

Lars J. Munkholm

First, a special welcome to all our new members of ISTRO. We have welcomed 28 new members during the last ½ year – increasing the total number of members to c. 500 members. Most of the new members are young researchers from India. Ranjan Bhattacharyya, former ISTRO Board member, has done a great effort to stimulate the interest in ISTRO among researchers in India.

Some of you have used ISTRO conferences to renew your membership – meaning that it expires in 2021. If you are in doubt whether your memberships are up to date please contact ISTRO treasurer, Steve Prior (steve.prior@usda.gov).

This issue also includes an obituary for long-term ISTRO member and outstanding researcher, Tony Dexter. He passed away in October at the age of 78. Tony's influence on soil and tillage research was immense – he played a leading role for more than four decades and was a great inspiration to all of us.

The COVID19 situation is still causing restrictions on travelling, large physical meetings etc. despite the extensive use of vaccines. It has already caused an 8-months postponement of the ISTRO conference and threatens to cause a further change of plans as outlined below. Hope that the situation will improve quickly allowing us to meet in Dublin in May 2022.

ISTRO2022 22nd ISTRO International Conference - Update

New dates: 22-26 May 2022 *Venue:* Dublin, Ireland



Abstract submission for the 22nd ISTRO international Conference (now ISTRO2022) is still open with a submission deadline on 17th December 2021. It has been extended due to the limited number of abstracts received. This is likely due to the uncertainties due to the COVID19 situation etc. The appearance of the Omicron variant has not made it better. More than 100 submitted abstracts are needed to make a physical conference viable. Otherwise, the physical conference will have to be cancelled and some alternative put in place.

Go to www.istro2021.com for abstract submission details. Acceptance notifications will be issued in late January.

Scholarships. ISTRO has increased the number and type of financial supports this year as detailed in the last ISTROINFO. Application details can be found on the conference website, and also during the abstract submission process. If in doubt, email Nick.Holden@ucd.ie to receive a copy of the instructions. The deadline for submitting scholarship applications is December 31, 2021, by e-mail to Lars J. Munkholm, Assistant Secretary-General (lars.munkholm@agro.au.dk) and to Jean Roger-Estrade, Chair of the evaluation committee (jean.roger-estrade@inra.fr).

We look - still - forward to seeing you all in Dublin in 2022.

⌘ Thomas Keller - new Editor-in-Chief of Soil and Tillage Research



Thomas Keller has joined the team of Editors-in-Chief of Soil and Tillage Research. Thomas is a chair professor at the Department of Soil & Environment, Swedish University of Agricultural Sciences, in Uppsala, Sweden, and a scientist with the Agroscope research institute in Zürich, Switzerland. He is a long-term member of ISTRO, served as chairperson of the ISTRO subsoil compaction working group between 2010 and 2018, and was a keynote speaker at the last ISTRO conference in Paris in 2018.

His research interests include soil structure dynamics due to natural processes and soil management, soil mechanical processes related to soil compaction and soil tillage, impacts of soil management on soil structure and soil functions, bioturbation by earthworms, and soil-plant interactions.

His e-mail address is: thomas.keller@slu.se

⌘ Vale Anthony Roger (Tony) Dexter



Anthony Roger (Tony) Dexter was born on 30 December 1942 in Bedford in the heart of England. Tony attended Bedford Modern School. For those not familiar with English schools “Modern” here refers to a separation from Bedford School in the mid-1700s! Tony completed his BSc in Physics (electronics) at City University, London in 1965 before being awarded a PhD in Physical Chemistry at the University of Essex in 1970 for a thesis titled “The high-frequency mechanical response of super-cooled liquids”. At the end of 1969, Tony married Caroline and they moved to Scotland where he continued his research on mechanical properties of super-cooled viscous liquids as a post-doctoral fellow at the Bio-Engineering Unit at Strathclyde University. Tony was appointed to the National Institute of Agricultural Engineering, Silsoe in his native Bedfordshire in late 1971.

