Bulletin

of the International Society of Soil Science

Bulletin

de l'Association Internationale de la Science du Sol

Mitteilungsblatt

der Internationalen Bodenkundlichen Gesellschaft

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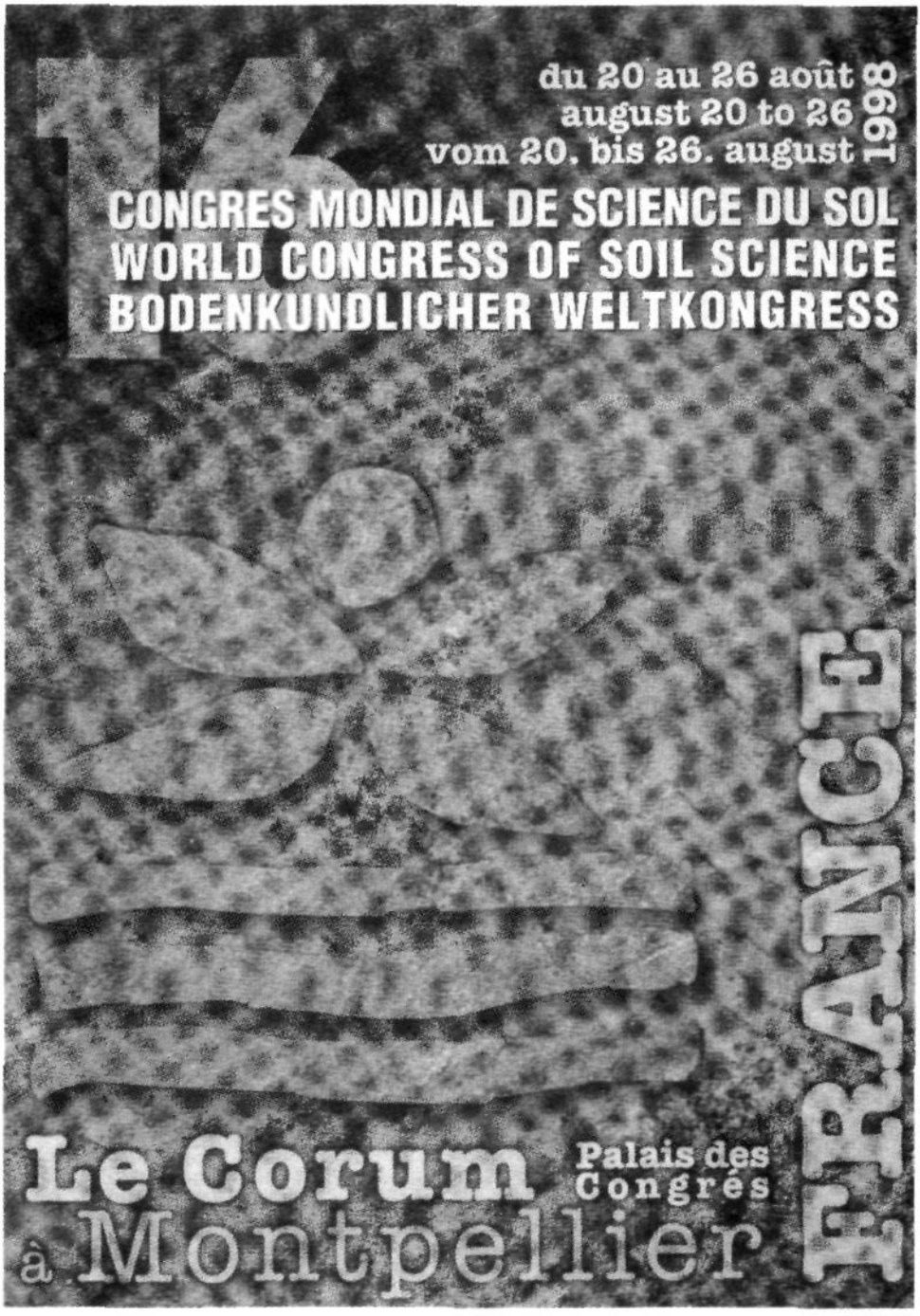
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august 20 to 26
vom 20. bis 26. august
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16th WORLD CONGRESS OF SOIL SCIENCE
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16° CONGRESO MUNDIAL DE LA CIENCIA DEL SUELO

16th World Congress of Soil Science
Montpellier - France
August 20th to 26th 1998

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16. Bodenkundlicher Weltkongreß
Montpellier - Frankreich
20. - 26. August 1998

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Announcement

5th ICOBTE '99

5th International Conference on the Biogeochemistry of Trace Elements

University of Agriculture Vienna, Austria

July 11-15, 1999

In continuation of a highly successful conference series that was started in 1990 in Orlando, Florida, with follow-ups in Taipei, Taiwan (1993), Paris, France (1995), and in Berkeley, CA (1997), we are pleased to invite you to participate in the 5th ICOBTE taking place in Vienna, Austria. This conference is dedicated to exploring and discussing contemporary and emerging issues in biogeochemistry research of trace elements. Biogeochemistry has developed into an interdisciplinary science linking phenomena observed in the biosphere to physical and chemical reactions in the lithosphere. This conference provides a forum for professionals, regulators, and students to present their most recent findings and to discuss with colleagues from around the world the state-of-the-art in methodology, analytical techniques, and process development.

Conference venue: Technical University of Vienna, located in downtown Vienna

The technical program centers around the following major topics:

- Biogeochemical cycles of trace elements in agricultural and natural ecosystems;
- Speciation of trace elements in environmental media;
- Mobility and bioavailability of metals;
- Contamination and remediation;
- Transfer to groundwater and food chain;
- Analytical techniques and modelling;
- Risk assessment and environmental health.

Special symposia will focus on:

- Fate of trace elements in the rhizosphere;
- Remediation of contaminated soils;
- In-situ remediation;
- Phytoremediation;
- From the field to the lab and back to the field;
- Metal-organic compounds;
- Kinetics and mechanisms of metal sorption / release on natural materials;
- Bioavailability of trace elements during transport in soil;
- Fate of radionuclides;
- Trace element issues in developing countries;
- Fate of trace elements in tropical and subtropical areas.

Conference tours: 3-5 day tours in Austria, Czech Republic, Hungary, Slovenia & Switzerland

Conference chairman: Walter W. Wenzel, Institute of Soil Science, Univ. für Bodenkultur, Austria

For further information please reply to:
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The homepage provides well-illustrated, updated information on organizing committees, scientific program, call for papers, accommodation, tourist and social events and conference tours.

ANNOUNCEMENT

International Workshop of Commission I: Soil Physics ISSS
Subsoil Compaction and Soil Dynamics - Processes and environmental consequences
(IWSCSD)

Kiel,Germany March 24 - 26, 1999

FIRST CIRCULAR: / NOTICE OF INTENT

Organized by the Com I: Soil Physics together with
- EU - Concerted Action on Subsoil Compaction
- International Soil Dynamics group
- International Soil Tillage Research Organisation

Programme of the Workshop:
- Session I: Subsoil compaction processes - state of knowledge
- Session II: Tillage and traffic effects on soil compaction and soil strain
- Session III: Effect of soil deformation on physical properties (air, water,heat, rootability)
- Session IV: Soil deformation modelling approaches - possibility and limits
- Session V: Development of databases in order to predict changes in physical soil properties due to soil deformation

Please return the completed formular below to Kiel until 30.4.1998 at the latest.

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STANDING COMMITTEE ON EDUCATION IN SOIL SCIENCE (CES):

Chairperson: Prof.Dr. M. Dosso, CNEARC, 1101 Av. Agropolis, B.P. 5098 Montpellier Cédex, France.

STANDING COMMITTEE ON THE HISTORY, PHILOSOPHY AND SOCIOLOGY OF SOIL SCIENCE (CHP):

Chairperson: Prof.Dr. D.H. Yaalon, Institute of Earth Sciences, Hebrew University, Givat Ram Campus, Jerusalem 91904, Israel.

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Committee on Budget and Finances (CBF), instead of ad-hoc committees at Congresses.

Chairman: Dr. W.R. Gardner, College of Natural Resources, Univ. of California, Berkeley, CA 94720, USA.

Members: Prof.Dr. W.E.H. Blum (Austria), Dr. D. Gabriels (Belgium), Dr. P.U. Luescher (Switzerland), Dr. W.G. Sombroek (The Netherlands) and one representative of the regional Society of Africa, East/Southeast Asia and Latin America.

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Chairwoman:	Prof.Dr. M. Dosso, CNEARC, B.P. 5089, 1101 Av. Agropolis, 34033 Montpellier, France.
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Committee on History, Philosophy and Sociology of Soil Science (CHP)

Chairman:	Prof.Dr. Dan H. Yaalon, Inst. of Earth Sciences, The Hebrew University, Jerusalem 91 904, Israel.
Members:	to be defined

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ICSU-CSFS:	Scientific Committee on Sciences for Food Security: Prof.Dr. W.E.H. Blum, (Austria).
ICSU-IBN	International Biosciences Networks: Prof.Dr. P.A. Sanchez (USA).
ICSU-IGBP	International Geosphere-Biosphere Programme: Prof.Dr. H.W. Scharpenseel (Germany).
ICSU-COSPAR	Committee on Space Research: Dr. Karale (India).
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ACTIVITIES OF COMMITTEES, COMMISSIONS, SUB-COMMISSIONS, AND WORKING GROUPS
ACTIVITÉS DES COMITÉS, COMMISSIONS, SOUS-COMMISSIONS ET GROUPES DE TRAVAIL
AUS DER TÄTIGKEIT VON KOMITEES, *KOMMISSIONEN, SUBKOMMISSIONEN UND ARBEITSGRUPPEN*

News from the ISSS Working Group RB

At the occasion of the International Symposium on „Soil System Behaviour in Time and Space" at Vienna-Austria, November 1997, the ISSS Working Group RB met to finalize the publications towards the ISSS Congress at Montpellier. The meeting came to a consensus on three books:

1. World Reference Base for Soil Resources. An Introduction
(ISSS-ISRIC-FAO, 1998)
2. World Reference Base for Soil Resources. Atlas (ISRIC-FAO-ISSS, 1998)
3. World Reference Base for Soil Resources. Definitions and Key.
(FAO-ISRIC-ISSS, 1998)

These publications will be released and offered for sale at a reduced congress price at Montpellier.

J.A. Deckers, O.C. Spaargaren and F.O. Nachtergaele
Chairman, Vice-Chairman and Secretary of the ISSS Working Group RB
c/o Institute for Land and Water Management
Vital Decosterstraat 102
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Seppe Deckers, Belgium

NEW COMMISSION ON HISTORY OF SOIL SCIENCE

Due to the intensive efforts of Professor Dan H. Yaalon, Institute of Earth Science of the Hebrew University, Chairman of the ISSS Standing Committee on the History, Philosophy and Sociology of Soil Science (CHP), the International Union of the History and Philosophy of Science (IUHPS), Division of History of Science (DHS) decided during its General Assembly on 25 July 1997 to set up a joint Commission on History of Soil Science.

This new commission within IUHPS-DHS is a great step forward, not only for the Committee on History, Philosophy and Sociology of Soil Science and its Chairman, but for the International Society of Soil Science as a whole. Professor Dan H. Yaalon is invited to explain his projects to the next meeting of the Council of IUHPS-DHS in Brussels in December 1997. This development is a new milestone for our Society, which, dating back a long time before its foundation in 1924, has already a history of its own.

Winfried E.H. Blum, S-C, ISSS

REPORT OF THE ISSS WORKING GROUP „PADDY SOILS FERTILITY" 1994 - 1998

Prof.Dr. Tasnee Attanandana
Chairperson WG-PS (1994-1998)

1. The 4th International Symposium on Paddy Soils „Maximizing Sustainable Rice Yields Through Improved Soil and Environmental Management" was held in Khon Kaen, Thailand, from November 11-17, 1996. The summary of the Symposium was published in ISSS Bulletin No. 90 (1996/2). The Proceedings of the Symposium were published and distributed at the meeting.

2. Change of Chairperson of the Working Group.
After negotiation with a number of national societies of soil science and through communication voting, the new Chairperson of the Working Group „Paddy Soils Fertility" for 1998-2002 is Dr. Rogelio N. Concepcion, the Director, Bureau of Soils and Water Management, and President, Philippine Society of Soil Science and Technology.

STANDARDISATION OF SOIL QUALITY - WHAT PROGRESS?

The soil is an often unnoticed resource which is essential for many of mankind's activities. It is frequently the case that we take for granted the soil and its ability to serve our needs and become concerned only when it is so degraded that it is unable to perform the many and various functions we expect of it, or in the extreme it is lost from the site through soil erosion. The problem with monitoring the quality of soil is that unlike water and air there are often no immediate signs that the quality is declining, we cannot taste or smell the poor quality soil as we are able to do with water and air respectively, and indeed there are generally no immediately obvious health hazards as the soil quality declines as there frequently are with declining water and air quality. We must therefore pose the question, „what is soil quality and how do we measure it?"

The answer to the first part of this question lies in the domain of the politicians and legislators, and will often have different interpretations by country or region. In some cases there will be definitions of soil quality which are all encompassing such as the notion of „multifunctionality" widely promoted in environmental legislation in the Netherlands, where it identifies the need for land to have the properties so that it may be used for all purposes. In other circumstances the concern is with soil quality for a particular use or purpose, as with the „Fit for Purpose" approach which is widely adopted in the legislative and environmental control framework in the United Kingdom. Here the concept is that different land uses may be undertaken with soil of varying quality, and therefore a soil to be used as an industrial site would generally not be required to meet the same standards as a soil at a site to be used for housing.

The question of how we measure soil quality is an altogether different one, and one in which there has been considerable progress in recent years. The international community of Soil Scientists has a major role to play in the development of standard methods of soil analysis, sampling and description. In this context the International Standardisation Organisation established in 1985 a technical committee, ISO/TC 190 to consider standardisation in the field of soil quality. From the first meeting of this tech-

nical committee in the Hague the emphasis has been principally upon environmental aspects of soil quality. This emphasis was probably a result of the increasing demand from legislators, particularly in Europe, for standardised methods of analysis as there was an increasing development of environmental legislation which included references to soil. The Technical Committee has celebrated its tenth anniversary and is now in its second decade with its work programme organised under six subcommittees. These subcommittees are: SC1-Terminology and Codification; SC2-Sampling; SC3-Chemical Methods; SC4-Biological Methods; SC5-Physical Methods; and SC7-Soil and Site Assessment. SC6-Radiological Methods was established during the first 10 years of the technical committee, but was disbanded through insufficient interest in these methods.

The following number of Standards and Draft Standards have been prepared in the Subcommittees of ISO/TC 190: SC1-Terminology and codification: 5 (draft) standards; SC2-Sampling: 6; SC3-Chemical methods: 29; SC4-Biological methods: 12; SC5-Physical methods: 12; and SC7-Soil and site assessment: 2.

The work of Technical Committee ISO/TC 190 is concerned with the standardisation of methods following testing with inter-laboratory trials where appropriate; three broad themes guide much of the work. These might be broadly summarised as:

1. Presence of soil contaminants which may form a threat to human health
2. Presence of soil conditions which damage the potential or actual functions of the soil as components of ecosystems
3. The spread of contaminants from one part of the soil to another, or from one environmental component to another. The transfer may result in the situation identified in 1 and 2 above.

the Technical Committee met in Bern, Switzerland, September 15-19, 1997. At this occasion the progress of work in each of the sub-committee programmes was reviewed and the suggestions for future work considered. The decision making process is a complex one as there are various stages in the development of a standard. Initially the proposal to work on a particular topic must be approved by all the national Standardisation Organisations participating in the programme of the Technical Committee (there are currently 45 national standardisation organisations involved to varying degrees in the activities of the technical Committee). This approval is normally sought through reference to interested persons or organisations at a national level. Once a draft of a standard is developed this is again circulated for comment amongst participating member organisations. The Draft of an International Standard is widely circulated for public comment, and it is the duty of national Standardisation Organisations to ensure that comments from as many sectors of interested parties are received. This need to seek approval at the various stages of the development of standards frequently results in the process being relatively slow, but without such a process the production of standards would often result in disagreement and their frequent non-acceptance by many of the scientific community concerned. In many countries, once the International Standard has been approved it will be adopted with little or no modification as a national standard subject to national approval. At present there is an increasing number of standards being produced in the Technical Committee.

A list of current items which have been produced as International Standards (IS), are at the stage of Draft International Standards (DIS), or are being considered as Committee Drafts (CD) and details of these standards may be obtained from the Secretary to ISO/TC 190, Dr. Richard Wellings, NNI, P.O. Box 5059, 2600 GB Delft, the Netherlands;Fax number +31-15-2690-190

Further information on the work of the Technical Committee and the involvement of the ISSS may be obtained from Dr. Stephen Nortcliff, Chair, CST-ISSS, Dpt. of Soil Science, The University of Reading, P.O. Box 233, Reading, RG6 6DW, U.K.; Fax: +44-118-931-6660; E-mail: s.nortcliff@reading.ac.uk.

Stephen Nortcliff
Chair, ISSS Standing Committee on Standardisation

INTERNATIONAL SYMPOSIUM ON SOIL, HUMAN AND ENVIRONMENT INTERACTIONS

This Symposium, that took place in Nanjing, China, May 4 - 11, 1997, was the first official activity of Commission VIII *Soils and the Environment*. It was attended by some 150 participants, with about 45 delegates coming from abroad. The symposium was organized by the Institute of Soil science, Academia Sinica, the Soil Science Society of China, and the ISSS Commission VIII.

After welcome addresses by Zhao Qiguo, the representative of the Government of Jiangsu province, and the Vice-President of the Chinese Academy of Science, the first day was devoted to a plenary session: Professor Alain Ruellan, President of ISSS, introduced the topic of the Symposium in his address *Soil systems and human society: some proposals for research*. He suggested a scientific effort to gain deeper insight into the ways human societies are modifying the soil systems, and this will require a multidisciplinary approach, including also social sciences. Thereafter, several speakers gave more technical presentations that covered basic principles and specific case studies for China, that established the connection between the soils and the environment, under the influence of human activities. The titles of these communications were:

- Sustainable land use as a basis for soil resource conservation, by W.E.H. Blum,
- Land degradation and its rehabilitation, by Q.G. Zhao,
- Nutrient management in North America: an industry perspective, by D.W. Dibb,
- Land and fertilizer management with relation to food security in China, by Z.H. Cao,
- Land use and environment changes, by C.R. De Kimpe,
- Soil degradation: an overview, by B.P. Warkentin,
- Challenges for sustainable high yield agriculture in China, by S. Portch,
- A case study on the comprehensive eco-environmental renovation of large open mining area, by T.H. Sun,
- Soil quality: the bridge to a sustainable agriculture, by D. Keeney,
- Soil pollution and agroenvironmental protection in China, by Y.M. Zhu,
- More chemical time bombs for the 21st century, by D.C. Adriano,
- Environmental health of sewage sludge recycling, with emphasis on land application, by M.H. Wong, and
- Exploitation of plant species and genotypes to acquire nutrients of low availability, by F.S. Zhang.

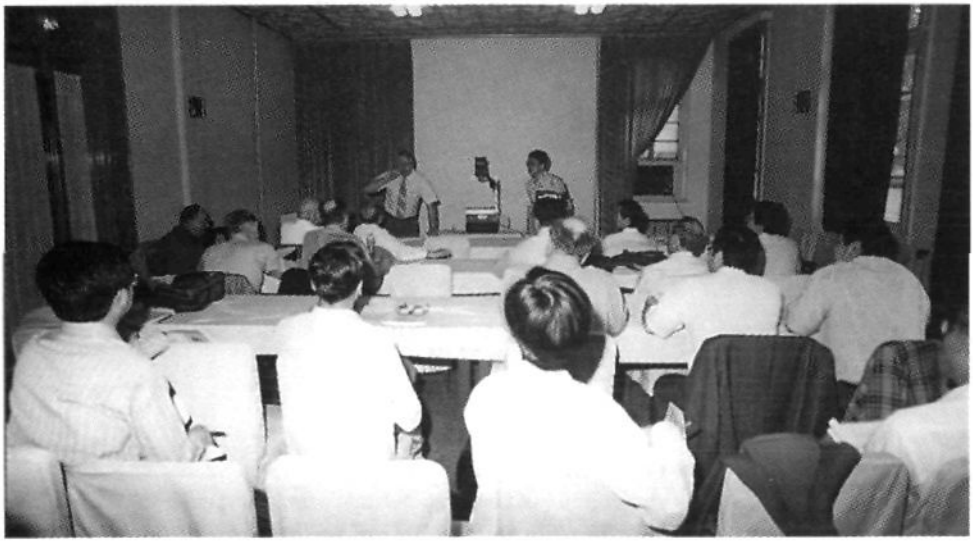
Copies of the plenary lectures are available from the Institute of Soil Science, Nanjing.

Mornings of the second and third days were devoted to four parallel oral sessions, dealing with the following subjects:

1. Soil resources conservation and sustainable development,
2. Soil degradation,
3. Land use and environment changes,
4. Soil management and soil fertility

Papers in these sessions discussed in various ways and from different perspectives, the relations between human activities and the soil resource: in particular, food production and its impacts on the environment cut across the four sessions. Climate change and its effects on soil environment was discussed in a paper. The symposium offered a good balance between the analysis of the negative impacts of human activities, e.g. various forms of soil degradation and soil contamination, and the solutions that soil scientists are contributing to develop for soil restoration and soil protection.

The Chinese hosts together with the President, the Secretary-General and the Chair of Commission VIII of ISSS



One of the Working Groups during the Conference

Discussion of a soil profile (Plinthic argic udic ferrisols, Red Soil) in the tea garden of the Tea Research Institute of the CAAS, Hangzhou.

Investigating the tea garden and discussing fertilization and management, at The Tea Research Institute, CAAS, Hangzhou

In the afternoon of day two, poster presentations offered additional and very interesting perspectives on the four topics of the symposium, and allowed much stimulating interaction among the participants. In the afternoon of day three, following a visit to the Institute of Soil Science, Dr. C. De Kimpe presented the review of the symposium, and Professor Alain Ruellan made the final conclusions.

A four-day field trip concluded the scientific sessions, and led the participants to the Changshu Eco-agricultural Research Station, the ecological village of Fushan, the Tea Research Institute, and the Zhejiang Agricultural University. These technical visits were combined with some cultural activities and sightseeing.

The organizing committee and our Chinese hosts are to be complimented and thanked for a successful symposium, the fine arrangements and an interesting field trip, and for their cordial hospitality during our stay in China. Sponshorship from the Chinese Academy of Sciences, the International Society of Soil Science, the National Natural Science Foundation of China, the Potash and Phosphate Institute of Canada and Campotex Company, Canada, the Soil Science Society of America is gratefully acknowledged.

Christian De Kimpe, Ottawa, Canada

REPORT OF THE ISSS WORKING GROUP CRYOSOLS

The ISSS Cryosol Working Group in conjunction with the International Permafrost Association (IPA) Working Group dealing with permafrost affected soils met at the Second International Conference - Cryopedology 97. The conference was in Syktyvkar, Republic of Komi, Russia, August 5-8, 1997. With a post conference excursion to Vorkuta, August 9 and 10. It took place 5 years after the Cryopedology Conference which was in Pushchino, Russia, in 1992. The Institute of Biology, Komi Science Center, Ural Division, Russian Academy of Sciences in Syktyvkar was the lead institute for organizing the meeting, other groups within the Russia Academy of Sciences were the Institute of Soil Science and Photosynthesis (Pushchino), Institute of Geography (Moscow), Scientific Council on Earth Cryology, Scientific Council on Soil Science, and the Society of Soil Science. The V.V. Dokuchaev Soil Institute (Moscow) of the Russian Academy of Agricultural Sciences was also part of the organizer group. Other groups were the International Society of Soil Science (ISSS), International Permafrost Association (IPA), and the Head of the Republic of Komi.

Financial Support was provided by the Head of the Republic of Komi, USDA-NRCS, Russian Fund for Basic Research, ISSS, and (IPA).

The participants of Cryopedology '97

There were about 60 soil scientists form 14 countries (Russia, China, Hungary, Romania, Denmark, New Zealand, Sweden, Germany, South Africa, Finland, The Netherlands, Canada, United States, and France). There were three days of oral and poster sessions with a one day mid week tour near Syktyvkar. The tour looked at soils both in the native state (Taiga) and areas cleared for agriculture. Soils in this area do not have permafrost but had relic cryogenic features and the concepts of the genetic formation generated a lively discussion among the participants.

The importance of learning about and understanding Cryosols was stressed. Papers cover topics related to Cryosols chemistry, physics, biology, mineralogy, etc.). There were also papers on agriculture in areas with permafrost, remediation of environmental problems (oil spills fro example), and the general use and management of these soils. The field excursion to Vrokuta looked at long term research on natural tundra and areas converted to agriculture use over 40 years ago. This area is at 67 degrees north latitude and seeing agricultural development and discussing problems with this agriculture was interesting.

Soils affected by permafrost, make up about 25 percent of the soils of the world. Soils in these areas have not gotten the attention given to the ones in the more tropical areas yet they may be at a higher risk of environmental degradation by the anthropogenetic actions. They are in areas which are predicted to have one of the largest increases in temperature (some GCM's suggest $5^{o}C$). If this happens the vast store of organic carbon in these soils that could be oxidized further increasing global warming by increasing the amount of CO_2 going into the atmosphere. Also large amounts of methane may be released from the wetlands t the high latitudes with global warming. soils with permafrost are a unique resource, with a great deal of biological diversity but in a very environmentally sensitive area. Many of these areas are rich in natural resources and without a complete understanding of the Cryosols the environmental damage caused by exploration of the natural resources could be extreme.

There was free exchange of ideas and many ideas for cooperative future efforts between the cryopedologists from around the world were developed. On the field tours near Vorkuta the latest draft of the Cryosol WRB proposal was field tested and discussed. This was the first time for a large group of soil

At the excursion

scientists to actually test the proposal in the field and it was a useful test of the proposals. members of the working group will continue to work on joint projects and hope to plan more joint trips in the future to sample and discuss Cryosols. The working group has been active and will continue its activities.

The ISSS Cryosol Working Group met and decided the venue of the next conference on Cryopedology. It will be in late August, 2001 in Denmark to be hosted by the Danish Polar Center. A field excursion (post conference) will be organized in northern Scandinavia. Information regarding this conference can be obtained from Dr. Bjarne H. Jakobsen of the Institute of Geography, University of Denmark (E-mail: bhj@server1.geogr.ku.dk).

Overall the meeting was a success and everyone learned a great deal. The papers presented at the conference will be reviewed and selected ones which cover the major ideas discussed will be submitted to Pochvovedenie (and the English Version Eurasian Soil Science) and published in both Russian and English.

John M. Kimble, USA

INTERNATIONAL SYMPOSIUM ON SUSTAINABLE MANAGEMENT OF SALT AFFECTED SOILS IN THE ARID ECOSYSTEM

Cairo, Egypt, 22-26 September, 1997

The University of AIN SHAMS and the Ministry of Agriculture and Land Reclamation of Egypt, in collaboration with the Food and Agriculture Organization (FAO), the Egyptian Soil Science Society (ESSS), and Subcommission A (Salt-Affected Soils) of the International Soil Science Society, organized the "International Symposium on Sustainable Management of Salt Affected Soils in Arid Ecosystems", in Cairo from September 22-26, 1997, at the conference hall „Dar El-Diafa", Ain Shams University.

More than 160 participants representing 32 countries attended the Symposium. Among them, 55 participants were from countries other that Egypt. FAO was represented in the conference by . Dr. Amin M. Mashali, ISSS was represented by its Secretary General, Prof. Dr. W.E.H. Blum.

On 22 September, the opening ceremony was held and was presided over by Prof. El-Molhy, representing His Excellency Prof. Dr. Y. Wally, Deputy Minister and Minister of Agriculture and Land Reclamation of Egypt. Prof. Dr. Abu-Zeid, Minister of Public Works and Water Resources, Prof. Dr. H Ghallab, President of the Ain Shams University, Dr. A. Mashali, Technical Officer FAO, Rome, Italy, Prof. Dr. W.E.H. Blum, Secretary General of the International Soil Science Society, Prof. Dr. H. Hamdi, President of the Egyptian Soil Science Society, Dr. M. Redly, Chairperson of the Subcommission A (Salt Affected Soils) of ISSS, and Prof. Dr. A.M. Elgala, Chairman of the Organizing Committee, addressed the meeting.

