php?page=273&) . The deadline for early registration is 1 April 2010.

The conference is jointly organized by the Estonian Branch of ISTRO and the Estonian Research Institute of Agriculture (www.eria.ee), in collaboration with the

Scientific Creative Association “SCA Ecofiller” and non-profit Organization “Estonian Excellence Centre for Rural Development”.

Tallinn can be reached by direct flight, bus, train and boats from Helsinki or Stockholm. English will be the official language for the Conference. For more information check the website or contact the Chair of the organizing committee at edvin.nugis@eria.ee, or the RAEEC conference team at RAEECinfo@eria.ee

Uruguayan ISTRO Branch and the Uruguayan Society of Soil Science Converence 12-14 July 2010

The science and technology community is invited to participate in the next meeting on the topic of “Soil properties dynamics under different land uses” to be held in Colonia del Sacramento, Uruguay. The meeting is planned as plenary sessions followed by round table discussion involving all participants. Manuscripts and posters should be submitted before 30 March 2010. The webist of the Universidad de la Republica – Uruguay, Estacion Experimental station (<http://www.eemac.edu.uy>) provides a range of information for this meeting (as well as hosting information for the 19th triennial conference). Details specific to this meeting can be found at ([http://www.eemac.edu.uy/dmdocuments/reunion_tecnica/La Sociedad Uruguaya de Ciencia del Suelo y la ISTRO.pdf](http://www.eemac.edu.uy/dmdocuments/reunion_tecnica/La_Sociedad_Uruguaya_de_Ciencia_del_Suelo_y_la_ISTRO.pdf)).

A meeting of the ISTRO board will follow on 15-16 July 2010

Croatia Branch Conference 9-11 September 2010

Members and others interested are invited to attend the Croatian Branch conference “Soil Tillage – Open Approach” from 9-11 September 2010 in Osijek. Details are on the website (<http://suncokret.pfos.hr/~hdpot/simpozij.htm>). Already delegates from more than 10 countries have registered and the second announcement providing further information is due very soon.

The conference is organized by the Croatia Soil Tillage Research Organization – CROSTRO and the Croatian branch of ISTRO. The conference themes will be:

1. Soil tillage in function of environmental protection
2. Conservation tillage – direct seeding – no-tillage
3. Soil biotic and abiotic degradations – causes and consequences
4. Soil tillage – new approach – technologies – perspectives

The scientific and professional presentations will promote correct application of agrotechnical measures, the newest state-of-the-art information and techniques, and alternative approaches in agricultural production – all in the scope of soil tillage. English will be the official language for the conference. For more information including regards travel and accommodation, see the website contact Dr. Bojan Stipešević – Branch President at: Bojan.Stipesevic@pfos.hr

Controlled Traffic Farming working group meeting

ISTRO members and guests are invited to a working group meeting on “Controlled traffic farming and minimum tillage in the frame of small scale farming” at the Tänikon Research Station, Switzerland on 19 & 20 April 2010. The tentative programme starts at noon on the Monday and includes a range practical demonstrations and hands on sessions.

- Minimum tillage and direct drilling: more than 20 years of experience in Switzerland - overall situation and updates
- Visit to field lysimeters: nitrate leaching from plough and no-tillage
- CTF trial in Tänikon (soil water, redox-potential, soil air, temperature and more)
- Spade test: Practical application - How can we improve acceptance by farmers?
- GNSS: Presentation of the virtual network in Switzerland and practical experiences with auto steer and the Swiss virtual network
- Visit to the research farm (tractor test bench, automatic detection of broad-leaved weeds, renewable energies in Switzerland)
- Visit to entrepreneurial farmers practicing strip tillage of wheat and corn
- Visit of a local vineyard with wine tasting

The CTF working group will have updates and sessions from CTF researchers and practitioners from several countries and discussion about research needs. All details and the final programme will be published on websites (www.ctf-swiss.ch and www.controlledtraffickingfarming.com) at the end of January 2010. Accommodation will be in Tänikon and surrounding hotels. Arrangements for post-meeting tourism are possible. Contacts Thomas Anken & Martin Holpp, Agroscope ART, CH-8356 Ettenhausen

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Other conferences and events

1st International conference of soil and roots engineering relationship (Landcon1005) in Ardebil Iran, 24-26 May 2010. For information go to <http://www.landcon-ir.com>

19th World Congress of Soil Science in Brisbane Australia, 1-6 August 2010. The deadline for submission of poster papers has been extended until 31 January 2010. For the latest information go to <http://www.19wcss.org.au/whats-new.html>

ASA-CSSA-SSSA International Annual Meeting is in Long Beach California, U.S.A. 31 October – 4 November 2010.

Final Comments

A reminder to all members involved with training doctoral level students. ISTRO will honor each new PhD in soil-tillage related fields with a free 3-year membership of ISTRO and a free 1-year subscription to our journal - Soil & Tillage Research. New PhD's should be nominated by one of their graduate advisors / promoters who must be an ISTRO member. Details of how to make nominations are found on our website (http://iworx5.webxtra.net/~istroorg/p_frame.htm)

Finally, as 2009 draws to a close and 2010 approaches now is a good time for each of us to reflect on what we have achieved and to set goals for the coming year. As

I pause for reflection, I wish all members, their families and colleagues a peaceful and productive 2010.

Blair M. McKenzie

Assistant Secretary General