In 1973 Tony and Caroline emigrated to Adelaide where Tony had accepted the post of lecturer in Soil Physics following the premature death of Keith (KP)

Barley. This appointment was in the Department of Agricultural Chemistry and Soil Science of the University of Adelaide – with Soil Science becoming a separate department soon after. The Department was based at the Waite campus about 7 km from the main university campus where there was sufficient land for agricultural experiments. Tony and Caroline established themselves in the small town of Mt Barker about 20 km away. Sons Tom and David arrived. Tony had an old VW beetle that he used for the commute. We're not sure exactly when Tony joined ISTRO but certainly, he attended the 8th conference in Hohenheim in 1979. This was a scientifically productive time for Tony. He generated substantial external funding from the cereal and oilseed industries, and this supported his work on plant roots. The funding and the prodigious scientific output saw Tony rapidly promoted to Senior Lecturer then Reader/Associate Professor. It was during this time that the seminal work on soil friability began. He supervised a succession of PhD students, hosted several international visitors, and took advantage of sabbaticals to collaborate with people in the Netherlands (B Kroesbergen), Germany (Rainer Horn), Sweden (Inge Håkansson), Canada (Bev Kay) and the USA (Jerry Radke). His grants employed post-doctoral scientists including John Hewitt and Bent Jakobsen. Although the faculty of Agriculture in which he was based had no provision for awarding higher doctorates, Tony's work on plant roots was acknowledged through the Department of Botany at the University of Adelaide with the award of a DSc in 1988.

In August 1990 Tony returned to Silsoe to head a group on Soil Physics. He worked closely with Chris Watts, Richard Whalley and others to set up labs with constant temperature rooms, loading frames, penetrometers and soil-water retention equipment. The work of the group focused on the environmental impact of mechanized agriculture on soil function and the wider environment. The study of processes controlling soil functions is highly complex, requiring a multi-disciplinary approach, so many links were formed with scientists not only in the UK but throughout Europe and beyond. As with all Tony's work the golden thread running throughout

was soil structure, its form, stability and resilience. Under Tony's guidance, the group grew and included Richard Whalley and Lawrence Clark working on plant roots, Nigel Bird working on fractals fluid movement, and Chris Watts and Andy Gregory working on friability and resilience. Postgraduate students supervised by Tony were registered with universities in the UK and elsewhere in Europe. He was made a Visiting Professor by Cranfield University during this time.

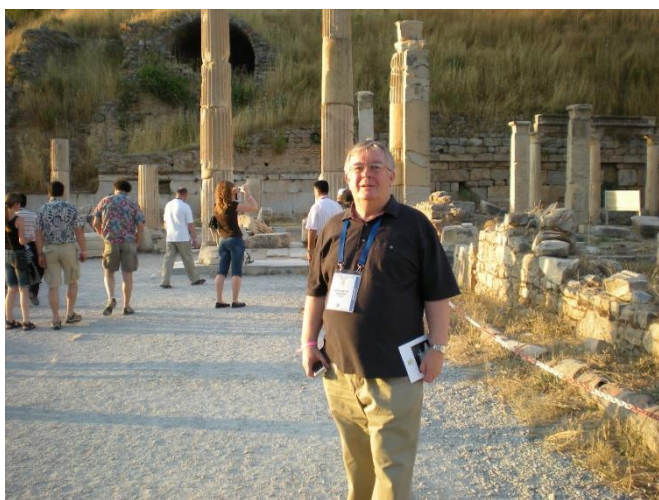
In keeping with his choice of non-standard cars, Tony has his much loved "Dolly" model 2CV car at this time. His Francophile credentials were clear in the choice of a modern Citroen as the family car, but it was his much-loved red and white "Dolly" model 2CV that was his real joy. His aversion to strenuous physical exercise was evidenced by his often driving "Dolly" for the 100 m from his office to the lunch canteen. Tony and Caroline separated in the mid-1990s but Tony continued to support Tom and David through post-secondary education and into employment.

Tony met soil scientist Ewa Czyż and took a sabbatical to the Institute of Soil Science and Plant Cultivation (IUNG) in Puławy, Poland. This started a collaboration between his group at Silsoe, UK and IUNG, Puławy, Poland. At this time there was a compulsory retirement age of 60 at UK research institutes. Tony was clear that he was not ready to retire at 60 and wanted to continue his research!



Tony during nomination for Professor by President Republic of Poland Lech Kaczyński, Warsaw, 2007 (Photo: EA Czyż)

In 1997 Tony moved to the post of Professor at IUNG leading the Soil Physics Group in the Department of Soil Science, Erosion and Land Protection Puławy, Poland. He continued his research, working closely with Ewa and they collaborated widely on soil and plant-water management, soil physics and environmental protection. The result of his research and international collaboration over the period 1997-2004 was a series of three publications (in 2004), the result of which was the development of a universal indicator of the physical quality of soil, "S". This work was the basis for the Director's award at IUNG for 2004. In 2004 Tony spent time at the University of Sao Paulo, Brazil working with Alvaro Da Silva and colleagues and in 2008 he spent a year at INRA, Orleans, France collaborating with Guy Richard and others. Tony was appointed a full professor by President Lech Kaczyński in October 2007. He retired in 2012 although he continued to publish until at least 2019.