The opening ceremony was followed by a keynote lecture given by the Secretary General of the ISSS dedicated to the memory of Prof. Dr. I. Szabolcs, and by four other plenary lectures.

56 oral presentations were delivered during the symposium, on the following topics:

* Land capability classification in view of their reclamation and management
* Chemical and physical behavior and sodification process with relation to management

* Water quality and methods of predicting and preventing the hazard of salinity
* Reclamation and management practices under different conditions
* Nutrition and fertility management
* Drainage water cropping systems and the use of salt tolerant crops.

Concurrently, 30 posters (25 from Egypt and 5 from other countries) were also exhibited during the Symposium.

The volume of extended summaries of all submitted papers was published and it was distributed among the participants before the Symposium. The texts of the presentations will be published in full length in a separate volume.

The subject of the Workshop of the FAO Network on „Integrated Management of Sustainable Use of Salt-Affected Soils" was found to be very much related to Symposium objectives. Therefore, for a much wider exchange of experiences, for the mutual benefit of other participating countries and Institutions in the Symposium and for achieving better and more effective results, it was decided to merge the Symposium and the Workshop together, without changing the objectives or main program of either.

On September 24, a field excursion was organized in the Nile Delta, for visiting experimental research stations and observing salt-affected soils in the area. They are located at the El-Nobaria region, where the Mobarak National Project for employing youth graduates is proceeding since 1983. The explanation of two profiles, showing secondary salinization due to marine intrusion to the alluvial Delta area, and the presentation of their data were followed by active discussions.

On the last day of the symposium a closing session was held. The chairperson of Subcommission A, Dr. M. Redly informed the participants about the preparations of the Subcommission for the 16th World Congress of Soil Science, to be held at Montpellier (France) in August 1998.

Participants of the symposium agreed with the following conclusions and recommendations:
* Integrated approaches to study and to resolve the salinity and alkalinity problems would be necessary to include various disciplinary (soil science, geography, hydrology, geology, ecology etc.) aspects in a multi-disciplinary programme. This could be promoted by organizing cooperative projects, joint conferences and workshops.
* Transfer of existing scientific knowledge to farmers through extension or advisory systems should be further attended.
* Future research needs on salt-affected soils should be defined, based on various regional conditions.
* A network has to be developed through the Internet, for effective exchange of various experiences on definition, assessment and management of salt-affected soils.
* *Applying simulation, prediction and optimization models and expert systems for saline conditions* is encouraged, for gaining more benefits.
* The agrosystem that is best suitable for sustainable use of salt-affected soils and local conditions should be adopted.

The attendants of the International Symposium on Sustainable Management of Soils in the Arid Ecosystem, expressed their sincere thanks to the Egyptian Authorities, to the host institution, and particularly to the Organizing Committee, headed by Prof. Dr. A.M. Elgala, for their excellent preparation and conduction of the Symposium, and for their exceptional hospitality to the participants.

Yang Jingsong, Nanjing (China)

INTERNATIONAL SYMPOSIUM ON SUSTAINABLE MANAGEMENT OF SALT AFFECTED SOILS IN ARID ECOSYSTEMS

Cairo, Egypt, 22-26 September 1997

The University of Ain Shams and the Ministry of Agriculture and Land Reclamation, in collaboration with the Food and Agriculture Organization (FAO), the Egyptian Soil Science Society (ESSS) and Sub-Commission A (Salt-Affected Soils) of the International Soil Science Society, organised the International Symposium on Sustainable Management of Salt Affected Soils on Arid Ecosystems, under the auspices of His Excellency Prof. Dr. Y. Wally, Deputy Prime Minister and Minister of Agriculture and Land Reclamation.

The Symposium was organised in the conference hall at „Dar El-Diafa", Ain Shams University in Heliopolis, Cairo, where the Plenary and Scientific Sessions were held.

The Symposium was attended by 165 participants from 32 countries. The number of participants of countries other than Egypt was 55. The FAO was represented in the conference by Prof. Dr. Amin Mashali, ISSS was represented by its Secretary-General, Prof. W.E.H. Blum.

On September 22, after the registration of the participants, the Opening Ceremony was held at the „Dar El-Diafa" hall, presided over by Prof. El-Molhy, representing His Excellency Prof. Dr. Y. Wally, Deputy Minister and Minister of Agriculture and Land Reclamation.

At the opening ceremony of the Symposium

Then, Prof. Dr. Abu-Zeid, Minister of Public Works and Water Resources, Prof. Dr. H. Ghallab, President of the Ain Shams University, Prof. Dr. A. Mashali, Technical Officer of the FAO, Rome, Italy, Prof.Dr. W.E.H. Blum, Secretary-General of the International Society of Soil Science, Prof. Dr. H. Hamdi, President of the Egyptian Soil Science Society, Prof.Dr. M. Rédly, Chairperson of Sub-Commission A (Salt Affected Soils) of ISSS, and Prof.Dr. A.M. Elgala, Chairperson of the Organising Committee, addressed the meeting.

Participants of the Symposium around a soil pit in the Nile Delta

The Opening Ceremony was followed by a keynote lecture given by the Secretary-General of ISSS, dedicated to the memory of Prof.Dr. Istvan Szabolcs, and by plenary lectures.

56 oral presentations were delivered on the following topics:

- Land capability classification in view of its reclamation and management
- Chemical and physical behaviour and sodification process with relation to management.
- Water quality and methods of predicting and preventing the hazard of salinity
- Reclamation and management practices under different conditions
- Nutrition and fertility management
- Drainage water cropping systems and the use of salt tolerant crops

Concurrently, thirty posters (25 from Egypt and 5 from other countries) were exhibited on Thursday 25.

The volume of extended summaries of all submitted papers was published and distributed among the participants before the Symposium. The text of the presentations will be published in full length in a separate volume.

The subject of the FAO Workshop of the Network on „Integrated Management of Sustainable Use of Salt-Affected Soils" was found to be very much related to Symposium objectives. Therefore, for a much wider exchange of experiences, for the mutual benefit of other participating countries and institutions in the Symposium and to achieve better and more effective results, it was decided to merge the Symposium and the Workshop, without the objectives or main programme of either.

On Wednesday 24, a field excursion was organised to the Nile Delta area, for visiting experimental research stations and observing salt-affected soils in the area. They are located in the El-Nobaria region, where the Mobarak National Project for employing youth graduates is proceeding since 1983. Two profiles, showing secondary salinization due to marine intrusion to the alluvial Delta area, were explained and data presented by the organisers followed by group discussions.

After the work of the Symposium on Thursday 25, a farewell party was organised during the evening, in which participants enjoyed night sightseeing of the Nile River in a very friendly atmosphere.

On the last day of the meeting a closing session was held. The participants were informed by the Chairperson of Sub-Commission A about the preparations of the Sub-Commission for the XVIth World Congress of Soil Science to be held at Montpellier in August 1998.

CONCLUSIONS AND RECOMMENDATIONS

- An integrated approach to the salinity and alkalinity problem would be necessary, including various disciplinary aspects in a multidisciplinary programme, such as Soil Science, Hydrology, Geography, Biology, Biotechnology, Ecology, etc. This could be promoted by organising joint conferences, workshops and projects.
- Transfer of existing scientific knowledge to framers through extension or advisory systems.
- Definition of the future research problems based on regional conditions.
- Development of an Internet System for definitions, assessment, development and management of salt-affected soils.
- Adoption of an agrosystem that is best suitable for soil and environmental conditions for salt-affected soils.
- Benefits should be gained by applying simulation, prediction and optimisation models and expert systems for saline conditions.

The participants of the Symposium on Sustainable Management of Soils in Arid Ecosystems expressed their sincere thanks to the Authorities, Host Institution, and particularly to the Organising Committee, headed by Prof. Dr. Elgala, for their excellent preparation and conduction of the Symposium, and for their exceptional hospitality to the participants.

The above report has been approved by the participants of the meeting.

Prof.Dr. A.M. Elgala, Egypt

THE 3RD INTERNATIONAL WORKING MEETING ON PALEOPEDOLOGY

Rauischholzhausen, Germany, September 22-28, 1997

This working meeting was organised jointly by ISSS Commission V and Paleopedology Working Group (= INQUA Commission on Paleopedology), and was held in the beautiful setting of Rauischholzhausen Castle, the conference centre of Giessen University, approximately 100 km north of Frankfurt. It was supported financially by ISSS and the German Research Foundation, and was attended by 70 participants from 11 countries. There were 10 poster papers and 36 oral presentations over

the three days September 24-26, also two 1-day pre-conference field tours and a 2-day post-conference excursion. The local organisers, Drs Peter Felix-Henningsen and Thomas Scholten, laid the gastronomic and scientific foundations for an enjoyable meeting, which successfully brought together pedologists interested in the effects of past climate change on surface soils and paleopedologists concerned with interpreting past climate change from buried soils.

The excellence of German paleopedological research over the last half century became clear on the field tours, which were led by Arno Semmel, Michael Weidenfeller, Ludwig Zöller and Peter Felix-Henningsen. On September 22 we spent the morning in the large quarry of Heidelberger Zement AG at Mainz-Weisenau, which exposes a thick sequence of Plio-Pleistocene sediments and paleosols overlying Tertiary limestones. After lunch kindly provided by Heidelberger Zement AG, we examined the southern wall of the Dyckerhoff Zement GmbH quarry west of Wiesbaden-Erbenheim, which shows a detailed sequence of Würm loesses and paleosols overlying an Eemian soil developed in grey Cromerian sands. At both these sites, careful field and laboratory work by Semmel and others has demonstrated that very detailed paleoclimatic histories can be obtained from loess deposits and paleosols in accumulative sites (dells).

In the late afternoon soil profiles associated with a burial mound of the Hallstatt period were examined in the forest near Hofheim am Taunus. A strongly developed Parabraunerde (luvisol) had developed on top of the mound in 2500 years, and on nearby medieval colluvium a luvisol had developed to almost the same extent in <1000 years. This evidence for such rapid clay illuviation provided much speculative conversation that evening over supper with local wine in the garden of Arno Semmel's house in Hofheim.

The next morning we travelled south to Nussloch, about 10 km south of Heidelberg, to see two sections showing an even more detailed sequence of loesses and paleosols of the last glacial-interglacial cycle resting on red and yellow soil-sediments of Upper Miocene and Pliocene age (the Bohnerz-Lehme). Ludwig Zöller and members of the BIMACEL project demonstrated some of the ongoing work at this impressive site, which is providing a very detailed and well-dated sequence of Würm climatic changes.

After lunch we visited a spectacular roadside section near Forst on the western margin of the Upper Rhine Graben. A sequence of loesses with interglacial paleosols dislocated by small step faults was faulted against Lower Triassic Buntsandstein, which had been weathered to saprolite by hydrothermal activity along the main fault. Thermoluminescence dating suggests that the youngest red Bt horizon on the downthrow side probably dates from oceanic oxygen isotope stage 7, and this gives a maximum age for the latest episodeof faulting. However, precise levelling a few kilometres to the north has shown that tectonic movements still occur in the area, though most of the current activity is associated with parallel faults to the east of Forst. The attractions of this site supplemented by wines from the local vineyard delayed our departure, and we were late arriving that evening at Rauischholzhausen.

The oral presentations were divided into five sessions on (a) polygenetic concepts of surface (relict) paleosols, (b) recognition, classification and modelling of soils with relict properties, (c) implications of paleosol features for agriculture, forestry and the environment, (d) buried paleosols as a tool for reconstructing and modelling past environmental change, and (e) archeology and dating of paleosols. Papers from sessions (a) and (c) will be published in a special issue of *Catena*, and the remainder in a single volume of *Quaternary International*, the official journal of INQUA.

After the conference, Peter Felix-Henningsen led an excursion to see Mesozoic and Tertiary deep weathering mantles on Miocene basalt near Lich, south-east of Giessen, and on Devonian slates between the north-eastern Eiffel and the Lower Rhine embayment south of Bonn. In the latter, which are up to 150m thick, physical, chemical and mineralogical data were used to explain the weathering processes and the nature of the various saprolite units, which included an eroded bleached zone below the surface soil, an accumulation zone of sesquioxides, brown, red and purplish "Hundsrück ironstones", an oxidation zone *sensu stricto* and a reduction zone over the fresh bedrock.

The main conclusions arising from the Working Meeting were that (a) paleopedology can account for many of the features influencing the behaviour of surface soils, which are not explained by the current soil environment, and (b) better studies of current pedogenesis are needed to interpret past climatic change from the long sequences of buried soils preserved in Quaternary loess and other deposits. Future meetings such as that planned for 1998 in Lanzhou, China, will develop further this profitable symbiotic relationship between ISSS and INQUA.

J.A. Catt, Vice-Chairman, WG-PP
UK

REPORTS OF MEETINGS
COMPTE-RENDUS DE RÉUNIONS
TAGUNGSBERICHTE

International Symposium on Soils With Gypsum

Date: 15 - 19 September 1996
Number of participants: 51
Countries: 13 (Algeria, Australia, Belgium, Egypt, Thailand, Italy, Romania, Russia, Syria, Spain, Tunisia, UK, USA)

Subjects discussed:

Session I: Genesis, Morphology and Classification of Soils with Gypsum
Session II: Study Techniques and Micromorphology of Soils with Gypsum
Session III: Behaviour and Management of Soils with Gypsum

main topics: formation, classification, geology, morphology, behaviour, analysis, production constraints, management aspects of soils with gypsum.

Number of contributions:

Session I: 5 oral, 7 poster, 1 plenary paper
Session II: 5 oral, 3 poster, 1 plenary paper
Session III: 5 oral, 11 poster, 1 plenary paper

Field areas visited:

Pre-symposium excursion: Soils with Gypsum of the Central Catalan Depression.
Main topics: Soils on tertiary gypsum outcrops, soil-landscape relationships, genesis and micromorphology of flour-like gypsum, classification problems. soils on quaternary alluvial fans, occurrence of hypergypsic horizons, gypsum karsts, dynamics of gypsum in the landscape, gypsum cementation.

Post-symposium excursion: Soils with Gypsum of the Central Ebro Valley.
Main topics: Soils with gypsum under irrigation, relation with saline and sodic soils, classification problems, occurrence and genesis of hypergypsic and petrogypsic horizons.

Publications of the Symposium

POCH RM (ed) 1996 Proceedings of the International Symposium on Soils With Gypsum. Edicions Universitat de Lleida. 97 p.

ARTIEDA O & J HERRERO 1996 Soils with gypsum of the central Ebro valley - Excursion Guide. Edicions Universitat de Lleida. 104 p.

HERRERO J, RM POCH, J PORTA & J BOIXADERA 1996 Soils with gypsum of the central Catalan depression - Excursion Guide. Edicions Universitat de Lleida. 87 p.

HERRERO J (ed) 1996 Biocenoses and agriculture in a semi-arid and gypseous environment of the central Ebro valley. 21 p.

Conclusions and recommendations

1. General recommendations

Gypsum properties and characteristics have to be taken into account in the description, analysis, interpretation and evaluation of soils containing gypsum. The application of concepts of saline or calcareous soils to soils with gypsum have led to misconceptions in the most widely used soil classification systems and also in the analytical methods, some of them not yet corrected.

The participants of the Symposium

2. Terminology

The distribution of soils with gypsum, mainly in countries with difficulties as to the exchange of scientific information, is one of the main causes of a lack of well-established concepts and the corresponding terminology needed for their description and study.

Terms referring to soils having gypsum as a component, are suggested:

Gypsum affected soils:	soils where gypsum affects (some of) their properties. This term parallels the term „salt-affected soils" and suggests some kind of problem produced by the presence of gypsum. Thus it cannot be used when gypsum has a „positive" influence on the soil;
Soils with gypsum:	soils containing any amount of gypsum as a result of a soil formation process;

Gypseous soils:	soils where the high amount of gypsum determines their physical, chemical and biological behaviour;
Gypsiferous soils:	soils containing gypsum.

To some extent the descriptive terms for field attributes, either meso or micromorphological are unavailable, non standard or inadequate. It is recommended to establish a precise descriptive terminology.

3. Analytical methods

It is necessary to introduce a methodology of analysis of soils with gypsum in affected countries, to be able to compare results and data. It is recommended that a commission of different specialists should prepare a framework for a unitary methodology of laboratory analyses. One of the main sources of errors is to forget the presence of constitutional water in the gypsum crystal ($CaSO_4.2H_2O$) and the kinetics and the thermodynamics of the water loss.

4. Classification, general problems and concerns

Although the knowledge of soils containing gypsum is incomplete, it is much further advanced than soil classification systems currently allow. Soil classification principles of USDA and FAO are not well adapted to soils with high gypsum content. Definitions of diagnostic horizons are unclear in concept and have several mixed non-priorised attributes which sometimes conflict and cause confusion and ambiguities. It is recommended that a soil correlation meeting should be held, among specialists in soil classification, to discuss these problems.

Classification: Specific suggestions

a. The gypsic horizon should be redefined in such a way to include also the horizons formed on materials rich in gypsum (i.e. with more than 25-33% gypsum) even if these horizons do not fulfill the condition of 5% more gypsum than the underlying horizon. Classification should also take into account deeper parts of regolith, as in the case of gypseous materials may interfere with concrete foundations, iron and other constituents of building activities and infrastructures. Soil maps are not only for agriculture.

b. It is suggested to introduce a fluventic subgroup in soils with gypsic horizons, when they are developed on alluvial (colluvial) material, either alone or combined with other qualifiers.

c. The petrogypsic horizon must be redefined. A morphometric approach is to be used, and probably micromorphological criteria needed because the available definitions of cementation and induration are ambiguous. These concepts depend on the scale of observation. In the same way, definition of paralithic contact should be specified for horizons rich in gypsum.

5. Management and evaluation of soils with gypsum

The behaviour of soils containing gypsum depends on the amount, type of accumulation, distribution of gypsum in the profile, interaction with other soil components, plant tolerance, as well as on the past and present landuse. Gypsum does not have toxic or osmotic effects on most crops, and the parameters for evaluating the soils with gypsum for irrigation should be defined. Support programs on devel-

oping models on management of soils with gypsum are necessary, as well as GIS and remote sensing for their survey.

Soils with gypsum are widespread in several developing regions in the world where a sustainable landuse is especially needed. This may consider the integrated management approach. Human, economic and social aspects should be a part of the projects when selecting farming strategies and developing programs. Maintenance requirements should also be considered in any project on the management of these soils.

6. Elaboration of a draft document

It is recommended to elaborate a draft document based on the discussions held at the Symposium and on previous information, covering the following aspects: macro and micromorphology of gypsum accumulations, proposal of designations and definitions, laboratory methods for soil analyses, diagnostic soil properties (general and diagnostic horizons, correlation among classification systems) and classification. It is proposed for Montpellier 1998 as the preliminary contact to discuss that document, and to present it at the next Symposium on Soils With Gypsum.

7. Periodical meetings

Countries for organizing similar symposiums on the subject, say every two to four years, may be selected, and explore the funding possibilities. It is proposed to hold the next Symposium in Tunis in 2000.

8. Network on soils with gypsum

The information on gypsiferous soils apart from scientific publications, is very disperse and difficult to obtain. It is recommended to create an International Reference Centre for soils with gypsum, within the ISSS, based on informatics and supported by international institutions, as well as an international network to disseminate information, exchange of views, subjects for common research or experimental work and the publication of a newsletter. This network would be established in cooperation with any existing networks on the subject. The FAO is willing to cooperate in this network. It is suggested that this centre could be established in Spain.

9. Teaching programs

Teaching programs at universities and at undergraduate or post-graduate levels should include the subject of gypsiferous soils from different aspects (i.e. formation, classification, morphology, geology and management).

J. Porta, Lleida, Spain

4TH INTERNATIONAL MEETING ON „SOILS WITH MEDITERRANEAN TYPE OF CLIMATE"

Plovdiv, Bulgaria, May 26 to June 1, 1997

This was the third meeting of the group after the first two had been held in Adana, Turkey and Chalkidiki, Greece. The meeting was organized by the Agricultural University of Plovdiv, the Bulgarian Society of Soil Science, the N. Poushkarov Institute of Soil Science, and the Working Group on Soils with a Mediterranean Type of Climate. Over 100 delegates from 19 Mediterranean countries participated in the meeting. About 50 delegates were from the host country of Bulgaria. The meeting took place at the Agricultural University of Plovdiv.

The meeting began with welcome addresses by Prof. I. Atanassov of the Plovdiv University, who was the Chairman of the Organizing Committee; Prof. G. Moscov, President of the University, Prof. T. Boyadjiev, President of the Bulgarian Society of Soil Science, and Mr. Ventsislav Varbanov, representing the Ministry of Agriculture, Forestry and Agrarian Reform. This was followed by the opening address of Prof. W.E.H. Blum, Secretary-General of ISSS, and Prof. A.R. Mermut, Chairman of the International Group on „Soils with Mediterranean Type of Climate".

The participants of the Meeting

Discussing a soil profile

The topics that were discussed at the meeting in Bulgaria were centered around the genesis and classification of soils in regions with a Mediterranean type of climate, soil fertility, soil pollution and degradation, and sustainable land use. The mid and post conference field trips were excellent. The participants had a chance to learn more about soils of Bulgaria and their use and management. The organizers made the meeting a very memorable event.

Important decisions were made concerning future activities of the International Working Group at the business meeting. Following lengthy discussions, the participants agreed that the name of the working group should be rearranged so that future activities will not center around the red soils of the Mediterranean region, but will comprise all soils that are or have been subjected to the Mediterranean climate. The new name is now **Soils With Mediterranean Type of Climate**. The next important decision was that the Fifth International Meeting on „Soils With Mediterranean Type of Climate" will take place in May 1999 in Barcelona, Spain with Prof. J. Bech, who agreed to be the Chairman of the Organizing Committee. The delegates also expressed an interest in having their papers published in a recognized form. They also showed great interest in participating in future meetings that deal with various aspects of the Mediterranean soils. The ideas of the business meeting will be officially reported to the ISSS so that a working group can be permanently established next year during the meeting in Montpellier, France.

I. Atanassov, Plovdiv, Bulgaria
A.R. Mermut, Saskatoon, Canada

INTERNATIONAL CONFERENCE „PROBLEMS OF ANTHROPOGENIC SOIL FORMATION"

On June 17-21, 1997, the International Conference „Problems of Anthropogenic Soil Formation" was held in Moscow, Russia. It was organised by Commission V of ISSS, Commission V of the Russian Soil Science Society, the Russian Academy of Sciences (RAS), the V.V. Dokuchaev Soil Science Institute, and the Russian Academy of Agricultural Sciences (RAAS).

The topical character of the conference is determined by the importance of ecological, economic and biospheric functions of soils in the life of the human society. The role of soils in solving two global problems facing humankind - the problems of food supply and environmental conservation - can hardly be overestimated. The conference offered an excellent opportunity to join the efforts of the scientists dealing with these problems in different countries. Scientists from Austria, Armenia, Belarus, Germany, China, Norway, Russia, Slovakia, South Africa, Turkmenistan, the Ukraine and the USA attended the conference. More than 250 scientists took part in this event, including the Secretary-General of ISSS, Prof. W.E.H. Blum (Austria), and the Presidents of the Russian, Armenian and Belarussian Soil Science Societies. The representatives of 24 regions of Russia (Khabarovsk, Ussuriisk, Novosibirsk, Krasnoyarsk, Tomsk, Ekaterinburg, Kazan, Ufa, Rostov, Novocherkassk, Nal'chik, Bryansk, Arkhangel'sk, Apatity, St. Petersburg, Moscow, etc.), research and educational institutes, as well as industrial firms took part in the conference. Financial support was rendered by the ISSS, the Russian Foundation for Basic Research, the Dokuchaev Soil Science Society, RAS and RAAS.

The conference was opened by the President of the Dokuchaev Soil Science Society, Academician G.V. Dobrovolski. His introductory speech was devoted to ecological functions of the soil cover and the role of soils in preservation of biodiversity; he expressed the hope that these problems would be thoroughly discussed during the conference. He also welcomed the participants on behalf of the Presidium of RAS. Professor W.E.H. Blum greeted the participants on behalf of the ISSS. The greetings from the RAAS were presented by Academician A.N. Kashtanov. The director of the Dokuchaev Soil Science Institute, Academician L.L. Shishov spoke words of welcome and wished the conference participants fruitful work on behalf of the organising committee.

Eight reports were presented during the plenary session:

(1) W.E.H. Blum (Austria), *Soil Degradation Caused by Industrialisation and Urbanisation;*

(2) M.I. Gerasimova, N.A. Karavaeva and V.O. Targulian (Russia), *Problems and Advances in Studying Human-induced Soil Degradation;*

(3) F.I. Kozlovskii (Russia), *Quantitative Analysis of Agropedogenesis and the Archetypes of Arable Soils on the Russian Plain;*

(4) R. Engel and R. Ahrens (USA), *Soil Taxonomy and Anthropogenic Soils;*

(5) R. Schmidt (Germany), *Anthropogenic Evolution of Soil Associations in Central Europe and Problems of Their Mapping;*

(6) I.A. Sokolov (Russia), *Theoretical Aspects of the Problem of Global Classification of Natural and Anthropogenic Soils;*

(7) A.N. Kashtanov and L.L. Shishov (Russia), *The Soil Fertility and its Anthropogenic Transformation in Russia;*

(8) I.N. Lebedeva, V.D. Tonkonogov and L.L. Shishov (Russia), *Anthropogenically Transformed Soils in the Classification of Soils of Russia.*

The following topics were discussed at the sessions: (a) anthropogenic transformation of soils and soil cover under agricultural, meliorative and other land uses; (b) technogenic soils; (c) urban soils; (d) classification of anthropogenically modified soils; (e) changes in soil biota and humus; (f) geochemical pollution of soils; (g) methods for studying and modelling of anthropogenic pedogenesis. In total, 62 oral reports and 42 posters were presented. Most of the reports were devoted to the problem of agrogenic transformation of soils and to agrogenic soils (13 oral and 12 poster presentations), as well as to the human-induced changes in the soil cover and their mapping (8 oral and 4 poster presentations). Simultaneous translation was available for all the plenary reports and most of the reports during the sessions. Nearly 350 abstracts were submitted to the conference; they were published in 4 volumes (three in Russian and one in English) before the conference and distributed among the participants.

The participants of the Conference

Two field trips were organised for the participants - a day-tour in Moscow during the conference and a 3-day tour to the south of Moscow after the conference. Information for the tours was published in English and in Russian. During the day-tour, the participants were acquainted with anthropogenic soils at the archaeological monuments of the „Kolomenskoe" museum. The study of these soils allows one to reveal the history of agriculture and the accumulation of the cultural layers at the site within the last 3000 years. The day-tour also included the visit to the long-term stationary field experiment at the territory of the Timiryazev Agricultural Academy in Moscow. This is a unique experiment on the development of different agricultural and crop rotation systems for improvement of soddy-podzolic soils, which was founded in 1912 by Professor A.G. Doyarenko under the initiative of Academician D.N. Pryanishnikov.

The participants of the three-day tour could see the technogenic evolution of chernozems in the area of coal mining (the city of Nomoskovsk, Tula oblast) that leads to numerous negative and irreversible changes in the properties of chernozems. Some positive results of the efforts on improving the status of strongly eroded grey forest soils were demonstrated to the participants in the Kashira district.

Around a soil pit

The discussion during the conference emphasised that human activity has become an independent and global factor of soil formation. Preservation of natural biodiversity and soil fertility are one of the most important challenges facing the humankind on its way to sustainable development. Meanwhile, very often human activity has an adverse effect on soils and ecosystems and, sometimes, puts them on the verge of ecological catastrophe. A considerable increase in the total area of degraded lands and in the diversity of the agents of degradation is observed. Along with such types of land degradation under the impact of agriculture as dehumidification, desertification, secondary salinization and erosion, we have to control degradation processes induced by technogenic pollution of soils by heavy metals, oil products, wastes of the mining industry and radionuclides. The latter impacts result not only in soil degradation, but also pose a threat to the health of contemporary and future generations. Our knowledge of human-induced changes in soils and soil cover is far from being complete. The gaps in knowledge make it very difficult to elaborate the efficient methods for remediation and control of adverse effects.