Tony at Ephesus as part of the 2009 ISTRO conference, Izmir Turkey. (Photo: EA Czyż)

In retirement, Tony divided his time between Ewa and Poland and a house in Brightlingsea on the Essex coast. He was a keen sailor and skilled mariner and taught sailing to disadvantaged young people. He was also a keen radio ham. He was widely read and always good company. He was in Brightlingsea when the Covid pandemic hit and was unable to return to Poland. For the last 18 months of his life, Tony remained in Brightlingsea but kept regular contact with Ewa by Zoom. Following a fall, he was admitted

to Colchester hospital where he passed in mid-October.

Tony's scientific legacy is outstanding. He published more than 250 papers in refereed international scientific journals and at the time of writing has a Hirsch index of $H = 50$. His writing style was clear and succinct and he had an ability to simplify science to enable understanding. Tony took teaching responsibilities seriously and always seemed to have time to interact with students and young researchers. The list may not be complete, but he was a key supervisor to the following PhD students: Stephen Ojeniyi, Mike Braunack, Wani Utomo, Geoff Whitely, Rabi Misra, Blair McKenzie, Cameron Grant, Simeon Materechera, Paul Hallett, Andrew Brown, Chris Watts, Sonia Czarnes, and Thomas Keller. Tony's research covered a range of topics that he grouped into topic areas including the physics of soil/plant-root interactions; research on the physics of soil biology interactions (including earthworms and microbes); research on soil structure; soil hydraulic properties and soil physical quality. He had deep understanding of the physical, chemical and biological principals controlling soil function and used this understanding to explain soil behaviour. Those of us lucky enough to have worked with Tony will certainly miss him as a friend but his many published papers will be a lasting memorial to a great scientist.

Blair McKenzie, Chris Watts and Ewa Czyż (with help from Caroline, Tom and David Dexter).
b.mckenzie@dundee.ac.uk

1 December 2021

2nd ISTRO Working Group – Conservation Soil Tillage Workshop

The 2nd ISTRO Working Group – Conservation Soil Tillage (WG-CST) Workshop was held from 7th-8th September 2021, Osijek, Croatia. It was organized by CROSTRO (Croatian branch of ISTRO), Faculty of Agrobiotechnical Sciences Osijek (as host institution) and the OLMIX group.

In spite of the COVID-19 situation, the meeting was – in my opinion – even more successful than expected. I wish to thank all WG-CST members and non-members, who were able to participate in the meeting.

The 2nd WG-CST Workshop focused on Soil and Water Management, Tillage role on Greenhouse Gases Emissions, Plant Nutrition, Tillage tools and Implements, Crop Protection and other topics related to Conservation Soil Tillage.



Presentations on the first day of the workshop (Photo: Boris Đurđević)

The first day of the 2nd ISTRO WG-CST Workshop was organized as a round table with oral presentations and discussions on:

- CST worldwide experiences/overview
- CST results from different experiments
- CST relation to other agricultural practices
- CST *in* and what we learn *from* experimental results
- CST as a challenge in changing world

The discussions were very dynamic, motivated and fruitful. The most interesting discussion was on theoretical and practical aspects of soil biology and its special role in conservation soil tillage.



Field trip on the second day of the workshop (Photo: Boris Đurđević)

The second day was organized as a field trip that included:

- Visiting a progressive family farm
(*Traditional Croatian breakfast*)
- CST experiment
- Experimental site Čačinci (description and basic information)
 - Field demonstration

During the second day, six soil profiles under different tillage and soil practice, different conditioner applications and different crop rotations were evaluated by soil and crop experts. These experts used visual evaluation methods to identify and evaluate specific problems appearing for different soil tillage practices, ranging from conventional tillage with plowing to different conservation tillage practices. The specific problems were primarily focused on soil structure, crop roots proliferation, soil dynamics under the effect of climate and biological activity, and possibilities and strategies for soil compaction prevention.

Results and information from the two-day workshop can be found on the official ISTRO website (<https://www.istro.org/index.php/publications/other-publications>).

Conclusions made after two-day Workshop meeting (many conclusions from the 1st ISTRO WG-CST can be repeated and also enriched by new ones)

- Soil visual evaluation is a very good, powerful and useful tool for evaluation of soil/crop conditions and to help preventing many human and/or climate-induced threats,
- Although Conservation Soil Tillage plays one of the main roles in sustainable approaches to crop production at a global scale, it is still not fully recognized as a technique for adaptation and mitigation of climate change and soil degradation,
- Different definitions of Conservation Soil Tillage are used globally, which sometimes leads to misunderstandings in the evaluation of achieved scientific and practical results,
- The current knowledge and practical experience is very heterogeneous on every level from scientists to farmers and also needs to be viewed in relation to global, regional and even on the local scale,
- The main barriers for expanding adoption of Conservation Soil Tillage can be divided into two different groups: Economic and social development (knowledge, tradition, technology, science implementation etc.) and Agro-ecological conditions (climate, soil, water, crop, biology etc.),
- Much more attention needs to be paid to soil biology, but without diminishing the importance of soil physics and soil chemistry,
- Main reason/motivation for farmers to adopt Conservation Soil Tillage is reduced costs in crop production. Unfortunately, the other positive effects (reduction of soil erosion, increase in biodiversity and quality of soil, less traffic and soil compaction alleviation, improved nutritional status and quality traits of crops, reduced weed infestation etc.), are still in the background,
- The participants were very interested in discussing the different topics and expressed interest in different ways of cooperation,
- Participants agreed on writing a joint contribution Glossary of Conservation Soil Tillage. This proposition needs to be discussed with the ISTRO board at the next meeting or most likely at the main ISTRO conference in Dublin,

- The work in the WG-CST is a very good "channel" for additional promotion of ISTRO activities and has the potential for attracting new members,

Next WG-CST meeting

Participants agreed to have WG meetings once a year. The next meeting is planned to take place in connection to the main ISTRO Conference in Dublin in 2022.

Today, the WG-CST counts 35 members from 15 different countries. All ISTRO members, or potential members, are kindly invited and welcome to join WG-CST (there is no costs involved) and can do so simply by contacting the Chair (djug@fazos.hr; daniel@hdpot.hr) or the Secretary of WG-CST (daniel.plaza@udl.cat).

Danijel Jug, WG-CST chair.

⌘ Vacant PhD position on soil compaction

There is a vacant PhD position on "Mechanical behaviour of agricultural soils exposed to traffic" at Aarhus University.

Description of the position can be found in the following link:

<https://phd.tech.au.dk/for-applicants/apply-here/saeropslag/re-advertisement-mechanical-behaviour-of-agricultural-soils-exposed-to-traffic/>

Please contact Mathieu Lamadé if you need further information (Mathieu.lamande@agro.au.dk).

Deadline is: Dec 15th, 2021.

⌘ Upcoming Meetings and Events

-- 2021 --

December

2021 ASA, CSSA, SSSA International Annual Meeting
“A Creative Economy For Sustainable Development”.
December 31st, 2021 (Online). Webpage:
<https://www.acsmeetings.org>

-- 2022 --

January

Global Forum for Food and Agriculture (GFFA).
“Sustainable Land Use: Food Security Starts with the
Soil”. January 24th -28th, 2022 (Online). Webpage:
<https://www.gffa-berlin.de/en/>

March

XXV Dokuchaev Conference for Young Scientists
“Soil is life”. March 1st -3rd, 2022, in St. Petersburg,
Russia. Webpage:
<http://www.dokuchaevskie.ru/our-conferences/conference-2022?lang=en>

International Soil Classification Congress, March
25th – April 8th, 2022, México. Webpage:
<http://iscc2020.org/>

May

Soil and water conservation under changing climate
in Northern or high altitude conditions. May 4-5,
2022, in Ås, Norway. Webpage:
<https://nibio.pameldingssystem.no/soil-and-water>

Global Symposium on Soil Fertility. May 2nd -5th,
2022, in Rome, Italy. Webpage:
<http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1309843/>

XXIII Latin-American Congress of Soil Sciences (XXII
CLACS). May 22nd - 27th, 2022, in Florianópolis.
Brasil. Webpage: <https://www.slcs.org.mx/>

⌘⌘⌘

22nd ISTRO International Conference on Agriculture:
the role of soil and tillage research and innovation
in the transition to digital agriculture, May 22nd -
26th, 2022, in Dublin, Ireland. Webpage:
<https://istro2021.com/>