The conference adopted the resolution, in which the most promising and important lines of research were suggested. Considering the topical character of the problem of human-induced impacts on the pedosphere, the conference agreed that international meetings and workshops devoted to this problem should be organised on a regular basis; it is reasonable to conduct such conferences every 4 years.

The participants expressed their gratitude to the organisers of the conference - the V.V. Dokuchaev Soil Science Institute, RAAS and the Dokuchaev Soil Science Society, RAS - for the excellent, friendly and creative atmosphere, expedient scientific program and very interesting field trips.

I.N. Lyubimova, Moscow, Russia

RESOLUTION

of the International Conference „Problems of Anthropogenic Soil Formation"

On June 17-21, 1997, the International Conference „Problems of Anthropogenic Soil Formation" organised by Commission V of the ISSS, the Vth Commission of the Dokuchaev Soil Science Society, the Russian Academy of Sciences, and the Dokuchaev Soil Science Institute, was held in Moscow, Russia. The conference was attended by 170 participants from Austria, Armenia, Belarus, China, Germany, Norway, Russia, Slovakia, South Africa, Ukraine and the USA. The programme included 8 plenary reports, 63 oral presentations at 7 working sessions and 42 poster presentations.

The topical character of the conference is dictated by ecological, economic and biospheric functions of soils that are of crucial importance for solving the global problems facing humankind - the problems of food supply and environmental conservation.

The conference made it possible to integrate the efforts of the scientists studying various aspects of human-induced transformation of soils and soil cover in different countries and to elaborate the common platform for further investigations.

The following topics were discussed during the conference: (a) anthropogenic transformation of soils and soil cover in conditions of agricultural, silvicultural, reclamative and other land uses; (b) technogenic soils; (c) urban soils; (d) classification of human-transformed soils; (e) soil biota and humus in human-modified soils; (f) geochemical pollution of soils; (g) methods for studying and modelling soil formation under the impact of human activity.

The conference states that modern human activity has become an independent and global factor of soil formation. This factor exerts a strong influence on the sustainable development of our civilisation, natural biodiversity and preservation of soil fertility under various kinds of land use. Most of human-induced impacts have an adverse character. In some regions, they have already put the natural ecosystems at the edge of ecological catastrophe. Nowadays, a considerable increase in the total area of degraded soils is observed; the agents of soil degradation are extremely diverse. An important problem is soil pollution by heavy metals, oil products, wastes of the mining industry, radionuclides, etc. Geochemical contamination of soils results not only in soil degradation, but also in adverse effects on human health. The after-effect of geochemical contamination is very durable; it threatens the health and survival of contemporary and future generations of humankind.

The conference believes that the following activities are necessary for gaining a better understanding of human-affected soils:

1. Continuation of research on the problems of anthropogenic soil formation;
2. Organisation of conferences and workshops on the problem „The Impact of Anthropogenic Factors on Soil Formation" on a regular basis, with an interval of 4 years (between the ISSS Congresses);
3. Generalisation of a vast experimental material on human-affected soils at the level of an international monograph;
4. Further development of experimental and theoretical studies on the problem of anthropogenic soil formation;

5. Elaboration of methods for forecasting and preventing negative consequences of anthropogenic impacts on the pedosphere and for the rehabilitation of disturbed lands;
6. Unification of the approaches to the problem of classification and nomenclature of human-affected soils, their diagnostics and mappingtechniques.

The conference recommends that the leaders of ISSS and the national soil science societies should apply to the international and national governmental and private institutions with a request for support of the studies on the problem of human impacts on the soil cover.

The conference suggests that the decision on the organisation of a special commission on the anthropogenically transformed soils within the framework of the ISSS structure should be discussed during the 16th World Congress of Soil Science in Montpellier.

The conference proposes that international and national journals of soil science should have special segments for the papers devoted to the problems of anthropogenic impacts on soils and the soil cover. In the future, it is desirable to organise a special journal on the problem of human-induced changes in soils and soil cover.

The participants of the conference highly appreciate the efforts of the organisers and express their sincere gratitude to the Dokuchaev Soil Science Institute, the Russian Academy of Agricultural Sciences, the Dokuchaev Soil Science Society, and the Russian Academy of Sciences, for their great hospitality and for their devoted work on the creation of a really comfortable, fruitful and friendly atmosphere during the conference.

June 21, 1997

INTERNATIONAL CONFERENCE ON „PROBLEMS OF ANTHROPOGENIC SOIL FORMATION"

Moscow, Russia, June 24-28, 1997,

An international conference on „Problems of Anthropogenic Soil Formation", organized by the Dokuchaev Soil Institute, was held on June 24-28, 1997 in Moscow, attended mostly by Russian and a few overseas soil scientists.

Soil degradation nowadays does not mean only the traditional processes of water and wind erosion, and secondary salinization, but the no less widespread detrimental effects on soils of industrialization and urbanization or of sewage disposal. For this international conference, the organizers of the Dokuchaev Soil Institute have published in advance a 296 pp volume in English, which includes the 105 submissions to the conference. As most of them (85%) are from Russia and CIS countries, the extended abstracts (2-3 pages) offer an excellent opportunity to non-Russian speakers to glean what kind of soil degradation problems researchers in Russia and its neighbouring countries consider important nowadays.

As a large portion of current studies deals with industrial pollution by heavy metals and sewage effluents, terms like anthropogenic, technogenic, agrogenic, anthropedogenic, technopedogenic and agropedogenic transformation are frequently used. Though W. Blum (Vienna) recalled the previously suggested term metapedogenesis (Yaalon and Yaron, Soil Science, v. 102, 1966). The classification and

mapping procedures of these human affected or transformed soils occupies several geographically widespread research teams, including several contributions from Western participants.

Terms proposed for the transformed soils include Anthrosols, Anthrozems, Kultizems, Parasols, Ecosols, Quasizems, Fabricats, Agrozems, Stratozems, and Erozems, making it obvious that international collaborative agreements on the terminology is required. Remarkable is the attention to the theoretical aspects of anthropogenic effects by several leading pedologists (Sokolov, Ivanov, Gerasimova, Karavayeva, Mikheyeva, Lebedeva, Shishov, and many others), continuing the proud Russian pedological tradition.

Though not all contributors were present at the conference, nor were most papers read or presented as posters, and the participation of foreign researchers was relatively small, we are grateful to the organizers from the Dokuchaev Institute, for having facilitated the non-Russian speaking scientists, through this English language volume, a rare glimpse into the problems of anthropogenetically affected soils, their causes and processes, apparently widespread in this vast region. The volume can be obtained from Dr. V.D. Tonkonogov, Dokuchaev Soil Institute, Russian Academy of Agricultural Sciences, Pyzhevskii per. 7, Moscow 109017, Russia.

W.E.H. Blum and D.H. Yaalon

6TH INTERNATIONAL CONFERENCE ON AGROPHYSICS

Lublin, Poland, September 15 -18, 1997

The Conference was organized by the Institute of Agrophysics of the Polish Academy of Sciences under the auspices of the ISSS and co-organized and co-sponsored by the State Committee for Scientific Research, Poland; Catholic University of Lublin; University of Maria Curie-Sklodowska in Lublin; University of
Agriculture in Lublin; Technical University of Lublin; Academy of Medicine in Lublin; Scientific Society of Lublin; Committee of Agrophysics, PAS; Polish Society of Soil Science; Polish Society on Agrophysics; Foundation for Development of Agrophysical Research; Stefan Batory Foundation.

The Conference motto was „Agrophysics for the 21st century to ensure quality production in sustainable agriculture." The Conference was attended by about 300 participants from 26 countries (Austria, Belarus, Belgium, Bulgaria, China, Czech Republic, Egypt, France, Germany, Hungary, Italy, Israel, Japan, Libya, New Zealand, Poland, Portugal, Rumania, Russia, Spain, Slovakia, Sweden, The Netherlands, UK, Ukraine, USA). The Conference consisted of 7 plenary lectures, 56 oral and 180 poster presentations. The abstracts of these presentations were published in 3 volumes and original papers will be included in one of these journals: International Agrophysics, Catena, or the Polish Journal of Soil Science. Half-day field trips and visits to food processing companies in Lublin were available to participants.

At the beginning of the official inauguration session in the auditorium of the Catholic University of Lublin, Prof. M. Renger from the Technical University of Berlin was honoured with the highest award of the Polish Academy of Sciences, the Michal Oczapowski Medal. Professors: M. De Boodt (Belgium), W.E.H. Blum (Austria), G.

Varallyay (Hungary) and I. Hakansson (Sweden) have already received such awards for the development of agrophysical sciences. Two introductory lectures were presented by Prof. S. Zieba (Poland)

on „Phenomenon of life in the aspect of organisation" and Prof. W.E.H. Blum (Austria) on „Agriculture in a sustainable environment - a holistic approach". Other plenary papers were delivered by Prof. J. Glinski and Prof. R. Walczak (Poland), Prof. I.J. Ross and Prof. C.G. Haugh (USA), Prof. M. Kutilek and Dr V. Novak (Czech and Slovak Rep.), Prof. H.J. Hellebrand (Germany) and Dr J.H.V. Van Baren and Dr L.R. Oldeman (The Netherlands). Oral and poster session dealt with 5 topics:

- „Physical properties of agronomic materials"
- „Mass and energy transport in the soil-plant-atmosphere continuum"
- „Relations between technologies and physical properties of agronomic materials"
- „Application of agrophysics in problem areas and phenomena"
- „Agrophysical metrology".

The material presented at the Conference gave an overview on the present status of agrophysics and was of great importance for elaborating the final conclusions and resolution. After the statement that the development of modern sustainable and safe biological production is not possible without the knowledge of agrophysical factors, in the final conclusions, the main topics of future development of agrophysics in 21st century were pointed out:

- the creation of data base of all factors and systems related to biological production and processing in sustainable environment, including:
  - factographic database, and
  - comparative analyses including time and spatial variability;

- the creation of new methods of agrophysical research, including:
  - modelling, and
  - equipment design, which will lead us to their unification and exchange of information;

- the creation the new approaches and new tools to realize proper agrophysical findings;

- the establishment of the International Society of Agrophysics, advancing knowledge on agrophysics;

- the organisation of the next 7th International Conference on Agrophysics in China, Nanjing, 2001.

The resolution prepared by scientists from 17 European countries, referred to the last great flood in Europe. It concerned international action aiming at promoting approaches for the remediation of soils invalidated by floods and other meteorological disasters.

Draft Resolutions

The 6th International Conference on Agrophysics took place from September 15 - 18, 1997 in Lublin, Poland. Scientists from 17 European countries discussed the remediation of soils affected by floods and other natural disasters.

There is an urgent need to solve the following practical problems

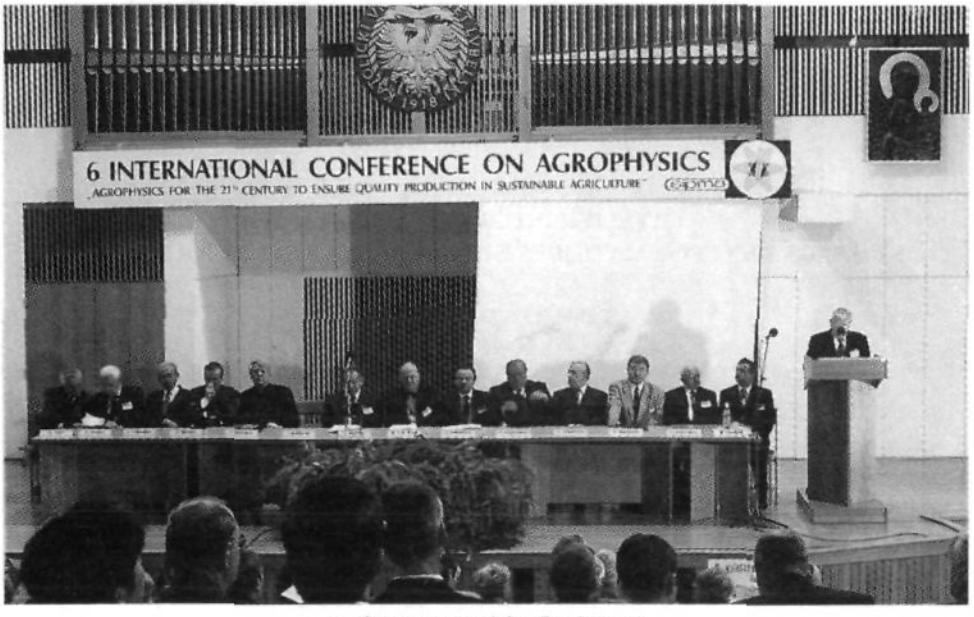
1. How to restrict erosion by wind and water and the impoverishment of soils throughout mobilisation and leaching of plant nutrients.

2. How to avoid excessive deposition and accumulation of sediment, organic and inorganic compounds, including pollutants. This point is made with specific reference to the recent widespread flooding and soil pollution in the Order valley.

3. How to avoid severe disruption of the soil biological population. Loss of soil biological diversity will also lead to physical and chemical deterioration.

4. For remediation methods to be effectively and economically carried out, it is necessary to identify the distribution of degraded soils and to follow remediation by adequate monitoring.

The Participants of the Conference in front of the University



At the opening of the Conference

Participants listening to a contribution

Co-operative work should begin as soon as possible with bilateral or multilateral activities between institutions in the most affected countries or regions, and combined with further approaches at an international level where trans-boundary problems occur. For efficient progress to be made with the development of diagnostic systems of remediation, measurement and monitoring of degraded soils, an international workshop with limited number of experts should be organised in late 1997 or early 1998. Its objectives would be to define priorities and to set up efficient and technically appropriate methods for remediation and to make recommendations for predicting, preventing and controlling future disasters.

Prof. J. Glinski, Poland

ATELIER INTERNATIONAL SUR „LES CHANGEMENTS CLIMATIQUES ET LES CARBONATES PEDOGÉNÉTIQUES"

Tunis, 13-17 Octobre 1997

Synthèse et recommandations

L'atelier, abrité par la Tunisie et représenté par le Ministère de l'Agriculture et l'Association Tunisienne de la Science du Sol (ATSS), a porté sur un thème important non seulement pour les pays dont les sols carbonatés occupent de grandes superficies, mais aussi pour les autres pays, les climats de différentes régions du monde étant parfaitement interdépendants.

Les objectifs de la manifestation sont à la fois scientifiques et pratiques:

1. Présentation et discussion des récentes recherches qui ont porté sur différents aspects des carbonates secondaires, ainsi que l'identification des problèmes posés;
2. Échange d'expériences et d'informations concernant le thème de l'atelier.
3. Porter à la connaissance des spécialistes les résultats obtenus relatifs au thème „les changements climatiques et les carbonates pédogéniques";
4. Sensibilisation des spécialistes et des décideurs à l'importance de la recherche sur les carbonates secondaires;
5. Donner l'occasion à une initiative de coopération internationale dans le domaine des études et recherches sur les carbonates secondaires;

La manifestation a réussi, dans une large mesure à atteindre ces objectifs, grâce aux communications, et à une visite de terrain fort intéressante, au niveau élevé des participants (USA, Allemagne, Russie, Chine, Turquie, Israël, Australie, Canada et Tunisie) et aux discussions riches et approfondies.

Ainsi les communications étaient nombreuses, variées et de qualité, elles ont traité, profondément, de nombreux sujets, dont principalement:

i Le cycle global du carbone inorganique dans le sol

ii Le processus, et les mécanismes qui interviennent dans la dynamique des carbonates secondaires

iii L'impact des activités humaines sur la redistribution du carbone dans les régions arides.

De plus, les communications étaient géographiquement globales: des études sur les carbonates secondaires dans les cinq continents ont été également présentées.

Les points de discussion, d'intervention et les principales recommandations et observations sont les suivants:

- Le cycle global du carbone: il y a le besoin d'obtenir des données quantitatives fiables sur les carbonates secondaires dans les sols du monde.
- Les méthodes de suivi et d'étude des processus et des mécanismes qui contrôlent les différentes formes du carbonate secondaire, telles que les techniques isotopiques et les observations microscopiques. Dans ce sens, les expériences australienne, canadienne, allemande, américaine et tunisienne peuvent être prises comme exemples.
-

L'impact des activités anthropiques, telles que l'irrigation et la fertilisation, sur la dynamique des carbonates: Les recherches sur ce sujet entamées en Tunisie, en Russie et en chine méritent d'être approfondies vu la rareté des données.

-

La nécessité de collecter les données sur les facteurs naturels tels que le vent, les précipitations, l'activité biologique, etc...

-

La désertification, évoquée aujourd'hui en tant que facteur de dégradation du milieu, peut être appréhendée aussi comme un agent intervenant dans la redistribution des carbonates.

-

La détermination des pools des carbonates secondaires, régis par l'interaction des composantes fondamentales du système Terre (atmosphère, hydrosphère, lithosphère et biosphère), permet de mieux comprendre l'importance du sol en tant que réservoir du CO_2 fugitif responsable de l'effet de serre, et par conséquent le rôle des systèmes pédologiques dans la régulation des échanges de gaz et d'énergie entre l'atmosphère et la pédosphère.

-

Les études de cas peuvent être utiles, surtout si elles sont réalisées dans des étages climatiques différents (aride, semi-aride). Elles doivent concerner à la fois des systèmes naturels perturbés et non perturbés par l'homme.

Autour de la table ronde animé par les professeurs R. Lal, L. Wilding et J. Kimble, on a par ailleurs évoqué et examiné la possibilité d'une coopération internationale dans le domaine des recherches sur les carbonates secondaires, et mis l'accent sur l'impératif d'une telle coopération en raison de la complexité et de la multiplicité des problèmes posés. A cet effet on a recommandé la constitution d'un **réseau international de recherche** et de collecte de données sur les carbonates. La mise en application, dans ce cadre, d'un projet dont les objectifs relèvent des priorités actuelles dans ce domaine dont les recherches seraient des études de cas précis, telle que celle qui a porté sur le micro-bassin de Jessour, qui peut être considérée comme un cas concret d'analyse intégrée de la dynamique des carbonates secondaires en milieu aride tunisien.

On a enfin choisi, pour ce réseau éventuel, des coordinateurs au niveau national. Pour la Tunisie, c'est monsieur Amor MTIMET, Président de l'Association Tunisienne de la Science du Sol, qui a été proposé pour assurer la coordination entre les différents intervenants.

A. Mtimet, Tunisie

NEWS FROM REGIONAL AND NATIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS RÉGIONALES ET NATIONALES
BERICHTE DER REGIONALEN UND NATIONALEN GESELLSCHAFTEN

Argentine Association of Soil Science (AACS)

During the Annual Ordinary Assembly of the Argentine Association of Soil Science on November 25, 1997, the following Directive Commission was elected:

President:	Gustavo Moscatelli
Vice-President:	Horacio del Campo
Board Members:	Roberto Alvarez Rosa María Di Giácomo Olga Heredia Liliana Marbán Vicente Nakama Mabel Susana Pazos Juan Carlos Salazar Lea Plaza Carlos Vollert
Deputy Board members:	Alfonso Buján Alberto Lüters Alberto Ongaro José Luis Panigatti Alberto R. Sallies
Auditors:	José Ferrer Raúl Lavado
Address:	Associación Argentina de la Ciencia del Suelo J. Ramírez de Velazgo 847 (1414) Buenos Aires Argentina Tel: +54-1-771-8968; Fax: +54-1-771-3878

Pedological Excursion of the Belgian Soil Science Society in Slovakia

May 23-28, 1997

A long established tradition of the Belgian Soil Science Society (BSSS) is to organize a pedological excursion outside Belgium every other year. Among the most recent field tours, many of the Belgian pedologists will not forget their particular discovery of Burgundy guided by the famous oeno-pedologists N.Leneuf and J.Chretien, their trip to East-Anglia guided by D.Dendt, and their visit to Northern Holland guided by J.J.Neeteson. In 1997, Slovakia was chosen as an interesting pedological destination especially since very few members of the BSSS had ever had so far the opportunity to visit this

„new" country. The proposition for this tour was made by Prof.R.Langohr (University of Gent) who had recently supervised the Ph.D.thesis of Emil Fujaltar Jr., staff member of the Soil Fertility Institute in Bratislava. Prof.P.Jambor, Head of this Institute and President of the Societas Pedologica, Slovakia, kindly accepted to organize the excursion as a joint project between the two soil science societies. It was also decided that a special issue of Pedologie-Themata, the national journal of the BSSS, would be reserved for scientific papers of Slovakian colleagues.

The participants of the excursion (near Donovaly, in the Tatra mountains)

Slovakian colleagues: Prof.P.Jambor, Dr.J.Curlik, Dr.B.Surina, Dr.E.Fulajtar Jr. (from left to right).

Besides Emil Fujaltar Jr, who really acted as a tour operator for the whole trip from May 23 to 28, Prof.P.Jambor, Dr B.Surina, Dr.J.Curlik, Ing.E.Fulajtar Sen., and Ing.J.Kobza also offered their guidance in different parts of the excursion. Their intimate knowledge of the geology and pedology of Slovakia was very much appreciated by the 27 members of the BSSS who took part in this excursion. This field trip was attended not only by „well established" Belgian pedologists but also by about fifteen undergraduate and graduate students.

The program of the excursion covered a contrasting area: the Danube plain, the Low Carpathians and the Tatra mountains. Very typical profiles were observed and interesting discussions took place in situ both on soil morphology and on soil management. Application exercices on classification were hold in the bus by the time of travelling from one site to another; a special attention was paid to testing the World Reference Base for Soil Resources classification under the enlightened guidance of Prof.J.Deckers, pioneer in this field.

J. Dufey, Belgium

Conference of the Czech Society of Soil Science (CSSS)
„Soil Systems and Anthropogenic Activities"

Milovy, Czech Republic, 5-8 October 1997

The first conference of the Czech Society of Soil Science after 1989, with the theme: „Soil Systems and Anthropogenic Activities" was held from October 5-8, 1997 in Milovy, Czech Republic.

The Conference was opened by Mr. Josef Lux, Minister of Agriculture of the Czech Republic. At the left: Dr. J. Kulhavy, Chairman of the Czech Soil Science Society (CSSS); at the right: Prof. W.E.H. Blum, Secretary-General, ISSS; Dr. L. Slonek, Dean of the Faculty of Forestry and Wood Technology.

The event was divided into five sessions, with the topics:

- Impacts of anthropogenic activities on soil and soil processes;
- The importance of soil in the agricultural/forest landscape and protection of the production roles of soils;
- Systematic classification of agricultural and forest soils;
- New methodological approaches in research and education in pedology;
- Land regulation and land resources evaluation.

Participants of the Conference

A view of the participants at a field trip. Dr. Jiri Jandák provides information.

A field trip to the region of the Bohemian-Moravian Uplands was organized on 8 October. Some 130 specialists in soil science from the Czech and Slovak Republics and other countries took part in the Conference. In the course of two days, more than 50 papers and about 30 panel contributions were presented. Mr. Josef Lux, Minister of Agriculture of the Czech Republic and Professor W.E.H. Blum, Secretary-General of ISSS also participated in the Conference. The proceedings of the Conference (ISBN 80-7157-275-6) were published in Czech.

Jiri Kulhavy, President, CSSS

Soil Science Society of the Netherlands

The Board members are:

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Prof. P.A. Burrough	Vice-Chair
Dr. J.F.Th. Schoute	Secretary-Treasurer

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Drs. D.P. Hallewas
Dr. J.J.N. van Grinsven
Dr. T. van Mensvoort
Dr. J. van den Burg
Dr. S.P. Vriend

The address of the secretariat is: P.O.Box 125, 6700 AC Wageningen, The Netherlands.
Fax: +31 317 424812, E-mail: postmaster@sc.agro.nl

Romanian National Society of Soil Science

The Romanian National Society of Soil Science (RNSSS) held the XVth Romanian National Soil Conference with international participation (from Belgium, Bulgaria, Germany, Greece, Hungary, Moldavia) in Bucharest from 26-30 August 1997. The theme of the Conference was *Problems Concerning Genesis, Evolution, Use and Protection of Soils from the South Eastern Region of Romania.*

The working programme included two days of symposia, mainly focused on the a.m. topic, and three days of field trips in the plains east and west of Bucharest and in the mountain zone of the Prahova Valley.

A total of 245 papers by 640 authors were presented in 20 oral sessions and 4 poster sessions, covering a variety of themes.

On the occasion of this National Conference the Romanian National Society of Soil Science elected new officers, presented awards and nominated new fellows.

The new Executive Board of RNSSS, elected for the period 1997-2000 includes:

President:	Dr. R. Lacatusu, Bucharest
Executive President:	Conf. Dr. G. Lupascu, Iassy
Past President:	Prof.Dr. C. Rauta (1988-94), Bucharest
Vice Presidents:	Dr. A. Canarache, Bucharest
	Prof.Dr. N. Florea, Bucharest
Secretary-General:	Dr. C. Craciun, Bucharest
Members:	Dr. M. Dumitru, Bucharest
	Prof.Dr. S. Udrescu, Bucharest
	Dr. I. Munteanu, Bucharest
	Ing. D. Tarau, Timisoara

Chairmen of Commissions:

Soil Physics:	Ing. Elisabeta Dumitru, Bucharest
Soil Chemistry and Mineralogy:	Dr. C. Craciun, Bucharest
Soil Biology:	Dr. G. Stefanic, Bucharest
Soil Fertility & Plant Nutrition:	Dr. Z. Borlan, Bucharest
Soil Genesis, Classification and Cartography:	Dr. I. Munteanu, Bucharest

Adress: Romanian National Society of Soil Science
Dr. R. Lacatusu, President
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Tel: +40-1-222-76-20 / 275, 128; Fax: +40-1-222-59-79

The World Food Prize

The World Food Prize Foundation requests nominations for the 1998 World Food Prize, which recognizes outstanding individual achievement in improving the quality, quantity, or availability of food in the world. The Prize emphasizes the importance of a nutritious and sustainable food supply for all people and recognizes that improving the world's food supply for the long term depends on nurturing the quality of land, water, forests, and other natural resources.

Nominees should be individuals who have worked successfully toward this goal in any field involved in the world food supply, including food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, social sciences, and other related fields that have brought food to tables of a significant number of people across the world.

The laureate will receive $ 250,000 and a sculpture created by world-renowned designer Saul Bass. The award is based solely on individual achievement with no consideration of nationality, ethnicity, political persuasion, religion, sex, or age.

For a brochure detailing nomination procedures, contact The World Food Prize Office of the Secretariat, David Acker, College of Agriculture, Iowa State University, Ames, IA 50011-1050, tel.: (+1-515)294-2883; fax: (+1-515)294-9477; E-mail: bjelland@iastate.edu; or http://www.wfpf.org.

European Forum for Nature Conservation and Pastoralism

The European Forum for Nature Conservation and Pastoralism aims to bring together ecologists, nature conservationists, farmers and policy makers in order to increase understanding of the high nature conservation and cultural value of certain farming systems, and to promote their maintenance.
The Forum recognises that Europe's natural and cultural heritage is enriched by the wide variety of regional farming systems which work in harmony with local environmental conditions. However, many of these traditional farming systems are under threat. The Forum aims therefore to:

- increase understanding that certain European farming systems are of high nature conservation and cultural value
- ensure the availability, dissemitation and exchange of supporting information combining research and practical expertise
- bring together experts to consider the problems faced by these systems and potential solutions
- develop and promote policy options which ensure the ecological maintenance and development of these farming systems and cultural landscapes.

In pursuit of these objectives, the Forum holds conferences every two years, organises workshops and seminars, and produces two issues of the newsletter *La Cañada* per year.

Further information should be directed to Eric Bignall, EFNCP, Kindrochaid, Gruinart, Bridgend, Isle of Islay, Argyll, PA44 7PT, England. Fax: +44-1496-850-330.

Legende zur FAO/Unesco-Bodenkarte der Welt

Computerprogramm FAOSOIL,
Version 2 (bilingual, zweisprachig).

Das PC-Programm FAOSOIL liegt jetzt in einer zweisprachigen Version (deutsch/englisch) vor. Es beruecksichtigt die im Jahre 1997 als Technical Paper 20 von ISRIC, Wageningen, herausgegebenen Updates. Die Übersetzung lehnt sich moeglichst eng an den Originaltext an. Das Programm wurde als Windows-Hilfe-Datei erstellt und laeuft unter MS Windows v. 3.x, 95 und NT. Die Installation ist daher einfach. Die Bedienbarkeit wurde ergonomisch verbessert. Das Programm umfasst alle wichtigen Kapitel der Originaltextes. Die Schwerpunkte des Programms sind:

- Bestimmungsschluessel zu den Bodengruppen und -einheiten: Das Programm fuehrt schrittweise durch den Bestimmungsschluessel.
  Abkuerzungsschritte sind moeglich. Die Verknuepfungen mit den Diagnostischen Horizonten und Eigenschaften erleichtern das Verstaendnis der Zusammenhaenge.