⌘⌘⌘

4th International Conference of Young Scientist. Soil
in the Environment. May 29 to June 1st, 2022, in
Toruń, Poland. Webpage:
<https://sites.google.com/view/site-torun-2020/>

Global Conference on Sandy Soils – Properties and
Management. May 30th to June 3rd, 2022, in Madison,
USA. Webpage: <https://sandysoils.org/>

June

ISCRAES 2022 “International Symposium on
Climate-Resilient Agri-Environmental Systems”.
June 7 – 10, 2022, in Dublin, Ireland. Webpage:
<https://www.iscraes.org/>

July

12th International Symposium on Earthworm
Ecology (ISEE12). July 10th – 15th, 2022, in Rennes,
France. Webpage:
<https://isee12.symposium.inrae.fr/>

International Symposium on Managing Land and
Water for Climate Smart Agriculture. July 25th – 29th,
2022, in Vienna, Austria. Webpage:
<https://conferences.iaea.org/event/270/>

22nd World Congress of Soil Science – Crossing
boundaries, changing society. July 31st to August 5th,
2022, in Glasgow, UK. Webpage:
<https://22wcsc.org/>

August

ESAF2022: 15th international conference of the East
and Southeast Asia Federation of Soil science
societies (ESAFS). August 22 - 26, 2022, in Kuala
Lumpur, Malaysia. Webpage: <https://www.esafs-support.com/>

September

16th International Conference on Soil Micromorphology. September 4 – 8, 2022, in Krakow, Poland. Webpage: <http://www.icosm2020.sggw.pl/>

2nd Central European ISTRO Conference (CESTRO) “Trends and challenges in soil-crop management”. September, 2022, in Brno, Czech Republic. Webpage: <http://istro.cz/>

5th International Interdisciplinary Conference on Land Use and Water Quality: Agriculture and the Environment. September 12-15, 2022, in Maastricht, Netherlands. Webpage: <https://www.luwq2022.nl/>

RAMIRAN 2022 “Managing Organic Resources in a Changing Environment”. September 19 – 21, 2022, Cambridge, UK. Webpage: <https://www.ramiran2020.org/>

October

10th International Symposium on Forest Soils. October 17-22, 2022, in Hangzhou, China. Webpage: <http://isfs2021.csp.escience.cn/dct/page/1>

9th IASSC “International Acid Sulfate Soils Conference”. November 2022, in Adelaide, Australia. Webpage: <https://biological.adelaide.edu.au/acid-sulfate-soil/iassc/>

-- 2023 --

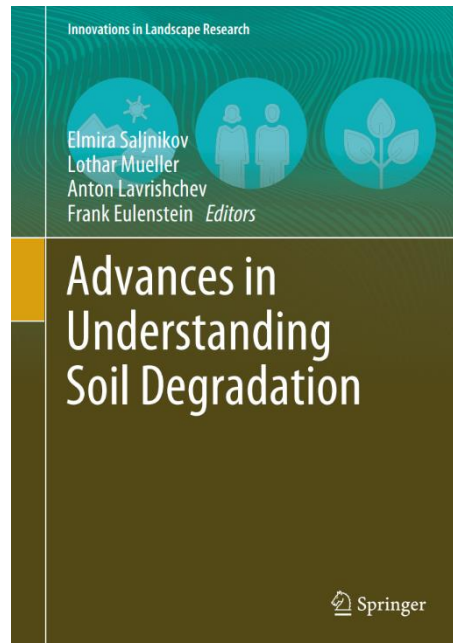
March

3rd Global Soil Biodiversity Conference. March 13 – 15, 2023, in Dublin, Ireland. Webpage: <https://gsb2021.ie/>