- Zusammenfassende Gesamt-Beschreibungen der einzelnen Bodengruppen und -einheiten. Die Zusammenhaenge mit Diagnostischen Horizonten und Eigenschaften sowie die etymologischen Wurzeln der Fachausdruecke werden ebenfalls durch Verknuepfungen uebersichtlich angezeigt.

Der Wechsel vom deutschen Text zum entsprechenden Text in englischer Sprache und zurueck ist an jeder Stelle des Programms durch einfachen Mausklick moeglich.

Das Programm kann ueber die Homepage des Studienganges Bodenwissenschaften (Fb. Agrarwissenschaften, FH Osnabrueck) bezogen werden:

http://www.et.fh-osnabrueck.de/fbaw/bw/faosoil.htm

Dr.F.Bailly, Eschebergstr. 81
D-34128 Kassel, Germany
E-mail: f.bailly@t-online.de

Mathematics in soil science

The *European Journal of Soil Science* has recently joined with the International Association of Mathematical Geology to publish a series of educational papers under the general heading *Mathematical Geology—Studies for Students*. The Journal announced this in its editorial in the September issue, volume 48, page 363. That editorial is repeated below with only little modification.

As our subject advances, both in our understanding of the soil's properties and behaviour and in the application of that understanding to practical use, so it becomes ever more quantitative. Increasingly we are having to describe the soil mathematically and statistically, to represent it by mathematical and numerical models, and to predict in a probabilistic way its values and response to changing circumstances against a background of uncertainty. Some of the techniques for doing so are very advanced, and often they are hidden from view in computer software and brought into action at the press of a few buttons. The result is that young people entering the profession face a widening gap between what they have learned in their diploma or degree courses and what they need to pursue their work properly.

I, as editor of the *European Journal of Soil Science*, have recognized it for some time, but I am not alone in this respect, nor is the deficiency restricted to soil science: it is widespread in the earth sciences generally. To counter it the International Association for Mathematical Geology (IAMG), has launched an initiative to improve understanding of mathematical approaches to problems in geology and related sciences, including soil science, by publishing and sponsoring essentially educational papers on specific topics. The *European Journal of Soil Science*, along with several other journals, has joined with the IAMG in this series. The first paper, `Regression and functional relations', by myself has just appeared on pages 557—566 of Volume 48 (1997).

The IAMG was founded at the International Geological Congress in Praha in 1968. Its charter is to promote international cooperation in the application of quantitative approaches to geological research and technology. It does this by organizing and sponsoring meetings, by publishing, and by collaborating with other professional organizations in the earth, planetary and biological sciences. The IAMG has an active worldwide membership of almost 700 scientists.

The goal of the IAMG in this series of educational papers is to show how the various approaches that are broadly part of mathematical geology are best used. The series is aimed at advanced students and professionals alike. The articles, by acknowledged authorities, lead by example. Each will cover a single well defined topic in a clear and systematic manner from a fairly basic level through to one of some sophistication, all the time showing by example how that type of work is properly done, how the principal pitfalls can be avoided, and where to look to get help.

Each article in the series must get to be read by the people for whom it is written—advanced students and professionals who find they need to work on that topic. The individual articles will therefore appear in the journals for which they are most appropriate. Articles that are purely mathematical or computational will appear in the IAMG's own journals („*Mathematical Geology*" and „*Computers & Geosciences*"); other papers in the applied fields will be published in the journals specifically devoted to them. The *European Journal of Soil Science*, with the support of the IAMG, will publish educational articles within the broad field of mathematics in soil science. The topics must be interesting to its readers, i.e. other soil scientists, and important to get right. Otherwise many varieties are appropriate: application of theory, more strictly methods and technique, analysis of particular types of data, illuminating case studies, particular kinds of model, soil processes.

It is intended that each article will cover its topic fairly comprehensively and be self contained, like a chapter in a book rather than the typical research paper which has to draw on much other material. It should be didactic in style.

The only qualifications needed for authorship are competence in the subject, skill in its presentation, and willingness. If you fit those criteria and you want to show or explain how some particular type of work really should be done then write to us with your proposal: we want to hear from you! Write to the editor of the *European Journal of Soil Science* if the proposal is to do with soil. If we like what you propose we shall ask you for a synopsis or abstract and give you a schedule. All contributions will be reviewed independently before acceptance in accord with the Journal's and IAMG's policy.

If you have something more general to explain or wish to write on a specific topic outside the scope of soil science then contact Professor J.C. Tipper, Chairman of the IAMG's Education Committee.

His address is: Geologisches Institut,
Albert-Ludwigs-Universität, Albertstrasse 23B,
79104 Freiburg, Germany,
e-mail: john@perm.geologie.uni-freiburg.de.

Professor Tipper will also be pleased to provide a list of co-operating journals.

The *European Journal of Soil Science* is edited at Rothamsted Experimental Station and published on behalf of 23 European societies of soil science by Blackwell Science Ltd, Osney Mead, Oxford \ OX2 0EL, Great Britain.
Further information is available on the
web site http://www.blackwell-science.com/products/journals/ejss.htm.

R. Webster, Editor-in-Chief

New Forests Project

The New Forests Project (NFP) is a people-to-people, direct-action program established in 1982 in an effort to curb deforestation in developing countries. Since its inception, NFP has worked to educate communities threatened by deforestation about the importance of forests and natural resource protection. NFP has helped farmers begin tree-planting projects in more than 3,500 villages in over 100 developing countries. Utilizing a number of strategies, NFP seeks to provide self-help tools for individuals or communities to produce forest products necessary for their survival.

Through the World Seed Program, NPF promotes the planting of fast-growing, nitrogen-fixing tree species like *Leucaena, Gliricidia and Cajanus*. In conjunction with tree seeds, NFP distributes technical assistance, training aids, and educational materials. With proper management, these trees can sustainably produce fuelwood, animal forage, organic fertilizer and building materials while regenerating degraded soils. In addition to being excellent species for soil rehabilitation and erosion control, these leguminous trees have a proven ability to increase agricultural yields.

In recent years, NFP has been working with local, non-governmental organizations in developing countries to initiate reforestation projects and training programs that promote agroforestry, sustainable resource management and environmental conservation.

If you are interested in learning more about the New Forests Project and its reforestation packet, please contact:

Stuart Conway, Director or Felicia Ruiz, Coordinator, World Seed Program at:
THE NEW FORESTS PROJECT
731 Eight Street, S.E., Washington, D.C. 20003, USA.

Telephone: +1 202 547-3800
Fax: +1 202 546-4784
E-mail: ic-nfp@clark.net
Website: www.newforestsproject.com

New IGBP Executive Director appointed.

C. Rapley's successor as Executive Director of the International Geosphere-Biosphere Programme (IGBP) Secretariat has been appointed. **Will Steffen,** currently Executive Officer of the GCTE International Project Office, will take over from 1 January 1998.
He can be reached at:

IGBP
The Royal Swedish Academy of Sciences
Box 50005, S-10405 Stockholm, Sweden.

Fax: + 46.8.166405; Internet: http://www.igbp.kva.se

The quality of fertilizer in West Africa.

Structural adjustment programmes and market liberalization in most sub-Saharan African countries have produced much-needed reforms in many sectors of the agricultural economy. With the exception of Niger and Nigeria, the task of fertilizer procurement and distribution has shifted from central government to the private sector. The implementation of these reforms, whilst mostly welcomed and beneficial, has not come about without some problems.

Adverse reports about the quality of some fertilizers on the West African market were of concern to many parties involved in the restoration and maintenance of the soil fertility effort. One of the recommendations of a meeting held to discuss this problem was that a study of the situation should be undertaken. The report, *The quality of fertilizers in West Africa (1995)*, is the result of the study by the combined efforts of the International Fertilizer Development Center's scientists and their collaborators in the sub-region, who highlight problems and suggest solutions.

The study findings were that about 58% of fertilizers sampled were underweight. Concern was expressed that appropriate quality control and regulatory mechanisms should be put in place to correct the situation.

For further information, please contact **International Fertilizer Development Center-Africa, BP 4483, Lomé, TOGO**. (from Spore 70)

Soil-Ecological Tour in Russia

A group of soil scientists organise bus excursions from Moscow to Volgograd crossing several soil-geographical zones. The tour is patronised by the Timiriazev Agricultural Academy from Moscow; it was designed and is supervised by specialists in soil and environmental sciences from different research institutes of Russia. The objectives of the tour are: education in the fields of soil science, ecology and geography, scientific contacts - exchange of ideas, development of personal contacts, discussing probable joint research projects, including those aimed at supporting scientific experiment stations or natural reserves.

The field tour allows an opportunity to study soils, climate, vegetation, to observe basic features of landscapes, including characteristics of relief and sediments, processes of natural ecosystems' evolution and dynamics, as well as their Holocene history. Problems of sustainable land use and environmental control, differences of nutrient circulation in agricultural and natural ecosystems are tackled. The tour starts in the southern taiga zone north of Moscow (Podzols, Podzoluvisols), crosses the forest-steppe (Luvisols, Greyzems) and typical steppe zones (Phaeozems, Chernozems), where a unique biosphere reserve with a deep Chernozem („Streletskaya steppe" near Kursk) is demonstrated, as well as 100 years old experiments on sustainable land use initiated by Dokuchaev („Dokuchaev oasis" in Kamennaya steppe). Semi-desertic soils - Calcisols, Solonetzes, Vertisols and an evolutionary sequence of Fluvisols within the Volga valley are shown near Volgograd.
Presentation of about 30 soil pits during the tour (more than one third of the soil types according to FAO-classification) is focused on discussing soil morphology as related to soil-forming factors and processes; it is followed by discussing correlations between the Russian and international taxonomic systems and land use options.

Students and young research and teaching professionals, specialised in soil science, land management, agricultural sciences, geography and environmental studies are invited to participate. This tour may be interesting for both high-class specialists for their own research programs and discussions with Russian participants, as well as for non-specialists wishing to get acquainted with Russian nature, history and mode of living.

This 3-week July-August bus tour with camp stops and visits to famous historical monuments is provided with German and/or English simultaneous translation.

Additional information about the next tour, costs and program may be obtained from: Dr. Yakov Kuzyakov, Institute of Soil Science and Land Evaluation (310), University of Hohenheim, Fruwirthstr. 12, D-70599 Stuttgart, Germany. Tel.: +49.711.459-3669; Fax: +49.711.459-4071; e-mail: *kuzyakov@uni-hohenheim.de.*
The actual information and pictures about the tour are shown on Internet:
http://www.uni-hohenheim.de/~kuzyakov/soil-ex.html

APPOINTMENTS, HONOURS, PERSONAL NEWS
NOMINATIONS, DISTINCTIONS, INFORMATIONS PERSONNELLES
ERNENNUNGEN, AUSZEICHNUNGEN, PERSÖNLICHE NACHRICHTEN

ASA honors NRCS/UPR team. The American Society of Agronomy's ASA Educational Materials Awards Program has selected the Slide Set on „Oxisols of the World" for its Excellence Award. The slide set, comprising 175 color slides with text, was developed by **Dr. Hari Eswaran**, **Paul Reich** (NRCS/WSR) and **Dr. Fred Beinroth** of the University of Puerto Rico.

Dr. Christian de Kimpe *has been elected Fellow of the Agricultural Institute of Canada.*

Prof. Zdenek K. Filip, environmental microbiologist at the Technical University of Berlin, received the Doctor's Degree of Honour from the Agricultural University Prague (Czech Republic). He was elected a Fellow of the American Academy of Microbiology. On behalf of the Faculty of Biology of the Moscow Lomonossov State University he received the Doctor of Science's Degree from the Highest Attestation Committee of the Russian Federation in 1996, in recognition of his research work in microbiology of polluted environments. In 1997 he was awarded a one year Visiting Professorship of the French Academy of Sciences, in order to perform joint research in soil biology with the CNRS-Centre de Pedologie Biologique in Nancy, in 1998.

Malcolm E. Sumner, Regents' Professor of Crop and Soil Sciences in the College of Agricultural and Environmental Sciences of the University of Georgia, USA, received an honorary doctor of science degree from his alma mater, the Unviersity of Natal, South Africa.

The following distinguished scientists were named **Fellows of the Soil Science Society of America** during the 1997 annual meeting in Anaheim:
Jerry M. Bigham, Ohio State university, Randall B. Brown, University of Florida, Mary E. Collins, University of Florida, Hannes Flühler, Swiss Inst. of Technology, Richard H. Loeppert Jr., Texas A&M University, Birl Lowery, University of Wisconsin, David B. Mengel, Purdue University, Donald F. Post, University of Arizona, Mathias J.M. Römkens, USDA-ARS.

Raymond R. Weil, professor of soil science in the Department of Natural Resource Sciences and Landscape Architecture at the University of Maryland, recieved the **Soil Science Education Award**.

Eugene J. Kamprath, retired head of the Soil Science Department at North Carolina State University, and **Donald R. Nielsen**, professor emeritus of soil and hydrologic sciences at the University of California, both **received the Soil Science Award for Distinguished Service**.

Dr. D.K. Pal, Principal Scientist and Head, Division of Soil Resource Studies, National Bureau of Soil Survey and Land Use Planning, Nagpur, has been awarded the 12th International Congress Commemoration Award 1997 of the Indian Society of Soil Science, New Delhi, in recognition of his achievements in the field of soil mineralogy in relation to soil development and pedogenesis.

Prof. E.A. Fitzpatrick has been awarded the 1996 Kubiena Medal in recognition of his outstanding contributions to soil science, especially to soil micromorphology. The medal will be handed over to him at the 16th WCSS in Montpellier, 1998.

IN MEMORIAM

Prof. Dr. István SZABOLCS

1924 - 1997

The international community of soil scientists has suffered a great loss. Prof.Dr. István Szabolcs, the distinguished soil scientist, known and respected internationally suddenly died - together with his wife Dr. Katalin Darab - on 10 August, 1997.

Prof. Szabolcs was well-known all over the world among pedologists, agrochemists, agroecologists and related scientists, for his broad and continuously updated knowledge, brilliant memory and logical thinking, creativity, and unbelievable enthusiasm for his subject for his subject and for research. During his career he brought an almost missionary zeal to his work in soil science, especially in the field of salt affected soils.

István Szabolcs was born in Túrkeve, Hungary, in 1924. He graduated from the Debrecen University of Sciences with a Ph.D. in chemistry in 1948. He obtained the C.Sc. (Candidate of Science) degree in Moscow, USSR and the D.Sc. (Doctor of Science) degree in Budapest in 1968, based upon his monographs „Salt affected soils in the Hortobágy region (Hungary)" and „The influence of water regularities and irrigation on the soil processes in the Transtisza region", respectively.

Following two years' service as deputy director at the Research Institute of Irrigation (Szarvas) (1953-54), he was appointed deputy director (1954-59) and director (1959-81) of the Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, Budapest. After his 21-year directorship he remained scientific advisor of the Institute until his death. He was appointed professor of soil science at the Budapest Eötvös University in 1968.

His main field of interest was the development, regime, classification, mapping, utilization and amelioration of salt affected soils. He defined, described, characterized and quantified the primary and secondary salt accumulation processes; the mechanisms of phase interactions under saline and/or alkali conditions, the formation of „solonetzes" and „solods", the human-induced changes in salinization/alkalization/sodification processes. He introduced such important terms as: secondary salinization; critical depth of groundwater table; potential salt affected soils. With his team he elaborated a comprehensive soil survey - analysis - mapping - monitoring system for the prediction and prevention of salinization/alkalization processes which was efficiently used not only in the Hungarian Lowland and the Carpathian Basin, but in many other countries with similar natural conditions as well. He developed a new classification system for salt affected soils and prepared their maps for Hungary (1:500 000) and for Europe (1:5 M). He coordinated the project „World Map of Salt Affected Soils". Prof. Szabolcs published 17 books and more than 630 papers in scientific journals in Hungary and abroad.

In 1964 he organized the International Symposium on Sodic Soils in Hungary. This meeting, with the participation of top-experts on salinity/alkalinity from all continents, was a real breakthrough on the „iron curtain" and - after a long time - provided opportunity for direct dialogues and discussions

between the various scientific schools on salt affected soils. The success of the Symposium was one of the reasons for the re-establishment of the Alkali Subcommission of ISSS (existing from the early 30's on under the chairmanship of Prof. Dr. Alexius J. 'Sigmond and Prof. Dr. S. Arany, Hungary up to the 2nd World War) during the 8th Congress of ISSS (Bucharest, 1964). Prof. Szabolcs was appointed Chairman of the reactivated Subcommission on Salt Affected Soils of the ISSS and he fulfilled this task until 1982. During (and after) this time he initiated and organized numerous symposiums and scientific meetings (Budapest, Yerevan, Cairo, Novi Sad, Osijek etc.) and the Subcommission was one of the most active groups of ISSS.

In 1974 (10th ISSS Congress, Moscow) he was elected Deputy Secretary General of ISSS. He was re-elected to this position at the 11th Congress (Edmonton, Canada, 1978), the 12th Congress (New Delhi, India, 1982) and the 13th ISSS Congress (Hamburg, Germany, 1986). At the 14th Congress (Kyoto, Japan, 1990) he was elected Honorary Member of ISSS. Dr. Szabolcs participated in all (altogether 10!) ISSS Congresses from 1956 on and became a decisive personality of ISSS. He played important roles in other international organizations (UNESCO, UNEP, CICRA, CIEC, etc.) as well. He was the Director of the International Post-graduate Course on Salinity and Alkalinity (Budapest, 1973); promoter of the Indo-Hungarian Seminars on the Management of Salt Affected Soils (Karnal, India, 1977; Budapest, Hungary, 1981); FAO consultant at the Chambal Project (Rajasthan, India, 1969), IIASA consultant in Laxenburg (1982); UNEP consultant in the 1985 Planning Commission Meeting; and invited lecturer in many countries (Ghana and Nigeria, 1969, Tunisia, Kenya, Tanzania, Ethiopia and Sudan, 1974; Iraq, 1979; Tunisia, 1980, 1982).

Prof. Szabolcs was President of the Hungarian Soil Science Society between 1970 and 1990, and after his two decades' efficient service he was elected Honorary President. He was honorary member of the Indian, Soviet, Russian, Bulgarian and Rumanian soil science societies.

From 1960 on he was editor-in-chief of the journal „Agrokémia és Talajtan" (RISSAC, Budapest) and he was member of the editorial boards of numerous Hungarian and international scientific journals (Acta Agronomica Hungarica; Agrochimica, Geoderma, International Journal of Tropical Agriculture, Soil Survey and Land Evaluation).

For his achievements, Prof. Szabolcs received two Governmental Awards, the Tessedik Gold Medal" (Hungarian Agricultural Society), and the „Treitz Medal" (Hungarian Soil Science Society). In 1996 he was awarded the „Dokuchaev Gold Medal", the highest award of the Russian Soil Science Society.

The life of this highly intelligent and eminent scientist came to an end on 10 August, 1997. The scientific achievements of Professor István Szabolcs will remain and will be continued by his colleagues and students. He will be sadly missed by the world's soil scientist community.

Prof.Dr. György Várallyay
Corr. Member of the Hung. Acad. Sci.
Research Professor, RISSAC, Budapest

Robert Jeffrey Wagenet

Robert Jeffrey Wagenet, 46, the Chairperson of WG-MV ISSS, died on 31 July 1997 after a seven-year struggle with brain cancer. He was born in Pittsburg, CA, in 1950. After his graduation from the University of California, Davis, in 1971 with a bachelor of science degree in soil science, he continued his education at the University of Oklahoma, where he earned a master of science degree in environmental health in 1972. He returned to UC Davis and earned his Ph.D. in soil science in 1975. He and his wife Linda moved to Utah State University in 1976, where he became a professor within six years and was twice named Professor of the Year in the College of Agriculture. In 1982, he moved to Cornell, where he was a professor in the Department of Soil Crop, and Atmospheric Sciences and served as Chair of the department from 1986 until 1997.

He was recognized internationally for his work on the fate and transport of chemicals in soil, especially the transport and transformation of nitrogen fertilizers under irrigated conditions, and on the displacement and chemical reactions of inorganic salts in saline soils. He cooperated in the development of analytical and numerical mathematical models describing these processes and spent four months as a visiting scientist at the Institute of Soil and Water of the Volcani Center in Israel. Together with J.L. Hutson of Cornell, he developed a family of comprehensive numerical models that describe nitrogen fertilizers, inorganic salts, pesticides, and organic manures.

He was a fellow of ASA and SSSA, as well as Editor of the *Journal of Environmental Quality* from 1990 to 1996. He received the Honor Award of the Soil and Water Conservation Society and served as an associate editor on several journals. He published over 80 refereed papers and six book chapters.

From: Agronomy News, September 1997

Prof. Michael Daraselia

Prof. Michael Daraselia was born in 1902. In 1928 he graduated from the agricultural department of the Tbilisi Polytechnic Institute. He devoted his whole life to the study of the soils of the Georgian humid subtropics. The expansion of tea and citrus areas in Georgia, the Northern Caucasus and Azerbaijan is closely connected with his name. Michael Daraselia was one of the founders of the Scientific Research Institute of Tea and Subtropical Cultures in Western Georgia. He created a series of field, lisimetric and vegetation experiments. In 1946, Prof. Daraselia successfully defended his doctor's thesis on „Red and Podzolic Soils of Georgia and Their Use for Subtropical Cultures". In 1949, this scientific work was published as a monograph. Michael Daraselia's very interesting experiments on the balance of plant nutritive elements, which he carried out in lisimetres on tea and other subtropical cultures, have been published in the monograph „The dynamics of soil solution in Georgian red soils".

Later, his scientific research concentrated on the study of soil erosion and protection measures. As Georgia has an accentuated relief, erosion processes occupy a considerable part of its territory and have reached alarming levels. Prof. Daraselia was the first to describe „soil migration" of the population as a result of disastrous soil exploitation. His research findings of many years were published in the monograph „The culture in the USSR".

Prof. M. Daraselia was the President of the Georgian Soil Science Society, and a long-time member of ISSS. He contributed considerably to the expansion of international relations and he took part in several World Congresses of Soil Science (France, Rumania, Australia). He is the author of 150 publications in journals and of 10 monographs.

Prof. Michael Daraselia passed away on February 22, 1997. We will keep him in our hearts forever.

T. F. Urushadze
President of the Georgian Soil Science Society

N.S. Randhawa

Dr. N.S. Randhava, the former Director General of ICAR and Vice-Chairman of the Governing Board from 1985 to 1990, died of a heart attack on 25 November 1996 in Ludhiana, Punjab.

John R. Webb

John R. Webb, 76, Emeritus Professor of Agronomy, and soil fertility researcher at Iowa State University, USA, died 31 May 1997. Born on 18 September 1920, he earned his Ph.D. from Purdue University in 1953. He conducted field research in soil fertility throughout his career, dealing with the questions of the time. He also did research on phosphorus fertilizers, nitrogen fertilizer sources, time of fertilizer N application on corn, response of corn and soybean to sulfur and zinc, method of fertilizer placement for corn, effect of soil test levels on corn and soybean yields, effect of lime rates on corn and soybean yields and soil pH, and micronutrients.
The research basis for Iowa State's current recommendations for phosphorus, potassium, zinc, and lime are primarily from research initiated by Dr. Webb. Some of this work is still ongoing.

Dr. Webb was a quiet unassuming person who efficiently carried out his responsibilities. He guided many graduate students and was particularly instrumental in teaching them quality techniques in conducting field research. Dr. Webb is survived by his wife, two stepsons, two grandchildren and one sister.

From: Agronomy News, August 1997

MEETINGS, CONFERENCES, SYMPOSIA
REUNIONS, CONFERENCES, SYMPOSIA
TAGUNGEN, KONFERENZEN, SYMPOSIEN

Important Notice

ISSS, as a Scientific Union Member of the International Council of Scientific Unions (ICSU), subscribes to the principle of free movement of bona fide scientists; patronage or sponsoring will therefore automatically be withdrawn if the country of venue denies or purposely delays visa awarding to any ISSS member who wishes to participate in the meeting concerned.

1998

GCTE-LUCC Science Conference, Barcelona, Spain, March 14-18, 1998.
Information: GCTE-LUCC Science Conference, GCTE Core Project Office, PO Box 84, Lyneham ACT 2602, Australia; Fax: +61-6-241-2362; E-mail: rowena.foster@dwe.csiro.au.

3rd European Symposium on Rural and Farming Systems Analyses: Environmantal Perspecitves; Stuttgart-Hohenheim, Germany, March 25-27, 1998.
Information: Prof.Dr. Werner Doppler, Institut 490C, Universitaet Hohenheim, 70593 Stuttgart, Tel: +49-711-4592514; Fax: +49-711-4593812; E-mail: doppler@uni-hohenheim.de.

Symposium International „Les Perspectives du Développement Agricole Durable sur la rive sud de la Méditerranée, Tunis, Tunisie, 12-14 mai 1998.
Information: Institut National Agronomique de Tunisie (INAT), Comité du Symposium International, 43, Av. Charles Nicole-Tunis, Tunisie; Fax: 216-1-799-391; Tel: 216-1-287-110.

ConSoil '98, 6th International FZK/TNO Conference on Contaminated Soil, Edinburgh, UK, May 17-21, 1998.
Information: Forschungszentrum Karlsruhe GmbH, PSA, Frau B. Mathes, P.O.B. 3640, 76021 Karlsruhe, Germany; Fax: +49-7247-82-3949; E-mail: mathes@psa.fzk.de; Internet: http://w3.fzk.de/consoil98.

3rd International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, Quebec City, Quebec, Canada, May 20-22, 1998.
Information: 3rd Spatial Accuracy Symposium, Centre de recherche en géomatique, 0722 Pavillon Casault, Université Laval, Québec (Québec) G1K 7P4, Canada. Tel: +1-418-656-5491; Fax: +1-418-656-3607; E-mail: spatial.accuracy@scg.ulaval.ca; Web site: http://www.crg.ulaval.ca/

First International Conference: Geospatal Information in Agriculture and Forestry, *Lake Buena* Vista, Florida, USA, June 1-3, 1998.
Information: ERIM Agriculture/Forestry Conference, P.O.Box 134001, Ann Arbor, MI 48113-4001, USA; Tel: +1-313-994-1200, ext. 3234; Fax: +1-313-994-5123; E-mail: wallman@erim.org.

The Clay Minerals Society's 35th Annual Meeting, Cleveland, USA, June 6-11, 1998.
Information: Dr. Samuel M. Savin, Dpt. of Geological Sciences, Case Western Reserve University, Cleveland, OH 44106; Tel.: +1-216-368-4413; Fax: +1-216-368-3842; E-mail: sms7@po.cwru.edu.

27th International Symposium on Remote Sensing of Environment, Tromso, Norway, June 8-12, 1998.
Information: 27th Intl. Symposium on Remote Sensing of Environment, Norwegian Space Centre,

P.O.Box 113 Skoyen, N-0212 Oslo, Norway; Fax: +47-22-51-18-01; E-mail: isrse@spacecentre.no; http://www.spacecentre.no/

Symposium: „Soil and water use in the function of sustainable development and environment protection", Sarajevo, Bosnia and Herzegovina, June 17-19, 1998.
Information:Prof.Dr. Husnia Resulovic, Symposium organization, Institute for Agropedology, Dolina 6, 71000 Sarajevo, Bosnia and Herzegovina; Tel: +387-71-667-659; Fax: +387-71-526-222.

International Symposium: Modelling for Crop-Climate-Soil-Pest System and its Application in Sustainable Crop Production (MCCSP), Nanjing, China, June 22-26, 1998.
Information: Prof. Liangzhi Gao, Jiangsu Academy of Agricultural Sciences (JAAS), Nanjing, China; E-mail: lgao@public1.ptt.js.cn.

5th European Palaeobotanical-Palynological Conference, Kraków, Poland, June 26-30, 1998.
Information: Mgr. Grzegorz Worobiec, Secretary, 5th European Palaeobotanical-Palynological Conference, W. Szafer Institute of Botany, Polish Academy of Sciences, Lubicz 46, 31-512 Kraków, Poland; Fax: (48-12)21-97-90; E-mail: worobiec@ib-pan.krakow.pl.

International Symposium on Modelling Soil Erosion, Sediment Transport and Closely Related Hydrological Processes, Vienna, Austria, July 13-17, 1998.
Information: Mr. Wolfgang Summer, Dept. of Civil and Environmental Engineering, University of California, Davis, CA 95616, USA. Tel and Fax: +1-916-752-2385; E-mail: wsummer@ucdavis.edu.

6th International Symposium on Earthworm Ecology - ISEE6, Vigo, Spain, July 1998.
Information: Dr. D.J. Díaz Cosín, Dpt. Biología Animal I - Universidad Complutense, 28040 Madrid, Spain; Tel: +34-13944953; Fax: +34-13944947; E-mail: dadico@eucmax.sim.ucm.es;
or:
Dr. S. Mato, Dpt. Recursos Naturales y Medio Ambiente, Facultad de Biología, Lagoas-Marcosende; 36200 Vigo (Pontevedra), Spain; Tel: +34-86812583; Fax: +34-86812556; E-mail: smato@uvigo.es

Canadian Society of Soil Science Annual Meeting, Vancouver, British Columbia, Canada, July 5-9, 1998.
Information: R. Blair, Tel: (+1)-604-822-4400.

2nd International Conference on Climate and Water, Espoo, Finland, August 17-20, 1998.
Nea Helenius, Helsinki University of Technology, Water Resources Engineering, Tietotie 1, FIN-02510 Espoo, Finland; Fax: +358-9-451-3827; E-mail: nhelenius@ahti.hut.fi.

XVIth World Congress of Soil Science, Montpellier, France, August 20-26, 1998.
Information: XVI World Congress of Soil Science, Congress Secretariat, 1101, Avenue Agropolis, 34394 Montpellier Cedex 5; France; tel: (+33)67 04 75 38; fax: (+33)67 04 75 49

Symposium sur le ***„Rôle du marché dans les réussites et les échecs de la gestion durable des ressources"***,
organisé par l'alliance pour un monde responsable et solidaire et son chantier SOLS, pendant le 16ème Congrès Mondial de Science de Sol, 20-26 août 1998.
Symposium on the „effect of the market on the success and failures of the sustainable management of resources",
organized by the alliance for a responsible and united world and its Soil Campaign, at the 16th World Congress of Soil Science, 20-26 August 1998.
Information: Prof. Dr. Rabah LAHMAR, fph, 38, rue Saint Sabin 75011 Paris; Tel: +33(0)1 43 14 75 75 et +33(0)2 33 29 33 94; fax: +33(0)1 43 14 75 99; et +33(0)2 33 29 33 94; e-mail: rabah@echo.org.

International Conference „Flow and Deformation in Biology and Environment" Prague, Chech Republic, September 14-16, 1998.
Information: Dr. Jiri Blahovec, Conference FDBE, Chech University of Agriculture, 16521 Prague 6 - Suchdol, Czech Republic; Tel: +4202-2438-4281; Fax: +4202-2092-1361; E-Mail: blahovec @tf.czu.cz.

International Symposium on Sustainability of Chestnut Forest Ecosystems, Catania, Italy, September 18-23, 1998.
Information: Prof. Salvatore Leonardi, Istituto Chimico, Facoltà di Ingegneria, Università di Catania, viale Andrea Doria, 6-95125 Catania, Italy; Tel: +39-95-25-64-56; Fax: +39-95-25-64-50.

International Conference and Special Workshops: Groundwater Quality: Remediation and Protection, Tuebingen, Germany, September 21-25, 1998.
Information: Conference Secretariat GQ'98, c/o Lehrstuhl fuer Angewandte Geologie, Sigwartstr. 10, 72076 Tuebingen, Germany; Tel: +49-707174692 (from the USA or the Netherlands: +49-7071-290 - ask for extension 74692 or 76486); Fax: +49-7071-5059
E-mail: mike.herbert@uni-tuebingen.de.

9th International Meeting of the International Humic Substances Society (IHSS): „Understanding and managing organic matter in soils, sediments and waters", Adelaide, Australia, September 21-25, 1998.
Information: Dr. Kaye Spark, IHSS-9 Conference Secretary, CRC for Water Quality and Treatment, PMB 3, Salisbury, SA 5108, Australia; Tel.: +61-8-8259-0347; Fax: +61-8-8259-0228; E-mail: ihss-9@sawater.sa.gov.au; Internet: http://www.clw.csiro.au/conferences/ihss9/

International Symposium on Arid Region Soils, Izmir, Turkey, 21-25 September, 1998.
Information: Prof. S. Senol, Dept. of Soil Science, Cukurova University, 01330 Adana, Turkey; Fax: +90-322-338-6643 or -6747.

FERTBIO-98: Interrelation between soil fertility, plant nutrition and soil biology: consolidation of a paradigm. XXIII Brazilian Conference of Soil Fertilizing and Plant Nutrition. - VIII Brazilian Conference on Mycorrhiza. - V Brazilian Symposium on Soil Microbiology. - II Brazilian Conference on Soil Biology. Lavras, MG, Brazil, October 11-16, 1998.
Information:Organizing Committee, FERTBIO-98, DCS-UFLA, CP 37, 37.200-000 Lavras, Minas Gerais, Brazil; Fax: (035)829-1251; E-mail: dcs@ufla.br; Internet: http://www.ufla.br.

International Symposium on Problematic Soils - The Japanese Geotechnical Society, Sendai, Japan, October 1998.
Information: Prof. N. Moroto, Dept. of Civil Engineering, Hachinohe Institute of Technology, 88-1 Ohbiraki, Myo, Hachinohe 031, Japan. Fax: +81-178-25-1013; E-mail: istohoku@ hi-tech.ac.jp.

Hydrological Changes in Africa, Abidjan, Côte d'Ivoire, November 16-19, 1998.
Information: Dr. Eric Servat, ORSTOM, 06 BP 1203, Cedex 1, Abidjan 06, Côte d'Ivoire; Tel: +225-1-45-00-74/45-41-70; Fax: +225-45-00-76/24-65; E-mail: 101727.2773@compuserve.com OR servat@orstom.rio.net.

First International Agronomy Congress, New Delhi, India, November 23-27, 1998.
Information: Fax: +91-11-574-2283.

15th International Symposium of the Association for Farming Systems Research and Extension, Pretoria, South Africa, November 29-December 3, 1998.
Information: AFSR+E Symposium '98, P.O. Box 411177 Craighall 2024, South Africa. Fax: +27-11-4426111; E-mail: cpjh@jhb.lia.net.

National Congress of the Soil Science Society of Pakistan, Faisalabad, Pakistan, December 9-12, 1998.
Information: Prof. R.H. Qureshi, E-mail: javaid@sarcuaf.fsd.brain.net.pk

1999

2nd International Conference on Land Degradation, Khon Kaen, Thailand, January 22-31, 1999.
Information: The President, Soil and Water Conservation Society of Thailand, c/o Department of Land Development, Chatuchak, Bangkok 10900, Thailand; Tel: +66-2-5791939 and -5790111; Fax: +66-2-5613029 and -5611959; E-mail: ibsram@cgnet.com or ibsram@nontri.ku.ac.th

5th International Meeting on Soils with Mediterranean Climate (IMSMC). Barcelona, Spain, July 4-9, 1999.
Information: Prof. J. Bech, Chair of Soil Science, Dept. of Plant Biology, Faculty of Biology, University of Barcelona, Avda Diagonal 645. E-08028 Barcelona, Spain; Tel: +34-3-402-1466; Fax: +34-3-411-2842. E-mail: jabechbo@porthos.bio.ub.es.

IUGG Assembly, Birmingham, UK, July 19-30, 1999.
Information: Dr. Gordon Young, Secretary General, IAHS, Department of Geography, Wilfrid Laurier University, Waterloo, Ont N2L 3C5, Canada; Tel: +1-519-884-1970; Fax: +1-519-846-0968; E-mail: 44iahs@mach1.wlu.ca.

XV International Congress of the International Union for Quaternary Research (INQUA): „The Environmental Background to Hominid Evolution in Africa" Durban, South Africa, August 3-11, 1999.
Information: Conference Secretariat, Conference Africa, P.O. Box 1722, Parklands, 2121, Johannesburg, South Africa; Tel: +27-11-447-8143; Fax: +27-11-447-8144; E-mail: cafrica@iafrica.com.

International Peat Symposium: „Chemical, physical and biological processes in peatlands", *Jokioinen, Finland, August 23-27, 1999.*
Information: Symposium Secretariat, Merja Myllys, Agricultural Research Centre of Finland, FIN-31600 Jokioinen, Finland; Fax: +358-3-4188-437; E-mail: merja.myllys@mtt.fi.

Congress of the Polish Society of Soil Science: „The role of soil in the functionality of ecosystems", Poland, September 7-10, 1999.
Information: Prof. Adam Kaczor, Department of Agricultural Chemistry, Agricultural University of Lublin, Akademicka 15, P.O. Box 158, 20-950 Lublin, Poland, Tel: +48-81-537-67-34; Fax: +48-81-33-549.

XIV Congreso Latinoamericano de la Ciencia del Suelo CLACS-99, Pucon, Chile, 9 al 12 de noviembre de 1999.
Información: Itilier Salazar-Quintana,Presidente, Sociedad Latinoamericana de la Ciencia del Suelo, Dpto. Ciencias Químicas, Universidad de La Frontera, Av. Fco. Salazar 01145, Casilla 54-D, Temuco, Chile; Fono: +56-45-252627; Fax: +56-45-252547; E-mail: itilier@werken.ufro.cl.

INTERNATIONAL TRAINING COURSES
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The University of Reading, Department of Agriculture, offers a

- 6-week course for Laboratory Managers, Supervisors and Senior Technicians: **„Animal Feed and Products Analysis"**, August 10 - September 18, 1998.
- 6-week course for Laboratory Managers, Supervisors and Senior Technicians: **„Short Course in Plant and Soil Analysis"**, August 16 - September 24, 1999.

Information: Dr. I Mueller-Harvey, Faculty Analytical Laboratory, Department of Agriculture, The University of Reading, Earley Gate, P.O. Box 236, Reading, RG6 6AT, U.K. Tel: +44-118-931-6619; Fax: +44-118-935-2421; Telex: +44-118-984-7813; E-mail: i.mueller-harvey@reading.ac.uk.

The University of East Anglia, Norwich, UK, offers a short course on „Crop Research Techniques and Management" in August-September 1998.
Information: The Overseas Development Group, University of East Anglia, Norwich NR4 7TJ United Kingdom; Tel: +44-1603-456-410; Fax: +44-1603-505-262; Telex: +51-317210 BUREAU G ODG/UEA; E-mail: odg.train.@uea.ac.uk.

9th International Postgraduate Course on Soil and Plant Analysis and Data Handling
Wageningen, the Netherlands, September 20-November 21, 1998.
Organized by the Wageningen Agricultural University (WAU), in co-operation with the International Agricultural Centre (IAC) and the International Soil Reference and Information Centre (ISRIC).
Information: International Agricultural Centre (IAC)
Lawickse Allee 11
P.O. Box 88
6700 AB Wageningen, The Netherlands
Tel.: +31-317-490-111; Fax: +31-317-418-552; E-mail: IAC@IAC.AGRO.NL; Telegrams: INTAS; Telex: 45888-INTAS NL.

The Katholieke Universiteit Leuven and the Vrije Universiteit Brussel offer, among others a:
2-year Master's Degree Programme in Water Resources Engineering for undergraduates, faculty staff, project engineers, staff of ministries etc.
Information: K.U. Leuven, Vital Decosterstraat 102, 3000 Leuven, Belgium. Tel: +32-16-23-13-81; Fax: +32-16-23-06-07;
or: Laboratory of Hydrology, V.U. Brussel, Pleinlaan 2, 1050 Brussel, Belgium. Tel: +32-2-641-30-21; Fax: +32-2-641-30-22
and an
International Course on Microcomputer Applications in Water Resources Engineering and Management (short course), for researchers, engineers, managers and government officers dealing with irrigated agriculture, water resource development planning and system management.
Information: Mrs. Greta Camps, Course Secretary, Institute for Land and Water Management, K.U. Leuven, Vital Decosterstraat 102, 3000 Leuven, Belgium. Tel: +32-16-32-97-45; Fax: +32-16-32-97-60; E-mail: greta.camps@agr.kuleuven.ac.be

International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) offers a wide range of short- and long-term studies in the field of
- Plant Production
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- Environment
- Agricultural Marketing
Information: Instituto Agronómico Mediterráneo de Zaragoza; Apartado 202, 50080 Zaragoza, Spain. Tel: (34-76)57-60-13; Fax: (34-76)57-63-77

The University of Cape Town, Department of Geological Sciences, offers a **MSc Course in Environmental Geochemistry**.
Time schedule: 11 course modules of 1-3 weeks' duration between January and June, exam in July.
Information:Dr. M.V. Fey, Department of Geological Sciences, University of Cape Town, Rondebosch, 7700, South Africa. Tel: 021 650 2903/2931; Fax 021 650 3783; E-mail: fey@geology.uct.ac.za.

ITC Postgraduate Diploma and MSc Degree Courses, Enschede, The Netherlands,
ITC offers a wide range of courses on

- Msc. Degree Course: Environmental Systems Analysis and Monitoring
- Postgraduate Diploma and MSc Degree Courses: Soil Survey and Applications of Soil Information
- Postgraduate Diploma Course: Rural and Land Ecology Survey
- Msc Degree Course: Rural and Land Ecology Survey
- Postgraduate Diploma and Msc. Degree Courses: Socio-Economic Information for Natural Resource Management.

Information: ITC, Student Registration Office, Attn. Mrs. A Scheggetman, P.O.Box 6, 7500 AA Enschede, The Netherlands, Tel: +31-(0)53-4874-205; Fax: +31-(0)53-4874-238; Telex: 44525 itc nl; E-mail: scheggetman@itc.nl.

Post-Graduate Course: Remote Sensing and Natural Resources Evaluation, Istituto Agronomico per l'Oltremare, Florence, Italy.
Information: Istituto Agronomico per l'Oltremare, Via A. Cocchi, 4, 50131 Florence, Italy; Tel: 39-55-573-201; Fax: 39-55-580-314.

Silsoe College, Bedford, England, offers a wide range of post-graduate courses and studies, e.g.:
Agribusiness Management and Technology (MSc.), Agroforestry (MSc.), Land Resource Management and Planning (MSc. and Postgraduate Diploma programmes), Engineering for Rural Development (MSc.), Agricultural Engineering (Agrochemicals Application Technology - MSc., etc.), Management for Agricultural Development (MSc.), Agricultural and Food Marketing (MSc. and PD), Agricultural Water Management (MSc.), Crop Production Technology (MSc.), Information Technology (MSc.), etc.
Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford MK45 4DT, U.K.; Tel: (0525) 860428; Fax: (0525) 861527; Telex: 826383 silcam g

External Programme, specialised courses on Managing Agricultural Development, *Environmental Management in Agricultural Development, Kent, UK.*
Information: The External Programme, **Wye College, University of London,** Ashford, Kent TN25 5AH UK (Tel.: 0233 812401; Fax: 0233 813320; Telex: 94017832 WYEGG).

International Post-graduate Training Course in Eremology, (Desert Science), Ghent, Belgium.
Information: **The International Center for Eremology, University of Ghent,** Coupure Links 653, B-9000 Gent, Belgium (Tel.: ++32-91-646036; Fax: ++32-91-646247).

Master's and Advanced Course in Soil Science, International Training Centre for Post-Graduate Soil Scientists, Ghent, Belgium.
Information: Prof.Dr. G. Stoops, Director ITC, Geological Institute, University of Ghent, Krijgslaan 281/S8, B-9000 Gent, Belgium;

Tel: +32-91-644561, Telex: 12754 RUGENT, Fax: +32-91-644991;
E-mail: ADM@ITC.RUG.AC.BE
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Post-graduate Courses in Soil Science, Plant Production, and Ecology. MSc and PhD Degree, Universidad de Buenos Aires, Argentina.
Language: Spanish
Information: Facultad de Agronomía. UBA, Escuela para Graduados, Av. San Martín 4453. (1417) Buenos.Aires, Argentina. Fax: (+541)522-1687. E-mail: MEC@EDACON.AGRO.UBA.AR
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International Agriculture Courses at MSc. Level, Larenstein International Agricultural College, The Netherlands.
Information: Larenstein International Agricultural College, P.O.Box 7, 7400 AA Deventer, The Netherlands.
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ICRA, Centre International pour la Recherche Agricole orientée vers le Développement - International Centre for Development Oriented Research in Agriculture
Formation post-académique pour de jeunes chercheurs agricoles des pays en voie de développement et leurs collègues des pays développés qui ont une expérience de travail dans des pays en voie de développement.
Post-academic training for young agricultural scientists from developing countries and their colleagues from developed countries who have some working experience in developing countries.
Information: The Director of ICRA, P.O.Box 88, 6700 AB Wageningen, The Netherlands. Fax: -31-8370-27046; E-mail: icra@iac.agro.nl
or: ICRA-Agropolis International, Av. Agropolis, 34394 Montpellier CX5, France; Fax: +33-4-67-04-75-26; E-mail: icra@agropolis.fr; http://icra.agropolis.fr
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The University of Reading, Department of Soil Science, offers various Msc Programmes in the following areas:
- MSc Spatial Analysis of Soils and Land Evaluation
- MSc Management of Soil Fertility
- MSc Soils and Environmental Pollution
- MRes Master of Research in the Earth and Atmospheric Sciences
Information: The Postgraduate Admissions Tutor, Department of Soil Science, The University of Reading, PO Box 233, Reading, RG6 6DW, UK; Tel: +44-1734-316-557; Fax: +44-1734-316660; E-mail: s.nortcliff@reading.ac.uk.

The International Institute for Infrastructural, Hydraulic and Environmental Engineering, IHE, in Delft, the Netherlands, offers Diploma Courses, Msc Programmes, PhD Programmes and Short Courses in different fields of science, e.g. Hydraulic Engineering, Hydrology, Environmental Technology and Management, Transportation and Road Engineering for Development etc.
Information: IHE, P.O. Box 3015, 2601 DA Delft, the Netherlands; Tel: +31-15-215-1715; Fax: +31-15-212-2921; E-mail: ihe@ihe.nl

Masters Programme in Human Ecology, Vrije Universiteit Brussel
(endorsed by UNESCO-MAB Programme)
Information on admission requirements: Mr. Eddy Nierynck, International Relations Officer, Human Ecology Department, Faculty of Medicine and Pharmacy, VUB (MEKO GF), Laarbeeklaan 103, B-1090 Brussels, Belgium.
Tel: +32-2-477-4282 or -4961; Fax: +32-2-477-4964; E-mail: gronsse@meko.vub.ac.be.

Other information: Dr. Christine Horton (Programme Co-ordinator) and Ms. Karin de Bruyn (Assistant Programme Co-ordinator).
Tel: +32-2-477-4925 or -4964; E-mail: chorton@meko.vub.ac.be; kdebruyn@meko.vub.ac.be

Curso de Pós-Graduaçao em „Solos e Nutriçao de Plantas"
Informaçao: CPG - Solos e Nutriçao de Plantas, Escola Superior de Agricultura „Luiz de Queiroz", Av. Pádua Dias, 11 - Caixa Postal 9, CEP 13418-900 - Piracicaba - SP - Brasil
Tel: (019)429-4287; Fax: (019)434-3242, Telex: (19)1141 EALQ BR
E-mail: cpgsnp@carpa.ciagri.usp.br. http://www.esalq.usp.br

The University of East Anglia, Norwich, UK, offers a specialist training for development. Tailor-made courses are organized in different fields, e.g.:

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It also offers a 10-week **Short Course on Sustainable Information Systems.**
Information: The Overseas Development Group, University of East Anglia, Norwich NR4 7TJ United Kingdom; Tel: +44-1603-456-410; Fax: +44-1603-505-262; Telex: +51-317210 BUREAU G ODG/UEA; E-mail: odg.train.@uea.ac.uk.

The Wageningen Agricultural University offers an International Postgraduate Programme in different fields, e.g.:
Msc Courses in Agricultural Economics and Management; Agricultural Engineering; Animal Science; Biotechnology; Crop Science, Ecological Agriculture, Environmental Sciences, Soil and Water, Urban Environmental Management etc., as well as a **PhD Programme.**
Information: Ms. Jeanine W.M. Hermans,Dean, Office for International Students, Wageningen Agricultural Unversity, P.O. Box 453, 6700 AL Wageningen, The Netherlands; Tel.: +31-317-483618 or -483433;
Fax: +31-317-484464; E-mail: Office@DOIS.SZ.WAU.NL; HTTP://WWW.WAU.NL/; Internet for education and student information: HTTP://WWW.WAU.NL/WAUEDUC.HTML

The Soil Science Department, Faculty of Agriculture, of the Minia University, Minia, Egypt, organizes the following International Courses:

- **International Course on Soil and Plant Analysis** (in cooperation with the Royal Tropical Institute, Amsterdam, The Netherlands;
- **International Training Course for Extension Workers on Soil and Water Problems;**
- **International Training Course on Water Analysis for Agricultural Purposes;**

Information: Prof.Dr. M. A. Kishk, Minia University, Faculty of Agriculture, Service Laboratory for Soil, Plant & Water Analysis, Minia, Egypt. Tel and Fax: +20-86-345-394; Fax: +20-86-322-182.

ISSS COOPERATING JOURNALS/JOURNAUX COOPERANTS DE L'AISS/IBG KOOPERIERENDE ZEITSCHRIFTEN

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Size: Four issues per year in one volume of ca. 400 pages.
Publisher: Taylor & Francis New York
Editor-in-chief: Prof.Dr. J. Skujins, Utah State University, USA.
Personal subscription rate for ISSS members (1998): US$ 105.00.

2. BIOLOGY & FERTILITY OF SOILS
Size: Eight issues per year, in two volumes of about 750 pages.
Publisher: Springer Verlag, Berlin-Heidelberg-New-York-Tokyo.
Editor-in-Chief: Prof.Dr. J.C.G. Ottow, Giessen, Germany.
Full subscription rate for the two volumes, excluding surface mailing: DM 956.00.
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3. CATENA, an interdisciplinary journal of Soil Science-Hydrology-Geomorphology, focusing on Geoecology and Landscape Evolution.
Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands
Joint editors: J.A. Catt, Harpenden, UK, M.F. Thomas, Stirling, UK, J. Poesen, Leuven, Belgium, S.W. Trimble, Los Angeles, USA, O. Slaymaker, Vancouver, Canada, and D. Yaalon, Jerusalem, Israel
Personal subscription rate for ISSS members, including postage and handling: Dfl. 375.00

4. GEODERMA, an International Journal of Soil Science.
Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands.
Editors-in-Chief: H. Insam, Innsbruck, Austria, A.B. McBratney, Sydney, Australia, K. McSweeney, Madison, USA and Prof. D.L. Sparks, Newark, USA
Personal subscription price for ISSS members: Dfl 420.00

5. SOIL BIOLOGY & BIOCHEMISTRY
Size: 12 issues per year, in one volume of about 1800 pages.
Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands
Editor-in-Chief: Prof.Dr. J.S. Waid, Mooloolaba, Australia.
Full subscription rate, including surface mailing: £ 590.00 (US$ 910.00). Personal subscription price of ISSS members: £ 74.00

6. SOIL TECHNOLOGY, journal concerned with applied research and field applications on soil physics, soil mechanics, soil erosion and conservation, soil pollution, soil restoration, drainage, irrigation and land evaluation.
Size: 2 volumes (6 issues) per year, about 600 pages.
Publisher: Elsevier Science Publishers, Amsterdam, The Netherlands
Editor-in-Chief: Prof.Dr. M. Kutilek (Czech Republic); Assoc. Editors: Dr. D. Nielsen (USA) and Dr. Roy Morgan (UK).
Personal subscription rate for ISSS members (available from the publisher only): Dfl 150,— per year (including postage/handling)

7. PEDOBIOLOGIA, international journal, focusing on soil biology, especially on soil zoology and microbiology.
Size: 6 issues per year, in 1 volume with 450 pages.
Publisher: G. Fischer, Jena, Stuttgart, New York.
Editors-in-chief: Prof.Dr. M. Schaefer and Dr. J. Schauermann, Göttingen, Prof.Dr. G. Weigmann, Berlin.
Subscription rate 1998: DM 578.00, plus postage

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NEW PUBLICATIONS
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Sixth International Conference on Computers in Agriculture. Cancun, Mexico, June 1996. F.S. Zazueta, editor. American Society of Agricultural Engineers, St. Joseph, 1996, xviii + 1149 p. ISBN 0-929355-74-1. Paperback.

The 6th International Conference on Computers in Agriculture was convened to provide an international forum for the presentation of new developments and applications of computers to agricultural, biological and natural resource problems. This extensive book will help the reader to discover ways to facilitate communication among those involved in the development, delivery and use of computer technologies in agriculture. It gives information about computer-related developments in research, teaching and extension technologies and identifies needs and directions for the implementation of relevant computer technologies. Also available on CD-ROM.

Price: Book: USD 60; USD 49 (ASAE Member). CD-ROM: USD 60; USD 49 (ASAE Member).

Orders to: see below.

Physical Principles of the Plant Biosystem. G.E. Merva. The American Society of Agricultural Engineers, St. Joseph, 1995, x + 272 p. ISBN 0-929355-57-1. Hardcover.

The book covers the basic physical, chemical and thermodynamic principles of the plant biosystem from the viewpoint of their actions in the biosphere. It brings together aspects of energy transfers with related areas pertinent to the green plant environment. The text lays the engineering groundwork to tie physical and biological concepts together in the context of the biosystem. This integrative text introduces differential equations through a solution method which allows the engineer to resolve problems without closed-form solutions. These techniques are applied not only to familiar problems such as heat flow in metals, but also to problems in the biosphere such as the motion of water droplets from a sprinkler. Each chapter contains exercises to increase understanding of the plant biosystem.

Price: USD 47; USD 38 (ASAE member)

Orders to: ASAE, Dept. 1651, 2950 Niles Road, St. Joseph, MI 49085-9659, USA. Fax: +1.616-429-3852; E-mail: schoen@asae.org.

Evapotranspiration and Irrigation Scheduling. Proceedings of the International Conference November 1996, San Antonio. C.R. Camp, E.J. Sadler and R.E. Yoder, editors. American Society of Agricultural Engineers, 1996, xviii + 1166 p. ISBN 0-929355-82-2. Softbound.

This proceedings of the above mentioned conference, held in San Antonio, Texas, focuses on the latest technology and identifies and prioritizes future needs. Topics include: evapotranspiration measurement; commercial applications of irrigation scheduling; predictive and real-time irrigation scheduling methods; will there be enough water; computer and models for irrigation scheduling; sensors and controls for irrigation scheduling, and irrigation scheduling for water and chemical management. The conference was co-sponsored by the Irrigation Association.

Price: USD 59 and ICID

Orders to: American Society of Agricultural Engineers (ASAE), 2950 Niles Road, St. Joseph, MI- 49085-9659 USA. (order No. P1396)

History of Soil Science. International Perspectives. D.H. Yaalon and S. Berkowicz, editors. Advances in Geoecology 29. Catena Verlag, Reiskirchen, 1997, 438 p. ISBN 3-923381-40-9. Hardcover.

This publication presents a wideranging perspective on the history of soil science comprising a collection of 22 papers divided into five parts. Part I: Introducing soils as an object of study; Part II: Classification and mapping of soils; Part III: Selected topics in chemical and physical soil sciences; Part IV: Some regional perspectives and concepts, and Part V: Some outstanding personalities. Following an overview on the main paradigms, developments of the concepts of humus, horizons, classification of soil types and soil series usage are discussed in specific chapters. Some selected topics in the history of soil chemistry and soil physics are treated in detail. A number of articles deal with regional aspects of soil science and the contribution of some outstanding personalities from the 18th to the 20th centuries in the last part of this book. The editors and authors are to be congratulated with this comprehensive documentation about our science. Prof. Yaalon has been concerned with this subject for many years as chair of the ISSS Standing Committee on the History, Philosophy and Sociology of Soil Science, and organizer of symposia at the congresses in Kyoto and Acapulco. The book may give inspiration to soil scientists to write about the history of tropical soil science, which has now only been mentioned in a contribution about India and a few lines elsewhere.