New Books

Advances in Understanding Soil Degradation

Editors: E. Saljnikov, L. Mueller, A. Lavrishchev, F. Eulenstein



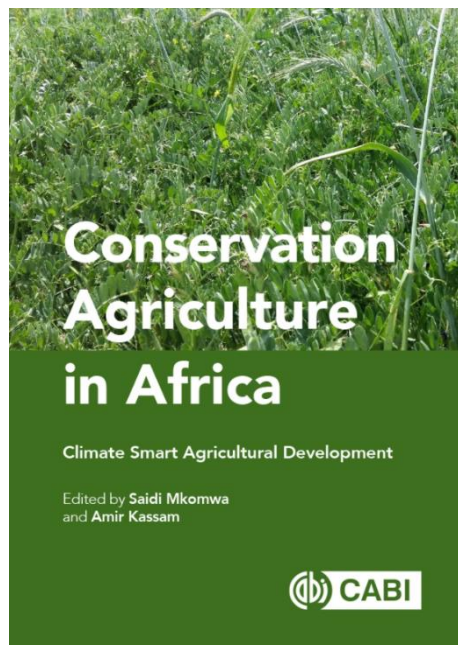
This book informs about knowledge gain in soil and land degradation to reduce or prevent it for meeting the mission of the Sustainable Developments Goals of the United Nations. Essence, extent, monitoring methods and implications for ecosystem functioning of main soil degradation types are characterized in overview chapters and case studies. Challenges, approaches and data towards identification of degradation in the frame of improving functionality, health and multiple ecosystem services of soil are demonstrated in the studies of international expert teams. The book consists of five parts, containing 5–12 single chapters each and 36 in total. Parts are explaining (I) Concepts and Indicators, (II) Soil Erosion and Compaction, (III) Soil Contamination, (IV) Soil Carbon and Fertility Monitoring and (V) Soil Survey and Mapping of Degradation.

More information on this book:

<https://link.springer.com/book/10.1007/978-3-030-85682-3>

Conservation Agriculture in Africa. Climate Smart Agricultural Development

Editors: Saidi Mkomwa, Amir Kassan



Conservation Agriculture has emerged as a major alternative sustainable climate smart agriculture approach in Africa and has spread to many African countries in the past decade as more development and research, including in sustainable mechanization, has enabled its extension and uptake.

This landmark volume is based on the material presented at the Second Africa Congress on Conservation Agriculture which was held in Johannesburg, South Africa, 9-12 October 2018.

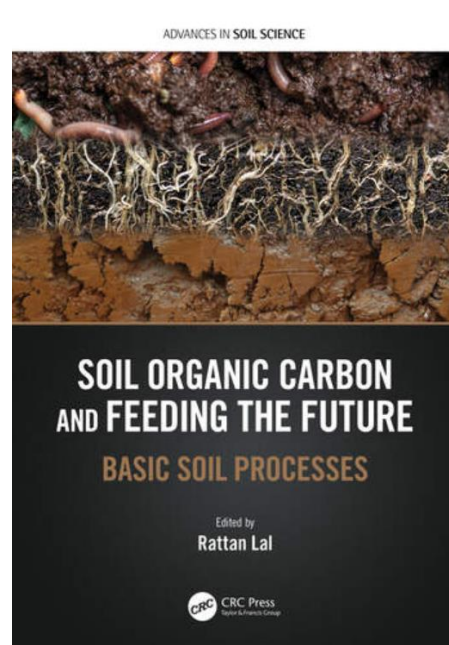
This book is aimed at all agricultural stakeholders in the public, private and civil sectors in Africa engaged in supporting the transformation of conventional tillage agriculture to Conservation Agriculture.

More information on this book:

<https://www.cabi.org/bookshop/book/9781789245745/>

Soil Organic Carbon and Feeding the Future. Basic Soil Processes

Editors: Rattan Lal



Soil organic matter (SOM) is a highly reactive constituent of the soil matrix because of its large surface area, high ion exchange capacity, enormous affinity for water due to hygroscopicity, and capacity to form organo-mineral complexes. This volume of *Advances in Soil Sciences* explains pedological processes set-in-motion by increases in SOM content of depleted and degraded soils. It discusses the relationship between SOM content and critical soil quality parameters including aggregation, water retention and transport, aeration and gaseous exchange, and chemical composition of soil air. The book identifies policy options needed to translate science into action for making sustainable management of SOM as a strategy for adaptation to and mitigation of climate change.

More information on this book:

<https://www.routledge.com/Soil-Organic-Carbon-and-Feeding-the-Future-Basic-Soil-Processes/Lal/p/book/9781032150673>

ISTRO INFO is the newsletter of the **International Soil Tillage Research Organisation**. (www.istro.org).

All information contained in this newsletter are © ISTRO and may not be distributed without written permission of the Secretary General, Dr. Blair McKenzie (b.mckenzie@dundee.ac.uk) or the Assistant Secretary General, Prof. Lars J. Munkholm (lars.munkholm@agro.au.dk).

For more information, please contact: Prof. Lars J. Munkholm, Assistant Secretary General, ISTRO, Aarhus University, Agroecology, P.O. Box 50, DK-8830 Tjele, Denmark.