Price: DEM 264; USD 176.

Orders to: see below.

Rapid evaluation of sediment budgets. L.M. Reid and Th. Dunne. GeoEcology. Catena Verlag, Reiskirchen, 1996, 164 p. ISBN 30923881-39-5. Paperback.

Understanding the current sediment production and transport regime in a watershed, and of the likely effects of planned land use on that regime would aid many land-management decisions. Managers are concerned with evaluating the combined effects of a variety of land uses in a drainage basin. The land will alter erosion and sedimentation rates, and the relative importance of different sediment sources to assign priorities for erosion control. It is important to anticipate where sediment will be deposited, stored, and how is will be remobilized. Sediment budgeting can provide this information and at low cost if reconnaissance techniques are

used to evaluate the budget. In this publication methods for evaluating erosion and sediment transport are described. Four examples are given to demonstrate budget applications and construction.
Price: DEM 69; USD 49
Orders to: see below.

Soils and Environment. Soil Processes from Mineral to Landscape Scale. K. Auerswald, H. Stanjek & J.M. Bigham. Advances in Geoecology 30. Catena Verlag, Reiskirchen, 1997, 422 p. ISBN 3-923381-41-7. Hardcover.

Soils play an important role in the function of both natural and managed ecosystems. Understanding the impact of environmental factors on these ecosystems requires a knowledge of soil processes ranging from molecular to landscape in scale. The properties and spatial distribution of soils and their mineral constituents are especially useful as indicators of both present and past environmental conditions. Soils and soil minerals form or transform in direct response to biogeochemical factors that are driven by local, regional or global processes. Through a series of case studies, this text demonstrates that linkages can be made between measurable soil and mineral properties and the processes that shape the weathering environment. Examples include layer silicates, carbonates, sulphates, and both iron and aluminium oxides. Several papers also emphasize the role of biotic factors in soil systems, the sensitivity of these factors to management practices, and the frequently overlooked interactions that exist between organic and inorganic compartments of soils and surface waters. This text recognizes that spatial and temporal variability are inherent attributes of soils and landscapes that must be quantified and properly managed if ecological and environmental harmony are to be maintained. The buffering function of soils and the importance of this function to the release and flux of nutrients in terrestrial ecosystems are given special consideration.
Price: DEM 132,30; USD 88.20.
Orders to: CATENA Verlag, Ärmelgasse 11, D-35447 Reiskirchen, Germany. Fax: +49 6408-64978 *or* CATENA Verlag, P.O.Box 1897, Lawrence, KS 66044-8897, USA. Fax: +1 913 843-1274.

Soil Conservation Extension. From Concepts to Adoption. S. Sombatpanit, M.A. Zöbisch, D.W. Sanders and M.G. Cook, editors. The Soil and Water Conservation Society of Thailand, 1996, xx + 488 p. ISBN 974-7721-70-8. Softbound.

Although there have been some very successful soil and water conservation projects, the general record for this type of project has not been good and many have achieved little. This is particularly so in the developing countries. Analyses of the causes of failure have almost invariably pointed to the non-acceptance by the farmers of the technologies. It now seems more likely that the problem lays in a lack of communication between the land users and project staff.

The solution lies in developing and using better means of extension - in developing better channels of communication between the land users and project officials and then fully involving the land users in the process of identifying the problems, developing what measures are needed to overcome them and then putting these measures into action.

New strategies and techniques for extension have been developed in recent years to make this possible. These vary but most centre on field staff trying to achieve an understanding of the farmers' perceptions of the problems and then helping them to develop and implement the necessary remedial measures. Although these new strategies and techniques are now being applied in a number of countries, they have never been the subject of an international workshop such as the one from which the present book originates: the International Workshop on Soil Conservation Extension: Concepts, Strategies, Implementation and Adoption, held in Chiang Mai, Thailand, June 1995. The publication contains edited papers about the following subjects: two introductory papers; Concepts (9 papers); Strategies (14 papers); Implementation (14 papers); and Adoption (8 papers). The workshop organizers and editors are to be congratulated with the timely publication of the Report of the Workshop (free of cost from SWCST) and the present publication.
Price: In Thailand: Baht 300 (non-member); membber 250 (30 Baht for despatch by mail). Elsewhere: USD 65 (hard cover); USD 39 (soft cover).
Orders to: The Science Publishers, P.O. Box 699, Enfield, NH 03748, USA.

Soil Organic Matter Management for Sustainable Agriculture. ACIAR Proceedings No. 56. R.D.B. Lefroy, G.J. Blair and E.T. Craswell, editors. Australian Centre for International Agricultural Research, Canberra, 1995. 163 p. ISBN 1-86320-139-4. Paperback.

This publication contains the proceedings of a workshop in Thailand, 1994, designed to review current research and identify future research opportunities in the areas of soil organic matter dynamics and nutrient cycling in tropical and temperate agro-ecosystems, in the context of recent developments in technology. Topics covered include the role of organic matter in sustainable agricultural systems, the use of mulches, crop residue management and nutrient cycling in Australia and parts of Asia. Aspects of the chemistry of soil organic matter decomposition are also discussed. The challenge facing agronomists and soil scientists has been to devise management systems that optimise the level of organic matter in a soil in relation to the environment, resource endowment of the farmer and the economics of farm production.
Price: USD 45 plus USD 12 postage and handling.
Orders to: Bibliotech Division, ANUTECH Pty, GPO Box 1571, Canberra, ACT 2601, Australia. Fax: +61.61.6.2575088; E-mail: Ann.Commins@aplemail.anu.edu.au.

Soil Biochemistry - Volume 8. J.-M. Bollag & G. Stotzky, editors. **Volume 9.** G. Stotzky & J.-M. Bollag, editors. Marcel Dekker, New York, Basel. Hardcover.
These two volumes continue a successful series of reference books, which were announced in earlier Bul-

letins. Rather than discussing a single theme, the review articles discuss a wide range of topics.

Volume 8 (ISBN 0-8247-9044-8) considers biological reactions in soils, from traditional to molecular and immunological techniques for detecting specific microorganisms in soil, about the fate of introduced genetically modified organisms and problems of competition; the interaction of xenobiotics with soil organisms; the anaerobic microbial mineralization of various components; the formation of organic matter, etc.
Price: USD 99.75.

Volume 9 (ISBN 0-8247-9441-9) contains papers on the conditions that affect the quality of the soil and on the methods to measure the effects of soil management *bioremediation - focusing on indigenous or introduced* microorganisms with the capacity to remediate pollutants. This volume has e.g. articles on the influence of microorganisms and their enzymes on soil quality; the constraints of physicochemical and biological characteristics of the soil environment on microorganisms and how these can be modified by management practices; methods for determining the microbial populations in the rhizosphere; the movement of bacteria in soil; and the application and importance of fractals to the biology and biochemistry of soil.
As with the earlier volumes, the contributions are well-illustrated and have many references.
Price: USD 99.75.
Orders to: Marcel Dekker, 270 Madison Avenue, New York, NY 10016-0602, USA.
Fax: +1-212-685-4540; *or:* Marcel Dekker, Hutgasse 4, Postfach 812, CH-4001 Basel, Switzerland.

Soil Physics. Third Edition. T.J. Marshall, J.W. Holmes and C.W. Rose, editors. Cambridge University Press, 1996, viii + 453 p. ISBN 0-521-45766-1, paperback; also available in hardback, ISBN 0-521-451151-5.

This textbook gives a comprehensive account of soil physics with an emphasis on field applications for students and researchers engaged in water resources studies and the soil and plant sciences.
In the preceding editions, the application of soil physics to agriculture, hydrology, and engineering has been treated as an important part of the book. In the third edition, this is carried further by adding new chapters on soil erosion and on the transport of chemicals in soil. The treatment relies upon underlying physical processes. It has an extensive list of references.
Price: GBP 21.95; USD 37.95 (Paperback); GBP 60; USD 90 (Hardback).
Orders to: see below

The Ecology of Tropical Food Crops. Second Edition. M.J.T. Norman, C.J. Pearson and P.G.E. Searle, editors. Cambridge University Press, Cambridge, 1995, x 430 p. ISBN 0-521-42264-7, Paperback; 0-521-41062-2, Hardback.

This updated edition retains the formula of the first edition, and will serve the needs of advanced students of tropical agriculture as well as professionals engaged in research and extension work in tropical crop production. It considers the response of tropical food crops to environmental factors such as climate, soil and the farming system. It is in four parts. Part I is a general account of the three environmental components: tropical cropping systems; tropical crop/climate relations and tropical crop/soil relations.
Parts II, III and IV are devoted to the most important crops with each of the three broad groups of food crops: cereals, legumes and non-cereal food energy crops.
Price: GBP 55; USD 74.95 (hardback); GBP 19.95; USD 29.95 (paperback).
Orders to: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, UK; or: 40 West 20th Street, New York, NY 10011-4211, USA.UK. Fax: +44 1223 315052.

Saving the planet with Pesticides and Plastic. The Environmental Triumph of High-Yield Farming. D.T. Avery. Hudson Institute, Indianapolis, 1995, x + 432 p. ISBN 1-55813-051-9. Paperback.

This new global food analyses concludes that only high-yielding farming can produce enough food per hectare to save the world's wildlife. It is argued that yields on organic and traditional farms are too low to feed the expected population without a massive loss of wildlife habitat. Moreover, the world has too little organic nitrogen to support current world food output without chemicals. The book contains interesting data on soil and water conservation and sustainable farming. Fertilizer still has enormous untapped potential in many countries.
Price: USD 19.95.
Orders to: The Center for Global Food Issues, P.O.Box 202, Churchville, VA 24421, USA; fax: +1 703-337-8593.

Farming in a Fragile Future. Economics of land use with applications in the Atlantic Zone of Costa Rica. R.A. Schipper. Thesis Wageningen Agricultural University, Wageningen, 1996, xi + 282 p. ISBN 90-5485-565-7. Paperback.

This study contributes to the search for a methodology for land use analysis, aiming at a land use that provides sufficient (and rising) incomes to the agricultural population and at the same time maintains the productive capacity of land. The contribution focuses in particular on the role of economic analysis.
The role of economics within land use analysis is outlined. The background to this outline is formed by a skeleton model of the agricultural sector, concepts of regional agricultural planning, in particular a comprehensive resource based approach, and the so-called LEFSA sequence for land use planning. The basic idea is to distinguish levels of analysis and to consider the analysis made by several disciplines (including agronomy, soil science and economics) at each of these levels. Furthermore, at each of these levels models can be designed, which are connected in a modular fashion and which foster multi- or interdisciplinary collaboration. It is advocated that the term land use planning be replaced by land use analysis.

Linear programming models as a tool for land use analysis are discussed. A linear programming model for a case study, the Neguev settlement in Atlantic Zone of

Costa Rica, is presented. The matrix of the model includes five sub-matrices each encompassing a different farm type. The farm types are distinguished on the basis of land-labour ratios, considering three soil types. Several land use scenarios are analysed to assess whether incomes of farms can increase through an improved, more sustainable, land use.
Requests to: Department of Development Economics, Wageningen Agricultural University, P.O.Box 8130, 6700 EW Wageningen, The Netherlands.

Soilborne Diseases of Tropical Crops. R.J. Hillocks and J.M. Waller, editors. CAB International, Wallingford, 1996, 448 p. ISBN 0-85199-121-1.

Soilborne diseases have, until recently, received less attention than plant diseases affecting the shoot and foliage. However, this is not a reflection of their economic importance, but rather of difficulties in investigating and detecting pathogens below soil level. Many soilborne diseases are stress related and it is in the tropics where crop growth is particularly limited by environmental stress, predisposing crops to infection by soilborne pathogens.

There is thus a great need for information on soil borne diseases of crops in the tropics. This book aims to fill this need by providing reviews of relevant research. It covers the major tropical crops and also includes general chapters on principles, ecology and control.
Price: GBP 65; USD 120.
Orders to: see below.

Conservation and Management of Tropical Rainforests. An integrated approach to sustainability. E.F. Bruenig. CAB International, 1996. Wallingford, 1996, xxi + 339 p. ISBN 0 85198 9942. Hard cover.

This publication applies the large body of knowledge, experience and tradition available. It describes the principles of integrated conservation and management that lead to sustainability. It identifies the unifying phenomena that regulate the processes within the rainforest and that are fundamental to the ecosystem viability. Features of the natural forest and the sociocultural ecosystems which can be mimicked in the design of self-sustaining forests are also discussed. Many practical examples and field studies from Amazonia and South East Asia, are included. It contains a.o: The tropical rainforest ecosystem; Rainforest use: Wisdom, folly ambivalence; Sarawak forestry: Tortuous road towards sustainability; Restoration of degraded ecosystems, Timber certification, trademarking and monitoring.
Price: GBP 55.00; USD 99.00 (Americas only)
Orders to: CAB International, Wallingford, Oxon OX10 8DE, UK; fax: +44 1491 826090; E-mail: cabi@cabi.org: or CAB International, 198, Madison Avenue, New York, NY 10016, USA,: fax: +1 212 689 7993; E-mail: cabi-nao@cabi.org.

Miombo Ecology and Management. An introduction. E.N. Chidumayo. IT Publications, London, 1997, 192 p. ISBN 1-85339-411-4. Paperback.

Miombo forest occurs in a swathe across central and southern Africa, including parts of Zambia, Zimbabwe, Angola, Zaire, Malawi, Mozambique and Tanzania. It is rich in tree species, and has enormous value as a wildlife habitat. Traditionally shifting cultivators have farmed in miombo, and allowed it to regenerate, but increasingly the demands for land and for fuelwood have resulted in deforestation.

This book provides comprehensive details of the climate, environment, ecology and species characteristics of miombo, and describes methods for assessing the timber and other resources, through inventories, in order to use the forest sustainably. Management guidelines give practical advice on propagation and harvesting techniques, as well as discussing how to design plans to conserve biodiversity and to protect water catchments.
Price: GBP 15.95; USD 28.50
Orders to: Plymbridge Distributors Ltd., Plymbridge House, Estover Road, Plymouth, Devon PL6 7PZ, UK. E-mail: It Publications: it2pub@gn.apc.org.

The Miombo in Transition: Woodlands and Welfare in Africa. B. Campbell, editor. Center for International Forestry Research, (CIFOR), Bogor, 1996, xiii + 266 p. ISBN 979-8764-07-2. Hardbound.

Miombo woodlands are the most extensive vegetation type in Africa south of the equator. These dry tropical woodlands cover some 2.5 million hectares and are home to over 40 million people. Their products are very important to the livelihoods and needs of an additional 15 million urban Africans. This book demonstrates how much livelihood strategies of rural communities depend on miombo goods and services, and indicates the strong differentiation of uses within communities and in space and time. The ecological constraints to human activity in the region are clearly articulated, ranging from nutrient poor soils to the presence of the tsetse fly. It proposes a conceptual model of how all the diverse social, economic, political and ecological processes interact to shape how the household and woodland situations are changing.

The book contains contributions by a number of researchers and has managed to ensure coherence, close linking of chapters and complete coverage of material through authors' workshops.
Price: USD 30.
Orders to: CIFOR, P.O.Box 6596, WB Jakarta, Indonesia 10065; Fax: +65 251-326433; or:
E-mail: cifor@cgnet.com.

Pesticides in the Atmosphere. Distribution, Trends, and Governing Factors. M.S. Majewski and P.D. Capel. Volume One of the Series Pesticides in the Hydrologic System. Ann Arbor Press, Chelsea, USA, 1995, xiii + 214 p. ISBN 1-57504-004-2. Hardcover.

This publication builds up the foundation of what we presently know about pesticides in the atmosphere, to better understand their effects in the hydrologic system. It is a practical tool that examines a multitude of pesticide studies in detail and presents a tabular listing of informative data that includes such features as spatial domain studies, detection limits, and compounds detected. 130 studies reviewed show that pesticides

have been detected in the atmosphere within the United States and Canada since the mid-1950's.
Price: USD 49.95.
Orders to: Ann Arbor Press, 121 South Main Street, P.O.Box 310, Chelsea, Michigan 48118, USA. Fax: +1 313-475-8852 or E-mail: aap310@aol.com.

Environment Biodiversity and Agricultural Change in West Africa. Perspectives from Ghana. E.A. Gyasi and J.I. Uitto, editors. United Nations University Press, Tokyo, 1997, xv + 141 p. ISBN 92-808-0964-4. Paperback.

This publication is based on a regional meeting, organized in October 1994 under the United Nations University project on People, Land Management and Environmental Change (PLEC). The authors include West African and international scholars working to preserve biodiversity and promote sustainable management of the agroecosystems of Ghana.
The workshop objectives were to: disseminate and discuss the finding of the pilot phase on PLEC West Africa research; identify possible strategies of extending the scope of PLEC research to other agroecological zones in West Africa; and enhance cooperation between PLEX and UNU/INRA in the West African context. The main points ensuing from the post-workshop meetings, together with the key elements of the mainstream workshop proceedings are in this publication.
Price: USD 14.95.
Orders to: United Nations University Press, 53-70, Jingumae 5-chome, Shibuya-ku, Tokyo 150, Japan. Fax: +3 3406 7345; E-mail: sales@hq.unu.edu.

A New Era for Irrigation. Committee on the Future of Irrigation in the Face of Competing Demands, National Research Council. National Academy Press, 1996, 216 p. ISBN 0-309-05331-5. Hardback.

Irrigated agriculture has played a critical role in the economic and social development of many countries - but it is also at the root of increasing controversy. This book draws important conclusions about whether irrigation can continue to be the most significant water user, what role governments should play, and what the irrigation industry must do to adapt to the future. The book provides data, examples, and insightful commentary on issues such as growing competition for water resources, developments in technology and science, the role of subsidies for crops and water, uncertainties related to water right issues, and concern about environmental problems. The volume includes detailed case studies from the Great Plains, The Pacific Northwest, California, and Florida, all in the USA.
Price: GBP 32.95.
Orders to: National Academy Press, 12 Hid's Copse Road, Cumnor Hill, Oxford OX2 9JJ, UK. Fax: +44 1865 862763; E-mail:nao@opp.i-way.co.uk.

Ground Bioengineering Techniques for Slope Protection and Erosion Control. H.W. Schiechtl and R. Stein. Blackwell Science, Oxford, 1996, xiii + 146 p. ISBN 0-632-04061-0. Hardcover.
This book was first published in German in 1992 as „Handbuch für naturnahen Erdbau" by the Österreichischer Agrarverlag. It is a practical handbook which shows how soils, plants and their ecology can be used to protect and stabilise natural and formed slopes along transportation routes and adjacent to industrial and housing areas and leisure facilities.
The information in this publication may not apply in all respects outside the region in which it was gathered. It provides a guide to the way botanical, ecological and geotechnical knowledge and construction know-how have been assembled, classified and co-ordinated for those engaged in bioengineering work in most regions of the world to emulate.
The book is well-illustrated. The translator was Dr. L. Jaklitsch.
Price: GBP 39.50
Orders to: Marston Book Services, P.O.Box 269, Abingdon, Oxon OX14 4YN, UK. Fax: +44 1235 465555; or: Blackwell Science, 238 Main Street, Cambridge, MA 02142, USA. Fax: +1.617.492.5263.

Bioremediation. Field Experience. P.E. Flathman, D.E. Jerger, J.H. Exner, editors. Lewis Publishers, Boca Raton, 1994, xi + 548 p. ISBN 0-87371-740-6. Hardcover.

This book contains a large number of field case studies about bioremediation techniques used in contaminated soil and (ground)water. They document successful field bioremediation programmes and are examples that could be used to help commercialize technology. There are sections on environmental regulation (1 extensive paper); factors for selection of bioremediation (2 papers); nineteen case studies of treatments - mostly in-situ - of land , soil, water, sludges and shores; and one paper on the vapour-phase treatment of volatile organic compounds.
Price: GBP 69
Orders to: CRC Press, Inc., 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, USA.

Landslide Recognition. Identification, Movement and Causes. Report No. 1 of the European Commission Environment Programme. R. Dikau, D. Brunsden, L. Schrott and M.-L. Ibsen, editors. John Wiley & Sons, Chichester, New York, 1996, xiii + 251 p. ISBN 0-471-96477-8. Hardcover.

The protection of people for natural risks is an important aspect of European Commission policies. Landslides have a major socio-economic impact in most European Countries, as they are responsible for substantial direct and indirect costs as well as for the loss of human lives. Every year a landslide disaster occurs somewhere in Europe. The publication is designed to portray the diagnostic features of landslides as they would appear in the field, on maps or in photographs. Descriptions are provided and some guidance is given in the area in which different landslides types might be expected. A short account of the planning and engineering implications is included and representative statistics and behavioral data are incorporated. This report contains also a classification of landslides, a landslide glossary and an overview of slope stability modelling.
The book is also issued as Publication no. 5 of the International Association of Geomorphologists.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; or: John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, USA.

Groundwater Contaminant Transport. Impact of Heterogeneous Characterization: A New View on Dispersion. A.M.M. Elfeki, G.J.M. Uffink and F.B.J. Barends. A.A. Balkema, Rotterdam, Brookfield, 1997, xi + 300 p. ISBN 90 5410 665 4. Hardcover.
Groundwater flow and contaminant transport in aquifers are strongly influenced by the geological heterogeneity at various scales. Field studies indicate that there are various types of heterogeneity: Continuous variability, discrete geological units and compound heterogeneity. These observations suggest characterizing heterogeneous structures using a geologically-based stochastic model and parametric information. A new methodology for geological characterization based on two-dimensional Couples Markov Chain Theory and random field theory is proposed. Secondly a hybrid methodology has been applied to improve the statistical characterization of the geological heterogeneity and to introduce multiple scale heterogeneous structures (macroscopic and megascopic scale). The impacts of the newly developed tools of heterogeneous characterization on the hydrodynamics of flow and the transport mechanisms are illustrated by extensive series of numerical simulations consisting of single and multiple realizations (Monte-Carlo Method). The results are validated by laboratory experiments on artificial aquifers. The book highlights also the incorporation of both geological (geometrical configuration) and parameter uncertainties on transport predictions.
Price: DFL 165; USD 95; GBP 55.
Orders to: see below.

Geochemical Processes, Weathering and Groundwater Recharge in Catchments. O.M. Saether and P. de Caritat, editors. A.A. Balkema, Rotterdam, Brookfield, 1997, xiii + 399 p. ISBN 90 5410 641 7, hardbound; ISBN 90 5410 646 8 student paper edition.

This publication is concerned with the natural processes taking place where water interacts with minerals and organic matter at the surface of the Earth, in soils or within aquifers. It focuses on the all important interfaces between the hydrological and geochemicals cycles in terrestrial ecosystems, and is thus particularly relevant to the understanding of the environment in which we live. It presents a unified overview of the current status of knowledge in catchment studies. The thirteen chapters cover physical and chemical processes in hydrological basins, as well as more practical issues of catchment analysis and monitoring with emphasis on integration between the various disciplines.
Price: NLG 132,50, USD 75.
Orders to: A.A. Balkema, P.O.Box 1675, 3000 BR Rotterdam, The Netherlands. Fax: +31 10.4135947. Or: A.A. Balkema Publishers, Old Post Road, Brookfield, VT 05036-9704, USA. Fax: +1 802.276.3837.

Geographical information systems as a tool to explore land characteristics and land use with reference to Costa Rica. J. Stoorvogel, Thesis, Wageningen Agricultural University. 1995, 151 p. ISBN 90-5485-449-9. Paperback.

An adequate inventory of land characteristics and land use is increasingly necessary to support agricultural land use planning, especially in view of the conflicting demands on scarce land resources. Fortunately, new tools like GIS are being developed and adapted to support these inventories. Although GIS may be a useful tool for the storage and management of spatial data, its development is often „technology driven" and not directly focused on the applications. This thesis presents approaches to use GIS in the inventory and analysis of land characteristics and land use. The approaches are explored and illustrated for the perhumid tropical lowlands in the northeast of Costa Rica. More detailed studies are focused on the Neguev settlement located in these lowlands.

In this area, different models and tools were integrated for the analysis of different land use scenarios, to explore the trade-offs between sustainability and economic objectives. The methodology is particularly appropriate for interdisciplinary research, integrating socio-economic and agro-ecological data.
Requests to: Department of Soil Science and Geology, Wageningen Agricultural University, P.O.Box 37, 6700 AA, Wageningen, The Netherlands.

The Netherlands Integrated Soil Research Programme Reports, Volumes 1 to 7, Wageningen, 1994-1997.

The Netherlands Integrated Soil Research Programme was initiated in 1986 by the combined effort of four ministries to improve our knowledge on soil and sediment pollution and protection, as a basis for proper management. The programme aimed at the stimulation of research and cooperations between various Dutch research institutes active in this field.
For the programme five themes of soil research were selected, including a wide range of research thrusts. Within this framework about 150 research projects were carried out by some 25 participating research groups in the period from 1986-1994. In order to get a view across the borders six so-called „topping-up projects" were initiated. These are intended to review and combine the outcomes of research projects of different, but related research thrusts of the programme against an international background, in order to get a better view on what we know, what we should know and how to proceed on our way of soil and sediment remediation and protection. The results of the research projects are becoming available as scientific publications, theses and research reports under responsibility of the participating institutes. Moreover, summaries of the research projects are being published in this series of reports by the programme itself. These are meant to inform the public about the general results of the programme and to serve as a guide for further reading.

The following volumes have been published: Volume 1.: **The fate of organic pollutants in soils and sediments and the development of biological soil remediation techniques. An evaluation of quality, scientific significance and policy relevance.** P.J.M.

Middeldorp and G. Schraa, 43 p. ISBN 90-73270-07-3; Volume 2.: **Adaptation and selection mechanisms of natural and genetically modified soil microorganisms.** H. Rogaar, J.D. van Elsas, A.D.L. Akkermans and A.H. van den Heuvel-Pieper, editors, 73 p., ISBN 90-73270-08-1; Volume 3.: **Biological availability and transformations of organic compounds in soil and sediment systems.** H. Rogaar, G. Schraa, R. van den Berg and A.H. van den Heuvel-Pieper, 152 p., ISBN 90-73270-10-3; Volume 4: ***Spatial variability* of soil contamination and the consequences for environmental risk assessment.** A. Stein and I.G. Staritsky, 50 p., ISBN 90-73270-09-X; Volume 5.: **Remediation and isolation techniques for soils and sediments.** J.T.C. Grotenhuis, M.J. Lexmond, H. Rogaar and A.H. van den Heuvel-Pieper, editors, 264 p., ISBN 90-73270-14-6.; Volume 6.: **Soil structure and transport processes. Implications for water, gases, nutrients, pesticides, and contaminants in soils.** P.A.C. Raats, H. Rogaar and A.H. van den Heuvel-Pieper, editors, 137 p., ISBN 90-73270-20-0; Volume 7.: **Speciation and bioavailability of heavy metals, sulphur, phosphorus and cyanide in soils and sediments.** H. Rogaar and A.H. van den Heuvel-Pieper, editors, 216 p., ISBN 90-73270-24-3. Three more volumes are planned.
Requests to: Ir. H. Rogaar, The Netherlands Integrated Soil Research Programme, P.O.Box 37, NL-6700 AA Wageningen, The Netherlands; Fax: +31 317 485051.

Farmer strategies for market orientation in ACP agriculture. Proceedings of a CTA/Teagasc/Department of Agriculture Food and Forestry, Republic of Ireland, Seminar. *Actes du séminaire: les stratégies paysannes et adaptation aux marchés dans les pays ACP.* Dublin, Ireland, 23-27 October 1995.

The technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the African, Caribbean and Pacific (ACP) States and the European Union (EU) Member States. CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilize information in these areas. CTA's programmes are organized around three principal themes: strengthening facilities at ACP information centres, promoting contact and exchange of experience among CTA's partners, and providing information on demand.
Until recently, as at many international centres, the thematic focus of CTA's work was on increasing agricultural production and productivity. Lately, however, priorities have shifted towards improving welfare in rural areas and increasing farmers' wealth. It is widely believed that global trade liberalization and the decentralization of economies will contribute to these issues by providing increased opportunities for marketing food and other agricultural products. These emerging preoccupations and opportunities explain why CTA's work has shifted progressively to include what is described today as the agri-food chain; in other words, the post-harvest handling, storage, packaging, transport, processing, marketing and trade development aspects. The purpose of this seminar was to identify the principal measures which would help to promote market orientation in agriculture.
One of the key messages from the seminar was that farmers and rural people should attempt to identify and build links with other key players in the food chain. Only in this way can a viable, sustainable and integrated agricultural sector be created. The challenge to national policy makers in these countries is to create a framework with which farmers, and all those in the food chain, can respond to new opportunities and challenges. These proceedings contain the texts of the three lead papers, seven country reports, three transnational reports and reports of the three working groups. An interesting publication, also for soil scientists!
Requests to: Technical Centre for Agricultural and Rural Cooperation (CTA), P.O.Box 380, 6700 AJ Wageningen, The Netherlands. Fax: +31 317 4670067. e-mail: cta@cta.nl.

Holistic approach to sustainable development: interaction of soil science with different disciplines. Proceedings of Bologna Workshop, 15th-19th September 1995. L. Reale, M. Nori, G. Ferrari, editors. European Commission -DGXII, Scientific and International Cooperation with Developing Countries (INCO-RTD) and Regione Emilia-Romagna Technological Development Agency, Bologna, 117 p.

For many years soil scienctists have been questioning their role in a social, political, economic and environmental context which has seen radical changes in the last decade. The question is: how can soil science contribute to an understanding of the recognised complexity of the planet's problems, of which soil is a fundamental component? Soil researchers have to reconsider their work in an inter- and multidisciplinary context, placing soil in its proper place within the ecosystem. A group of researchers has succeeded in evolving a conceptual model of a 'holistic' nature to address this question. Formulated in Rennes in 1992, its application to a geographic region was initially tested at a meeting in Harare (1993), involving the ten countries of the region, and later field tested through research projects.
The Rennes and Harare workshops were the first stages in the development of this fresh conceptual approach to research in soil science. The implementation of the „Holistic Approach" led to the identification of new difficulties. These were addressed at a discussion with experts other than soil scientists, at a meeting in Bologna that had a particularly balanced composition: whereas in previous meetings a key concern was a balanced participation by Developing Counties and European scientists, this time around one third of the participants were women and only half of them were soil experts, the remaining half coming from other disciplines (agronomy, rural development, economics, anthropology, architecture, zoology, etc.) The results of the Bologna meeting, presented in this document, will surely attract the readers' interest due to their importance and relevance for a mutual understanding of each other's interest and perceptions and the acceptance of a common reference framework. The long-term objective is to produce a conceptual framework valid for soil

science in the next century. This framework will be a point for discussion at the World Congress of Soil Science in Montpellier in 1998.
For further information and a copy of the proceedings, please contact: Dr. M. Catizzone, EC-DG XII/B/4 (SQDM), Rue de la Loi, 200, B-1049 Brussels, Belgium. Fax: +32-2-296 6252; E-mail: m.catizzone@mhs.cec.be.

Proceedings of the 14th Conference of the Romanian National Society of Soil Science, Tulcea, 1994. Six Volumes, In Romanian, with English abstracts.

These proceedings contain the plenary papers and the oral presentations according to Commissions. One of the volumes refers to soil tillage, and includes papers presented at a symposium organized jointly with the Romanian ISTRO Branch under the title 'Reducing the intensity of soil tillage', as well as those of an ISTRO Branch meeting in Craiova, 1993, entitled „Present problems of soil tillage in Romania.'
Orders to: Dr. A. Canarache, Research Institute for Soil Science and Agrochemistry, B. M_r__ti 61, Bucure_ti 71331, Romania.

Vie Microbienne du Sol et Production Végétale. P. Davet. Institut National de la Recherche Agronomique (INRA), Versailles, 1996, 385 p. ISBN 2-7380-648-5.

Cette publication étudie les relations qui existent entre activité des microorganismes du sol et production végétale. Le livre est divisé en trois parties. L'auteur définit les principales caractéristiques du monde souterrain et décrit les microorganismes qui y vivent ainsi que les contraintes auxquelles l'environnement les soumet. Il montre ensuite comment l'action des microorganismes peut modifier le milieu physico-chimique, les équilibres microbiologiques et le développement des plantes. Dans la troisième partie, l'auteur envisage les moyens d'intervention permettant de limiter la prolifération des microorganismes nuisibles et de tirer le meilleur parti de l'activité des microorganismes auxiliaires.

L'ouvrage s'adresse à un large public. Il permet aux chercheurs de resituer leurs domaines d'étude dans un ensemble plus vaste où leur rapports entre les différentes disciplines apparaissent clairement. Il propose de nombreux exemples pratiques, des illustrations et une bibliographie.
Prix: FRF 290
Commandes à: voir ci-dessous.

Ecophysiology of Tropical Intercropping. H. Sinoquet, P. Cruz, editors. Institut National de la Recherche Agronomique (INRA), Versailles, 1995, 484 p. ISBN 2-7380-0603-5; ISSN 1159-554 X. Softbound.

This publication has been compiled from communications presented at the First International Meeting on the Ecophysiology of Tropical Intercropping, in Guadeloupe. Intercropping has existed for centuries in all parts of the world, especially the tropics. It consists in growing several crops simultaneously in the same field, or more generally, in mixing several plant species. Intercropping is one aspect of multiple cropping which involves growing several species in the same plot during one year, This is especially suited to the tropics where there are no temperature constraints to plant growth throughout the year. From a general point of view, intercropping may be regarded as a multiple-purpose and multiple-option agricultural practice. The objective of this book is to propose and illustrate a conceptual framework, based one ecophysiological principles in order to improve the productivity and sustainability of intercropping systems. The fundamental statement is that dynamics of plant growth and development as well as environment properties result from plant-environment interactions. Its scope is therefore to manipulate the variable and resources of microclimate and soil. The plant-environment interactions whose mechanisms are analysed include the effects of canopy structure on resource partitioning, i.e. light, water and nutrients and plant responses to environmental changes due to intercropping. Plant-environment interactions may then be integrated into growth analysis methods and crop simulations models. The last part of the book is devoted to case studies which illustrate the diversity of intercropping in relation to the farmers' constraints, purposes and options.
Price: FRF 195.
Orders to: see below.

Référentiel Pédologique 1995. D. Baize and M.-C. Girard, éditeurs. INRA Éditions, Versailles, 1996, 332 p. ISBN 2-7380-9633-7. Livre de poche.

Cet ouvrage est une nouvelle version plus complète du Référentiel Pédologique initialement édité en 1992. Il reprend tous les chapitres déjà publiés et présente un certain nombre de compléments. Ce volume comporte l'exposé des principes fondateurs du Référentiel présentés en introduction; la définition de 73 „horizons de référence" ; la présentation de 102 „Références"; un glossaire de plus de 230 „Qualificatifs"; et 6 annexes traitant notamment des „formes d'humus", de „l'hydromorphie" des méthodes d'analyses et des équivalences avec l'ancienne Classification des sols de 1967 (dite CPCS).

Le Référentiel Pédologique est une typologie qui fait le point de tout ce que l'on suit, à ce jour, sur les sols des climats relativement tempérés. Établi à partir de concepts clarifiés et modernisés, il propose un langage clair et bien défini. Il suggère une façon d'organiser nos connaissances mais surtout c'est un outil efficace pour transmettre une information la plus riche possible et permettre des comparaisons entre différentes régions. C'est donc plus et mieux qu'une simple classification pédologique. Certains chapitres semblent bien au point, d'autres mériteront certainement des améliorations qui ne peuvent provenir que de l'aide de spécialistes compétents et motivés. En ce qui concerne les sols des domaines arides et intertropicaux, de nombreux chapitres sont encore à rédiger. Pour réussir à compléter convenablement le Référentiel Pédologique, nous avons besoin de la collaboration des pédologues qui ont travaillé sous ces climats. Nous leur lançons un appel, qu'ils soient français ou étrangers, pour qu'ils nous aident à définir et nommer les sols de ces régions, dans le respect de principes désormais bien établis.
Prix: FRF 192.
Commandes à: voir ci-dessous.

La Crise Environnementale. C. Larrère and R. Larrère, editors. Text in French. INRA Editions, Versailles, 1997, 302 p. ISBN 2-7380-0732-5.

The seminal idea of the symposium is that the environmental crisis - officially acknowledged at the Rio Earth Summit - is threefold: it is ethical, scientific, and political. The environmental crisis calls into question our relationship to nature, which entails examining our environmental ethics. It requires scientific expertise and therefore also calls into question our current scientific paradigms. And at last is has led to the development of new „Green" parties and promoted new „policies of nature".

These three aspects are addressed by the contributions to this volume, written by specialists in diverse areas: Philosophers, historians of science, scienthsts (both natural and social), and lawyers. After calling into question the idea of the crisis itself, the book provides an overview of the normative and ethical aspects of the environmental crisis.

The scientific part of the volume is the largest one. It is focused mainly on ecology, from its rather remote history to its most recent developments. More specific problems - such as biodiversity - are treated, together with a general discussion about what a constructive post-modernity could be. The last part deals with environmental public policies and the way science and politics interact.

Price: FRF 155.

Orders to: INRA Editions, Route de St Cyr, F-78026 Versailles Cedex, France; Fax: +33 1 30 83 34 49; E-mail: dessauvages@versailles.inra.fr.

Functional Appraisal of Agricultural Landscape in Europe (Seminar 1992). EUROMAB Research Programme and INTECOL. L. Ryszkowski and S. Balazy, editors. Research Center for Agricultural and Forest Environment, Polish Academy of Sciences, Poznan, 1994, 307 p. ISBN 83-85274-03-0. Soft bound.

The 28 papers presented at the seminar are published in this present volume. The seminar was divided into three sections: 1) influence of landscape structure on heat and water balances of watersheds as well as on water pollution (13 papers); 2) influence of landscape structure and land-use changes on dispersion and diversity of plant and animal communities, including analysis of the role of ecotones and crop rotation patterns on the redistribution of animals in the landscape (8 papers); 3) land-use changes caused by political and economic trends in Europe (e.g. the agricultural policy of the European Community) and possibilities for nature protection provided by the application of landscape planning tools (7 papers). Results were also presented of studies which facilitate better understanding of the natural basis of the functioning of total agricultural landscapes.

Requests to: L. Ryszkowski, Director Research Center for Agricultural and Forest Environment, Polish Academy of Sciences, Bukowska 19, 60-809 Poznan, Poland. Fax + 48 61 473 668

Land and Water Development for Agriculture in the Asia-Pacific Region. V.V.N. Murty and K. Takeuchi. Science Publishers, Lebanon, 1996, ix + 152 p. ISBN 1-886106-60-6. Hardcover.

Land and water are two basic resources in the agricultural production system of any region. In improving and sustaining existing agricultural production systems, the first step is to improve the management of these basic resources. The proper management of land and water is a prerequisite for the efficient use of improved seeds, fertilizers, pesticides, agricultural machinery, and other inputs. In the last two decades, the Asia-Pacific region has seen phenomenal changes in agriculture, industries, infrastructure, and overall economic development. From an acutely deficit situation, many of the countries of the region became self-sufficient in food production.

During the last five years, the authors have been associated with several expert consultations, seminars and symposia, organized by various agencies in the region. They put together, in a personal view, some of the papers presented at these meeting, in a modified form to address some of the current problems in land and water development for agriculture faced in the Asia-Pacific region.

Price: USD 65.

Orders to: Science Publishers, 10 Water Street, # 310, Lebanon, NH 03766, USA.

Soil Science. A. Rashid and K.S. Memon. National Book Foundation, Islamabad, 1996, xxviii + 598 p. ISBN 969-37-0170-4. Hardcover.

This textbook of soil sciences introduces the basic concepts needed to build a foundation for the understanding of the subject in detail, with particular reference to the soils of Pakistan, to enable students of agriculture to develop the basis required for intelligent thinking about soils. The need for such a textbook has arisen because textbooks on soil science authored by non-Pakistani scientists do not give information on the soils of Pakistan. Most of the data cited and illustrations given pertain to Pakistani soils. It comprises 17 chapters encompassing all areas of the subject. The book deals with the subject in a logical order, starting with concepts and principles of soil science, to soil genesis, soil properties, soil organisms, soil organic matter, plant nutrients, organic manures, soil classification, soil resources of the country and finally two major soil problems, salt affected soils and soil erosion. The book is intended to be used at the undergraduate level.

Price: PKR 500

Orders to: National Book Foundation, Sales & Distribution Centre, Plot No. 6, Mauve Area, G-8/4, P.O.Box 1169, Islamabad, Pakistan.

Sustainable Forests. Global Challenges and Local Solutions. O.T. Bouman, D.G. Brand, editors. Food Products Press, Binghamton, 1997, xvii + 378 p. ISBN 1-56022-058-9, softcover; 1-56022-055-4, hardback.

This publication contains the papers presented at the international conference held in Saskatoon, in 1995 about social and environmental issues related to forestry and indigenous people. It features, in easy-to-understand terms, different cultural, operational, and political perspectives on sustainable forest manage-

ment. Some of the topics and issues are: empowerment of indigenous people; social forestry and forest values; social forestry and forest values; community forest management, collaborative restructuring, and partnerships; socioeconomic analysis of sustainable forestry; biodiversity values and measures. It gives also an opportunity to listen in on some of the conversations and debates between conference participants and provides a snapshot of progress towards achieving sustainable forests at the turn of the twentieth century. all papers are also published in the Journal of Sustainable Forestry, vol. 4, nos 3/4 and vol. 5, nos 1/2.
Price: USD 29.95 (softcover); USD 69.95 (hardcover).
Orders to: Food Products Press, The Haworth Press, 10, Alice Street, Binghamton, NY, 13904-158, 0 USA. E-mail: getinfo@haworth.com.

Nachhaltige Land- und Forstwirtschaft. Voraussetzungen, Möglichkeiten, Maßnahmen. G. Linckh, H. Sprich, H. Flaig und H. Mohr. Springer-Verlag Berlin, Heidelberg, 1997, 351 S. ISBN 3-540-61090-1. Gebunden.

Dieser Band bildet die Synthese aus den 27 ausführlichen Fachgutachten aus unterschiedlicher Disziplinen, Workshops und eigenen Recherchen der Autoren zum gesamtkomplex nachhaftige Land- und Forstwirtschaft. Im Vordergrund stehen folgende Fragen: Welche politischen Voraussetzungen muß die Land- und Forstwirtschaft erfüllen, um nachhaltig zu sein? Welche umweltgerechten Produktionsverfahren bieten sich an, um die Ressourcen zu nützen und zu schützen? Welche Rolle spielt die Agrarstruktur? Was können technologische Entwicklungen und neue Märkte beitragen? Die Gutachten sind unter dem Titel Nachhaltige Land- und Forstwirtschaft Expertisen bereits erschienen. (Springer-Verlag, 1996, xvi + 850 S., ISBN 3-540-610-X; DEM 128).
Preis: DEM 48, GBP 21, USD 32.25
Bestellungen an: Springer-Verlag, Postfach 311340, D-10643 Berlin, Germany, *or;* Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, USA.

State of the World. 1997. A Worldwatch Institute Report on Progress Toward a Sustainable Society. L.R. Brown, C. Flavin, H.F. French et al. W.W. Norton & Company, New York, London 1997, xiii + 229 p. ISBN 0-393-31569-X. Paperback.

In this fourteenth edition of **State of the World** a look at our progress toward sustainable development since the 1992 Rio Earth Summit is given. The authors find that some gains have been made in sustainability planning and in implementing the international convention to protect the stratospheric ozone layer, but that on balance the planet's broad trends of environmental and resource degradation persist.

They describe the contracting base of grainland and climate change's threat to disrupt the ecological foundations of our global economy. They cite why pervasive resource loss is at the root of the „new word disorder." If these trends continue unabated, the pressure on the earth's natural limits will undermine food security - now already evident in the decline of marine fisheries and the shrinking grain harvest per person. Indeed, food scarcity may be the first major economic manifestation of our environmentally unsustainable global economy. Also available is the 1997 Worldwatch Database Disk.
Orders to: Worldwatch Institute, 1776 Massachusetts Ave., N.W., Washington, DC 20036, USA. E-mail:wwpub@worldwatch.org.

Agricultural Input and Environment. Sp. Palaniappan, editor. Scientific Publishers, Jodhpur, 1995, xvi + 445 p. ISBN 81-7233-122-3. Hardcover.

About 60 percent of the agricultural land of India, currently under cultivation, suffers from indiscriminate use of chemical inputs and water. Irrigation without adequate drainage may result in soils becoming saline or alkaline. Excessive use of synthetic pesticides would cause adverse effects on biological balance and lead to the presence of toxic residues in food, soil and water. It is imperative to conserve and utilize the valuable production resources like land, water and genetic diversity and to efficiently manage the agricultural inputs for sustaining high crop productivity on a long term basis with minimum damage to the ecological and social-economic environment. In this publication an attempt has been made to review and evaluate information on these aspects and to discuss the common problems of environmental degradation and human survival in the future.
Price: USD 60.00; Rs 600.00.
Orders to: see below.

Advancements in Micronutrient Research. A. Hemantaranjan, editor. Scientific Publishers, Jodhpur, 1996, xiv + 466 p. ISBN 81-7233-129-0. Hardbound.

This publication is a summary of important new findings on trace elements nutrition and interactions and of basic and applied needs in microelement nutrition. It provides a useful perspective of important progress and fruitful research opportunities of special interest is the information about the role of some less known trace elements as titanium, gallium and zirconium and the determination of selenium and beryllium.
Price: USD 85; Rs. 850.00.
Orders to: see below.

Land Resources and their Management for Sustainability in Arid Regions. A.S. Kolarkar, D.C. Joshi and A. Kar, editors. Scientific Publishers, Jodhpur, 1996, xi + 316 p. ISBN 81-7233-125-8.

This publication is an outcome of a training programme on „Land Resources and their Management for Sustainability in Arid Regions" at the Central Arid zone Research Institute in Jodhpur, India. It has 26 presentations ranging the concept of sustainability to the technologies on sustainable management of land, including soil, water and vegetation, as well as the economic and social aspects and the mechanism for transfer of technologies.
Price: USD 75; Rs. 750.00
Orders to: Scientific Publishers, P.O.Box 91, Jodhpur-342 003, India.

Nitrogen Research and Crop Production. H.L.S. Tandon, editor. Fertilizer Development and Consulta-

tion Organisation, New Delhi, 1996, 173 p. ISBN 81-85116-42-3. Hard cover.

Nitrogen (N) is the most required essential plant nutrient. Each year farmers the world over use 80 m.m.t of fertiliser N. The benefit a farmer can get from this investment depends on how skilfully he has used it on while India consumes about 9.5 m.m.t. his soils and crops based on the technical knowledge generated by fertiliser use research.

This publications presents an up-to-date account of various aspects of N in crop production. It deals with field crops as well as horticultural crops, all major N fertilisers and various aspects of N management which are relevant to present-day farming both under irrigated and rainfed conditions. It also addresses vital aspects such as the effect of N on crop quality, technologies for improving N-use efficiency and environmental aspects.
Price: USD 60; Rs. 300.00
Orders to: Fertiliser Development and Consultation Organisation, 204-204 A Bhanot Corner, 1-2 Pamposh Enclave, New Delhi-110, 048 India. Fax: + 91 11 6435850.

Soil Management in Relation to Land Degradation and Environment. T.D. Biswas and G. Narayanasamy, editors. Bulletin No. 17. Indian Society of Soil Science, New Delhi, 1996.

It is often said that land degradation due to human interference in the ecosystem is the major issue threatening the survival of the human population as well as animals and plants. History is replete with instances of fall of civilizations due largely to degradtion of the once-fertile land resources which supported them. As conscientious citizens, soil scientists around the world are aware of the kind of damages inflicted on this finite resource by the ever-increasing population of human beings, particularly in the developing countries, where nearly two-third of the population is almost totally dependent on land resources to meet its food, fuel, fibre and fodder requirements. Arising out of this concern was a decision of the Indian Society of Soil Science to organize a Special Symposium on „Soil management in relation to land degradation and environment" during its 58th Annual Convention, in Dehradun, October 1993. The key-note address encompasses the various facets of the issue and sets the agenda to tackle the problems at national, provincial and community levels in India. Specific issues are addressed in fourteen topics, such as water and wind erosion, chemical degradation, soil physical constraints, irrigation practices, and soil and water management issues. The last chapter in this publication records the recommendations drawn out of the deliberations of the symposium.
Requests to: Indian Society of Soil Science. Division of Soil Science and Agricultural Chemistry, India Agricultural Research Institute, New Delhi 110 102, India.

A Review of Soil and Water Management Research in Semi-Arid Areas of Southern and Eastern Africa. K. Morse. Natural Resources Institute, Chatham, 1996, iv + 187 p. ISBN 0 85954-462-1. Paperback.

Research on soil and water management has been carried out in many countries since 1945. The results from a number of experiments are contained in project reports, conference proceedings and other forms of 'grey' literature. This review was carried out by NRI researchers visiting key institutions in Botswana, Kenya, South Africa, Tanzania, and Zimbabwe to collect this information to enable researchers to build on the results of previous work rather than duplicate it. After an overview of the subjects discussed, the country reports contain a description of the ecological characteristics, tillage research, and such items as: mulch, fallowing, intercropping, agroforestry, and priorities for future research. It is concluded with an extensive list of references and a bibliography. After the country reports, the chapter with conclusions lists the types of research carried out, their difficulties and strategies needed to improve the situation.
Price: GBP 15.
Orders to: Natural Resources Institute, Head Publications & Pubs, Central Avenue, Chatham Maritime, Chatham, Kent ME4 4TB, UK or CAB International, Wallingford, Oxon OX10 8DE UK.

Chemical data as a basis of geomedical investigations. J. Låg, editor. The Norwegian Academy of Science and Letters, Oslo, 1996, 217 p. ISBN 82-90888-19-8. Hardcover.

The author is chairperson of the ISSS Working Group SG - Soils and Geomedicine and well-known for his publications about this important subject. The present volume is the ninth in a series on geomedicine published by the Norwegian Academy of Science and Letters between 1980 and 1994. It contains 17 contributions of the international symposium in 1995 in Oslo, especially about Nordic research, but also from India and some general articles. Again, an interesting compilation.
Orders to: Prof. J. Låg, Agricultural University of Norway, P.O.Box 5028, N-1432 Aas, Norway.

Wind erosion in the Sahelian Zone of Niger: Processes, Models, and Control Techniques. G. Sterk. Thesis, Wageningen Agricultural University, 1997, 152 p. ISBN 90-5485-672-6.
This thesis describes the study to improve the understanding of wind erosion processes in the Sahel during early rainy season storm. An attempt is made to quantify the effect of erosive storms on changes in soil productivity in pearl millet cropping systems, and to explore the feasibility of wind erosion control measures that fit into the current farming systems. Field tests with flat pearl millet stalks showed that small quantities can significantly reduce sediment transport during moderate storms. When violent winds, preceding thunderstorms result in intense sediment transport, quantification of this wind erosion is difficult, due to a high degree of temporal and spatial variability in windblown particle mass fluxes. Using improved techniques to collect field data in Niger and developed models revealed that a single wind erosion event may result in severe losses of soil particles and nutrients from unprotected fields. The technical measures available to reduce wind erosion do not always fit into the Sahelian farming systems. A survey revealed that mulching with

crop residues is the main control technique applied by farmers, but the quantity of crop residues available for soil conservation is limited, as stover has also other important uses. However, sediment transport may actually be intensified by small quantities of mulch during servere storms, because of increased turbulence around the stalks.
Requests to: Dr. G. Sterk, Department of Irrigation and *Soil and Water Conservation, Nieuwe Kanaal 11, 6709* PA Wageningen, The Netherlands. fax: =31 317 484759; E-mail: Office@sec.tct.wau.nl.

Modelling the Transport and Transformation of *Terrestrial Materials to Freshwater and Coastal* Ecosystems. Workshop Report. IGBP Report 39. International Geosphere-Biosphere Programme (IGBP), Stockholm, 1997, 84 p. ISSN 0284-8015.

This publication is the product of a three-day workshop, held in New Hampshire, USA, *1994*. It reflects the contributions of nearly thirty scientists from the disciplines of hydrology, sedimentology, geomorphology, aquatic ecology, nutrient biogeochemistry, terrestrial and aquatic ecosystem modelling, geographic information systems, and remote sensing technology. The goal of this report is to provide advice to the IGBP on science opportunities in the realm of fluvial transports that could be pursued through an inter-Programme Element collaboration. It also highlights possible cooperation with outside organizations such as IHDP, WCRP, WMO, UNEP, UNESCO, WMO, and IAHS.
Orders to: IGBP Secretariat, Royal Swedish Academy of Sciences, Box 50005, S-104 05 Stockholm, Sweden.

Rammed Earth Structures. A Code of Practice. J. Keable. Intermediate Technology Publications, London, 1996, 114 p. ISBN 1 85339 350 9. Softbound.

Ramming earth has been a method of construction used for centuries in various parts of the world and is commonly known by its French name 'Pisé'. Earth is extracted from the ground and compacted in layers inside specially constructed formwork. Because earth is an abundant and cheap resource, rammed earth buildings are very economical, it has an essential simplicity, and can be seen as a valuable tool in the generation of low-cost housing in developing countries. Earth varies in quality just as bricks or concrete blocks do. So a selecting and testing of soils for building is needed. This documents aims to show that, buildings built in rammed earth can achieve high standards, and will set down definite standards by which rammed earth buildings and building techniques can be judged.
Price: GBP 12.95
Orders to: see below.

Building with Earth. A Handbook (Second Edition). J. Norton. Intermediate Technology Publications, London, 1997, ix + 78 p. ISBN 1 85339 337 1. Softbound

In many countries earth is still mainly associated with poverty, and is not thought of as a high quality and durable material. Today earth building successfully meets both modern and traditional building needs. It has also retained its advantage of responding to the requirements of both the rich and the poor. This handbook provides practical help in choosing whether to, and how to build with earth, for soil selection through to construction and maintenance. The techniques described have a focus on maintaining this balance, and on achieving good quality results with accessible methods.
Price: GBP 9.95
Orders to: see below.

Farmers' Research in Practice. Lessons from the field. L. van Veldhuizen, A. Waters-Bayer et al., editors. Ileia Readings in Sustainable Agriculture. Intermediate Technology Publications, Southampton, 1997, 285 p. *ISBN 1-85339-392-4.* Paperback.

This publication examines farmers' innovation through 17 wide-ranging case studies from around the world. The first part tries to understand how farmers do research. The second part looks at how technical options are added to farmers' experiments. The third deals with ways to improve the experimental design; the last theme is how to sustain the process. In the last chapter, the editors bring together the lessons learnt, and set out the future issues and challenges for governmental and non-governmental organizations involved in agricultural development.
Price: GBP 9.95; USD 18.95.
Orders to: IT Publications Ltd, 103-105 Southampton Row, London, WC1B 4HH, UK; Fax: +44.171. 4362013; or Women, Ink, 777 UN Plaza, New York, NY 10017, USA; Fax: +1.212.6612704.

Farmer strategies for market orientation in ACP agriculture. Proceedings of a CTA/Teagasc/Department of Agriculture Food and Forestry, Republic of Ireland, Seminar. Actes du séminaire: les stratégies paysannes et adaptation aux marchés dans les pays ACP. Dublin, Ireland, 23-27 October 1995.

The technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the African, Caribbean and Pacific (ACP) States and the European Union (EU) Member States. CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilize information in these areas. CTA's programmes are organized around three principal themes: strengthening facilities at ACP information centres, promoting contact and exchange of experience among CTA's partners, and providing information on demand.
Until recently, as at many international centres, the thematic focus of CTA's work was on increasing agricultural production and productivity. Lately, however, priorities have shifted towards improving welfare in rural areas and increasing farmers' wealth. It is widely believed that global trade liberalization and the decentralization of economies will contribute to these issues by providing increased opportunities for marketing food and other agricultural products. These emerging preoccupations and opportunities explain why CTA's work has shifted progressively to include what is described today as the agri-food chain; in other words,

the post-harvest handling, storage, packaging, transport, processing, marketing and trade development aspects. The purpose of this seminar was to identify the principal measures which would help to promote market orientation in agriculture.
One of the key messages from the seminar was that farmers and rural people should attempt to identify and build links with other key players in the food chain. Only in this way can a viable, sustainable and integrated agricultural sector be created. The challenge to national policy makers in these countries is to create a framework with which farmers, and all those in the food chain, can respond to new opportunities and challenges. These proceedings contain the texts of the three lead papers, seven country reports, three transnational reports and reports of the three working groups. An interesting publication, also for soil scientists!
Requests to: Technical Centre for Agricultural and Rural Cooperation (CTA), P.O.Box 380, 6700 AJ Wageningen, The Netherlands. Fax: +31 317 4670067. e-mail: cta@cta.nl.

Holistic approach to sustainable development: interaction of soil science with different disciplines. Proceedings of Bologna Workshop, 15th-19th September 1995. L. Reale, M. Nori, G. Ferrari, editors. European Commission -DGXII, Scientific and International Cooperation with Developing Countries (INCO-RTD) and Regione Emilia-Romagna Technological Development Agency, Bologna, 117 p.

For many years soil scienctists have been questioning their role in a social, political, economic and environmental context which has seen radical changes in the last decade. The question is: how can soil science contribute to an understanding of the recognised complexity of the planet's problems, of which soil is a fundamental component? Soil researchers have to reconsider their work in an inter- and multidisciplinary context, placing soil in its proper place within the ecosystem. A group of researchers has succeeded in evolving a conceptual model of a 'holistic' nature to address this question. Formulated in Rennes in 1992, its application to a geographic region was initially tested at a meeting in Harare (1993), involving the ten countries of the region, and later field tested through research projects.
The Rennes and Harare workshops were the first stages in the development of this fresh conceptual approach to research in soil science. The implementation of the „Holistic Approach" led to the identification of new difficulties. These were addressed at a discussion with experts other than soil scientists, at a meeting in Bologna that had a particularly balanced composition: whereas in previous meetings a key concern was a balanced participation by Developing Counties and European scientists, this time around one third of the participants were women and only half of them were soil experts, the remaining half coming from other disciplines (agronomy, rural development, economics, anthropology, architecture, zoology, etc.) The results of the Bologna meeting, presented in this document, will surely attract the readers' interest due to their importance and relevance for a mutual understanding of each other's interest and perceptions and the acceptance of a common reference framework. The long-term objective is to produce a conceptual framework valid for soil science in the next century. This framework will be a point for discussion at the World Congress of Soil Science in Montpellier in 1998.
For further information and a copy of the proceedings, please contact: Dr. M. Catizzone, EC-DG XII/B/4 (SQDM), Rue de la Loi, 200, B-1049 Brussels, Belgium. Fax: +32-2-296 6252; E-mail: m.catizzone@mhs.cec.be.

Proceedings of the 14th Conference of the Romanian National Society of Soil Science, Tulcea, 1994. Six Volumes, In Romanian, with English abstracts.

These proceedings contain the plenary papers and the oral presentations according to Commissions. One of the volumes refers to soil tillage, and includes papers presented at a symposium organized jointly with the Romanian ISTRO Branch under the title 'Reducing the intensity of soil tillage', as well as those of an ISTRO Branch meeting in Craiova, 1993, entitled „Present problems of soil tillage in Romania.'
Orders to: Dr. A. Canarache, Research Institute for Soil Science and Agrochemistry, B. M_r__ti 61, Bucure_ti 71331, Romania.

Vie Microbienne du Sol et Production Végétale. P. Davet. Institut National de la Recherche Agronomique (INRA), Versailles, 1996, 385 p. ISBN 2-7380-648-5.

Cette publication étudie les relations qui existent entre activité des microorganismes du sol et production végétale. Le livre est divisé en trois parties. L'auteur définit les principales caractéristiques du monde souterrain et décrit les microorganismes qui y vivent ainsi que les contraintes auxquelles l'environnement les soumet. Il montre ensuite comment l'action des microorganismes peut modifier le milieu physico-chimique, les équilibres microbiologiques et le développement des plantes. Dans la troisième partie, l'auteur envisage les moyens d'intervention permettant de limiter la prolifération des microorganismes nuisibles et de tirer le meilleur parti de l'activité des microorganismes auxiliaires.

L'ouvrage s'adresse à un large public. Il permet aux chercheurs de resituer leurs domaines d'étude dans un ensemble plus vaste où leur rapports entre les différentes disciplines apparaissent clairement. Il propose de nombreux exemples pratiques, des illustrations et une bibliographie.
Prix: FRF 290
Commandes à: voir ci-dessous.

Ecophysiology of Tropical Intercropping. H. Sinoquet, P. Cruz, editors. Institut National de la Recherche Agronomique (INRA), Versailles, 1995, 484 p. ISBN 2-7380-0603-5; ISSN 1159-554 X. Softbound.

This publication has been compiled from communications presented at the First International Meeting on the Ecophysiology of Tropical Intercropping, in Guadeloupe.

Intercropping has existed for centuries in all parts of the world, especially the tropics. It consists in growing several crops simultaneously in the same field, or more

generally, in mixing several plant species. Intercropping is one aspect of multiple cropping which involves growing several species in the same plot during one year, This is especially suited to the tropics where there are no temperature constraints to plant growth throughout the year. From a general point of view, intercropping may be regarded as a multiple-purpose and multiple-option agricultural practice. The objective of this book is to propose and illustrate a conceptual framework, based one ecophysiological principles in order to improve the productivity and sustainability of intercropping systems. The fundamental statement is that dynamics of plant growth and development as well as environment properties result from plant-environment interactions. Its scope is therefore to manipulate the variable and resources of microclimate and soil. The plant-environment interactions whose mechanisms are analysed include the effects of canopy structure on resource partitioning, i.e. light, water and nutrients and plant responses to environmental changes due to intercropping. Plant-environment interactions may then be integrated into growth analysis methods and crop simulations models. The last part of the book is devoted to case studies which illustrate the diversity of intercropping in relation to the farmers' constraints, purposes and options.
Price: FRF 195.
Orders to: see below.

Référentiel Pédologique 1995. D. Baize and M.-C. Girard, éditeurs. INRA Éditions, Versailles, 1996, 332 p. ISBN 2-7380-9633-7. Livre de poche.

Cet ouvrage est une nouvelle version plus complète du Référentiel Pédologique initialement édité en 1992. Il reprend tous les chapitres déjà publiés et présente un certain nombre de compléments. Ce volume comporte l'exposé des principes fondateurs du Référentiel présentés en introduction; la définition de 73 „horizons de référence" ; la présentation de 102 „Références"; un glossaire de plus de 230 „Qualificatifs"; et 6 annexes traitant notamment des „formes d'humus", de „l'hydromorphie" des méthodes d'analyses et des équivalences avec l'ancienne Classification des sols de 1967 (dite CPCS).

Le Référentiel Pédologique est une typologie qui fait le point de tout ce que l'on suit, à ce jour, sur les sols des climats relativement tempérés. Établi à partir de concepts clarifiés et modernisés, il propose un langage clair et bien défini. Il suggère une façon d'organiser nos connaissances mais surtout c'est un outil efficace pour transmettre une information la plus riche possible et permettre des comparaisons entre différentes régions. C'est donc plus et mieux qu'une simple classification pédologique. Certains chapitres semblent bien au point, d'autres mériteront certainement des améliorations qui ne peuvent provenir que de l'aide de spécialistes compétents et motivés. En ce qui concerne les sols des domaines arides et intertropicaux, de nombreux chapitres sont encore à rédiger. Pour réussir à compléter convenablement le Référentiel Pédologique, nous avons besoin de la collaboration des pédologues qui ont travaillé sous ces climats. Nous leur lançons un appel, qu'ils soient français ou étrangers, pour qu'ils nous aident à définir et nommer les sols de ces régions, dans le respect de principes désormais bien établis.
Prix: FRF 192.
Commandes à: voir ci-dessous.

La Crise Environnementale. C. Larrère and R. Larrère, editors. Text in French. INRA Editions, Versailles, 1997, 302 p. ISBN 2-7380-0732-5.

The seminal idea of the symposium is that the environmental crisis - officially acknowledged at the Rio Earth Summit - is threefold: it is ethical, scientific, and political. The environmental crisis calls into question our relationship to nature, which entails examining our environmental ethics. It requires scientific expertise and therefore also calls into question our current scientific paradigms. And at last is has led to the development of new „Green" parties and promoted new „policies of nature".

These three aspects are addressed by the contributions to this volume, written by specialists in diverse areas: Philosophers, historians of science, scientists (both natural and social), and lawyers. After calling into question the idea of the crisis itself, the book provides an overview of the normative and ethical aspects of the environmental crisis.

The scientific part of the volume is the largest one. It is focused mainly on ecology, from its rather remote history to its most recent developments. More specific problems - such as biodiversity - are treated, together with a general discussion about what a constructive post-modernity could be. The last part deals with environmental public policies and the way science and politics interact.
Price: FRF 155.
Orders to: INRA Editions, Route de St Cyr, F-78026 Versailles Cedex, France; Fax: +33 1 30 83 34 49; E-mail: dessauvages@versailles.inra.fr.

Functional Appraisal of Agricultural Landscape in Europe (Seminar 1992). EUROMAB Research Programme and INTECOL. L. Ryszkowski and S. Balazy, editors. Research Center for Agricultural and Forest Environment, Polish Academy of Sciences, Poznan, 1994, 307 p. ISBN 83-85274-03-0. Soft bound.

The 28 papers presented at the seminar are published in this present volume. The seminar was divided into three sections: 1) influence of landscape structure on heat and water balances of watersheds as well as on water pollution (13 papers); 2) influence of landscape structure and land-use changes on dispersion and diversity of plant and animal communities, including analysis of the role of ecotones and crop rotation patterns on the redistribution of animals in the landscape (8 papers); 3) land-use changes caused by political and economic trends in Europe (e.g. the agricultural policy of the European Community) and possibilities for nature protection provided by the application of landscape planning tools (7 papers). Results were also presented of studies which facilitate better understanding of the natural basis of the functioning of total agricultural landscapes.
Requests to: L. Ryszkowski, Director Research Center for Agricultural and Forest Environment, Polish Acad-

emy of Sciences, Bukowska 19, 60-809 Poznan, Poland. Fax + 48 61 473 668

Land and Water Development for Agriculture in the Asia-Pacific Region. V.V.N. Murty and K. Takeuchi. Science Publishers, Lebanon, 1996, ix + 152 p. ISBN 1-886106-60-6. Hardcover.

Land and water are two basic resources in the agricultural production system of any region. In improving and sustaining existing agricultural production systems, the first step is to improve the management of these basic resources. The proper management of land and water is a prerequisite for the efficient use of improved seeds, fertilizers, pesticides, agricultural machinery, and other inputs. In the last two decades, the Asia-Pacific region has seen phenomenal changes in agriculture, industries, infrastructure, and overall economic development. From an acutely deficit situation, many of the countries of the region became self-sufficient in food production.

During the last five years, the authors have been associated with several expert consultations, seminars and symposia, organized by various agencies in the region. They put together, in a personal view, some of the papers presented at these meeting, in a modified form to address some of the current problems in land and water development for agriculture faced in the Asia-Pacific region.

Price: USD 65.

Orders to: Science Publishers, 10 Water Street, # 310, Lebanon, NH 03766, USA.

Soil Science. A. Rashid and K.S. Memon. National Book Foundation, Islamabad, 1996, xxviii + 598 p. ISBN 969-37-0170-4. Hardcover.

This textbook of soil sciences introduces the basic concepts needed to build a foundation for the understanding of the subject in detail, with particular reference to the soils of Pakistan, to enable students of agriculture to develop the basis required for intelligent thinking about soils. The need for such a textbook has arisen because textbooks on soil science authored by non-Pakistani scientists do not give information on the soils of Pakistan. Most of the data cited and illustrations given pertain to Pakistani soils. It comprises 17 chapters encompassing all areas of the subject. The book deals with the subject in a logical order, starting with concepts and principles of soil science, to soil genesis, soil properties, soil organisms, soil organic matter, plant nutrients, organic manures, soil classification, soil resources of the country and finally two major soil problems, salt affected soils and soil erosion. The book is intended to be used at the undergraduate level.

Price: PKR 500

Orders to: National Book Foundation, Sales & Distribution Centre, Plot No. 6, Mauve Area, G-8/4, P.O.Box 1169, Islamabad, Pakistan.

Sustainable Forests. Global Challenges and Local Solutions. O.T. Bouman, D.G. Brand, editors. Food Products Press, Binghamton, 1997, xvii + 378 p. ISBN 1-56022-058-9, softcover; 1-56022-055-4, hardback.

This publication contains the papers presented at the international conference held in Saskatoon, in 1995 about social and environmental issues related to forestry and indigenous people. It features, in easy-to-understand terms, different cultural, operational, and political perspectives on sustainable forest management. Some of the topics and issues are: empowerment of indigenous people; social forestry and forest values; social forestry and forest values; community forest management, collaborative restructuring, and partnerships; socioeconomic analysis of sustainable forestry; biodiversity values and measures. It gives also an opportunity to listen in on some of the conversations and debates between conference participants and provides a snapshot of progress towards achieving sustainable forests at the turn of the twentieth century. all papers are also published in the Journal of Sustainable Forestry, vol. 4, nos 3/4 and vol. 5, nos 1/2.

Price: USD 29.95 (softcover); USD 69.95 (hardcover).

Orders to: Food Products Press, The Haworth Press, 10, Alice Street, Binghamton, NY, 13904-158, 0 USA. E-mail: getinfo@haworth.com.

Nachhaltige Land- und Forstwirtschaft. Voraussetzungen, Möglichkeiten, Maßnahmen. G. Linckh, H. Sprich, H. Flaig und H. Mohr. Springer-Verlag Berlin, Heidelberg, 1997, 351 S. ISBN 3-540-61090-1. Gebunden.

Dieser Band bildet die Synthese aus den 27 ausführlichen Fachgutachten aus unterschiedlicher Disziplinen, Workshops und eigenen Recherchen der Autoren zum gesamtkomplex nachhaltige Land- und Forstwirtschaft. Im Vordergrund stehen folgende Fragen: Welche politischen Voraussetzungen muß die Land- und Forstwirtschaft erfüllen, um nachhaltig zu sein? Welche umweltgerechten Produktionsverfahren bieten sich an, um die Ressourcen zu nützen und zu schützen? Welche Rolle spielt die Agrarstruktur? Was können technologische Entwicklungen und neue Märkte beitragen? Die Gutachten sind unter dem Titel Nachhaltige Land- und Forstwirtschaft Expertisen bereits erschienen. (Springer-Verlag, 1996, xvi + 850 S., ISBN 3-540-610-X; DEM 128).

Preis: DEM 48, GBP 21, USD 32.25

Bestellungen an: Springer-Verlag, Postfach 311340, D-10643 Berlin, Germany, or; Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, USA.

State of the World. 1997. A Worldwatch Institute Report on Progress Toward a Sustainable Society. L.R. Brown, C. Flavin, H.F. French et al. W.W. Norton & Company, New York, London 1997, xiii + 229 p. ISBN 0-393-31569-X. Paperback.

In this fourteenth edition of State of the World a look at our progress toward sustainable development since the 1992 Rio Earth Summit is given. The authors find that some gains have been made in sustainability planning and in implementing the international convention to protect the stratospheric ozone layer, but that on balance the planet's broad trends of environmental and resource degradation persist.

They describe the contracting base of grainland and climate change's threat to disrupt the ecological foundations of our global economy. They cite why perva-

sive resource loss is at the root of the „new word disorder." If these trends continue unabated, the pressure on the earth's natural limits will undermine food security - now already evident in the decline of marine fisheries and the shrinking grain harvest per person. Indeed, food scarcity may be the first major economic manifestation of our environmentally unsustainable global economy. Also available is the *1997 Worldwatch Database Disk.*
Orders to: Worldwatch Institute, 1776 Massachusetts Ave., N.W., Washington, DC 20036, USA. E-mail: wwpub@worldwatch.org.

Agricultural Input and Environment. Sp. Palaniappan, editor. Scientific Publishers, Jodhpur, 1995, xvi + 445 p. ISBN 81-7233-122-3. Hardcover.

About 60 percent of the agricultural land of India, currently under cultivation, suffers from indiscriminate use of chemical inputs and water. Irrigation without adequate drainage may result in soils becoming saline or alkaline. Excessive use of synthetic pesticides would cause adverse effects on biological balance and lead to the presence of toxic residues in food, soil and water. It is imperative to conserve and utilize the valuable production resources like land, water and genetic diversity and to efficiently manage the agricultural inputs for sustaining high crop productivity on a long term basis with minimum damage to the ecological and social-economic environment. In this publication an attempt has been made to review and evaluate information on these aspects and to discuss the common problems of environmental degradation and human survival in the future.
Price: USD 60.00; Rs 600.00.
Orders to: see below.

Advancements in Micronutrient Research. A. Hemantaranjan, editor. Scientific Publishers, Jodhpur, 1996, xiv + 466 p. ISBN 81-7233-129-0. Hardbound.

This publication is a summary of important new findings on trace elements nutrition and interactions and of basic and applied needs in microelement nutrition. It provides a useful perspective of important progress and fruitful research opportunities of special interest is the information about the role of some less known trace elements as titanium, gallium and zirconium and the determination of selenium and beryllium.
Price: USD 85; Rs. 850.00.
Orders to: see below.

Land Resources and their Management for Sustainability in Arid Regions. A.S. Kolarkar, D.C. Joshi and A. Kar, editors. Scientific Publishers, Jodhpur, 1996, xi + 316 p. ISBN 81-7233-125-8.

This publication is an outcome of a training programme on „Land Resources and their Management for Sustainability in Arid Regions" at the Central Arid zone Research Institute in Jodhpur, India. It has 26 presentations ranging the concept of sustainability to the technologies on sustainable management of land, including soil, water and vegetation, as well as the economic and social aspects and the mechanism for transfer of technologies.
Price: USD 75; Rs. 750.00
Orders to: Scientific Publishers, P.O.Box 91, Jodhpur-342 003, India.

Nitrogen Research and Crop Production. H.L.S. Tandon, editor. Fertilizer Development and Consultation Organisation, New Delhi, 1996, 173 p. ISBN 81-85116-42-3. Hard cover.

Nitrogen (N) is the most required essential plant nutrient. Each year farmers the world over use 80 m.m.t of fertiliser N. The benefit a farmer can get from this investment depends on how skilfully he has used it on while India consumes about 9.5 m.m.t. his soils and crops based on the technical knowledge generated by fertiliser use research.

This publications presents an up-to-date account of various aspects of N in crop production. It deals with field crops as well as horticultural crops, all major N fertilisers and various aspects of N management which are relevant to present-day farming both under irrigated and rainfed conditions. It also addresses vital aspects such as the effect of N on crop quality, technologies for improving N-use efficiency and environmental aspects.
Price: USD 60; Rs. 300.00
Orders to: Fertiliser Development and Consultation Organisation, 204-204 A Bhanot Corner, 1-2 Pamposh Enclave, New Delhi-110, 048 India. Fax: + 91 11 6435850.

***Soil Management in Relation to Land Degradation* and Environment.** T.D. Biswas and G. Narayanasamy, editors. Bulletin No. 17. Indian Society of Soil Science, New Delhi, 1996.

It is often said that land degradation due to human interference in the ecosystem is the major issue threatening the survival of the human population as well as animals and plants. History is replete with instances of fall of civilizations due largely to degradtion of the once-fertile land resources which supported them. As conscientious citizens, soil scientists around the world are aware of the kind of damages inflicted on this finite resource by the ever-increasing population of human beings, particularly in the developing countries, where nearly two-third of the population is almost totally dependent on land resources to meet its food, fuel, fibre and fodder requirements. Arising out of this concern was a decision of the Indian Society of Soil Science to organize a Special Symposium on „Soil management in relation to land degradation and environment" during its 58th Annual Convention, in Dehradun, October 1993. The key-note address encompasses the various facets of the issue and sets the agenda to tackle the problems at national, provincial and community levels in India. Specific issues are addressed in fourteen topics, such as water and wind erosion, chemical degradation, soil physical constraints, irrigation practices, and soil and water management issues. The last chapter in this publication records the recommendations drawn out of the deliberations of the symposium.
Requests to: Indian Society of Soil Science. Division of Soil Science and Agricultural Chemistry, India Agricultural Research Institute, New Delhi 110 102, India.

A Review of Soil and Water Management Research in Semi-Arid Areas of Southern and Eastern Africa. K. Morse. Natural Resources Institute, Chatham, 1996, iv + 187 p. ISBN 0 85954-462-1. Paperback.

Research on soil and water management has been carried out in many countries since 1945. The results from a number of experiments are contained in project reports, conference proceedings and other forms of 'grey' literature. This review was carried out by NRI researchers visiting key institutions in Botswana, Kenya, South Africa, Tanzania, and Zimbabwe to collect this information to enable researchers to build on the results of previous work rather than duplicate it. After an overview of the subjects discussed, the country reports contain a description of the ecological characteristics, tillage research, and such items as: mulch, fallowing, intercropping, agroforestry, and priorities for future research. It is concluded with an extensive list of references and a bibliography. After the country reports, the chapter with conclusions lists the types of research carried out, their difficulties and strategies needed to improve the situation.

Price: GBP 15.

Orders to: Natural Resources Institute, Head Publications & Pubs, Central Avenue, Chatham Maritime, Chatham, Kent ME4 4TB, UK or CAB International, Wallingford, Oxon OX10 8DE UK.

Chemical data as a basis of geomedical investigations. J. Låg, editor. The Norwegian Academy of Science and Letters, Oslo, 1996, 217 p. ISBN 82-90888-19-8. Hardcover.

The author is chairperson of the ISSS Working Group SG - Soils and Geomedicine and well-known for his publications about this important subject. The present volume is the ninth in a series on geomedicine published by the Norwegian Academy of Science and Letters between 1980 and 1994. It contains 17 contributions of the international symposium in 1995 in Oslo, especially about Nordic research, but also from India and some general articles. Again, an interesting compilation.

Orders to: Prof. J. Låg, Agricultural University of Norway, P.O.Box 5028, N-1432 Aas, Norway.

Wind erosion in the Sahelian Zone of Niger: Processes, Models, and Control Techniques. G. Sterk. Thesis, Wageningen Agricultural University, 1997, 152 p. ISBN 90-5485-672-6.

This thesis describes the study to improve the understanding of wind erosion processes in the Sahel during early rainy season storm. An attempt is made to quantify the effect of erosive storms on changes in soil productivity in pearl millet cropping systems, and to explore the feasibility of wind erosion control measures that fit into the current farming systems. Field tests with flat pearl millet stalks showed that small quantities can significantly reduce sediment transport during moderate storms. When violent winds, preceding thunderstorms result in intense sediment transport, quantification of this wind erosion is difficult, due to a high degree of temporal and spatial variability in wind-blown particle mass fluxes. Using improved techniques to collect field data in Niger and developed models revealed that a single wind erosion event may result in severe losses of soil particles and nutrients from unprotected fields. The technical measures available to reduce wind erosion do not always fit into the Sahelian farming systems. A survey revealed that mulching with crop residues is the main control technique applied by farmers, but the quantity of crop residues available for soil conservation is limited, as stover has also other important uses. However, sediment transport may actually be intensified by small quantities of mulch during servere storms, because of increased turbulence around the stalks.

Requests to: Dr. G. Sterk, Department of Irrigation and Soil and Water Conservation, Nieuwe Kanaal 11, 6709 PA Wageningen, The Netherlands. fax: =31 317 484759; E-mail: Office@sec.tct.wau.nl.

Modelling the Transport and Transformation of Terrestrial Materials to Freshwater and Coastal Ecosystems. Workshop Report. IGBP Report 39. International Geosphere-Biosphere Programme (IGBP), Stockholm, 1997, 84 p. ISSN 0284-8015.

This publication is the product of a three-day workshop, held in New Hampshire, USA, 1994. It reflects the contributions of nearly thirty scientists from the disciplines of hydrology, sedimentology, geomorphology, aquatic ecology, nutrient biogeochemistry, terrestrial and aquatic ecosystem modelling, geographic information systems, and remote sensing technology. The goal of this report is to provide advice to the IGBP on science opportunities in the realm of fluvial transports that could be pursued through an inter-Programme Element collaboration. It also highlights possible cooperation with outside organizations such as IHDP, WCRP, WMO, UNEP, UNESCO, WMO, and IAHS.

Orders to: IGBP Secretariat, Royal Swedish Academy of Sciences, Box 50005, S-104 05 Stockholm, Sweden.

Rammed Earth Structures. A Code of Practice. J. Keable. Intermediate Technology Publications, London, 1996, 114 p. ISBN 1 85339 350 9. Softbound.

Ramming earth has been a method of construction used for centuries in various parts of the world and is commonly known by its French name 'Pisé'. Earth is extracted from the ground and compacted in layers inside specially constructed formwork. Because earth is an abundant and cheap resource, rammed earth buildings are very economical, it has an essential simplicity, and can be seen as a valuable tool in the generation of low-cost housing in developing countries. Earth varies in quality just as bricks or concrete blocks do. So a selecting and testing of soils for building is needed. This documents aims to show that, buildings built in rammed earth can achieve high standards, and will set down definite standards by which rammed earth buildings and building techniques can be judged.

Price: GBP 12.95

Orders to: see below.

Building with Earth. A Handbook (Second Edition). J. Norton. Intermediate Technology Publications, London, 1997, ix + 78 p. ISBN 1 85339 337 1. Softbound

In many countries earth is still mainly associated with poverty, and is not thought of as a high quality and durable material. Today earth building successfully meets both modern and traditional building needs. It has also retained its advantage of responding to the requirements of both the rich and the poor. This handbook provides practical help in choosing whether to, and how to build with earth, for soil selection through to construction and maintenance. The techniques described have a focus on maintaining this balance, and on achieving good quality results with accessible methods.
Price: GBP 9.95
Orders to: see below.

Farmers' Research in Practice. Lessons from the field. L. van Veldhuizen, A. Waters-Bayer et al., editors. Ileia Readings in Sustainable Agriculture. Intermediate Technology Publications, Southampton, 1997, 285 p. ISBN 1-85339-392-4. Paperback.

This publication examines farmers' innovation through 17 wide-ranging case studies from around the world. The first part tries to understand how farmers do research. The second part looks at how technical options are added to farmers' experiments. The third deals with ways to improve the experimental design; the last theme is how to sustain the process. In the last chapter, the editors bring together the lessons learnt, and set out the future issues and challenges for governmental and non-governmental organizations involved in agricultural development.
Price: GBP 9.95; USD 18.95.
Orders to: IT Publications Ltd, 103-105 Southampton Row, London, WC1B 4HH, UK; Fax: +44.171. 4362013; or Women, Ink, 777 UN Plaza, New York, NY 10017, USA; Fax: +1.212.6612704.

Forest Soils of Tasmania. A handbook for identification and Management. J.C. Grant, M.D. Laffan, R.B. Hill and W. A. Neilsen. Forestry Tasmania, 1995, 189 p. ISBN 0 7246 3558 0. Paperback.

This handbook targets forest managers and is designed to further their understanding of soils enabling them to recognise the various forest soils and their management requirements. Commonly occurring Tasmanian forest soils are described in terms of site and profile characteristics. The soils can be readily identified in the field using a simple key based on geology. Each soil is interpreted for potential degradation hazard, forest productivity and recommendations for management. It is well-illustrated with colour photographs of forested lands and soils.
Price: AUD 35.00
Orders to: Forestry Tasmania, G.P.O. Box 207 B, Hobart, 7001, Tasmania, Australia.

Glossary of Soil Science Terms 1996. Soil Science Society of America, Madison, 1997. 138 p. ISBN 0-89118-827-4. Paperback.

This new glossary replaces the well-known and widely used July 1987 edition and includes major revisions and additions. Work by a committee chaired by C.B. Roth resulted in a revision of approximately two-thirds of the 1514 terms in the 1987 edition. Added were 420 new terms. The text is also available on Internet http://www.soils.org/sssagloss.
Price: USD 5.
Orders to: see below.

Exploring the Role of Diversity in Sustainable Agriculture. R. Olson, C. Francis and S. Kaffka, editors. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Madison, 1995, 249 p. ISBN 0-89118-128-8. Paperback.

This volume is the result of a symposium, held at the American Society of Agronomy Annual Meetings in Seattle, 1994. It is one of the first attempts to summarize existing knowledge on the subject. It was to consider how knowledge of diversity could be applied to the development of more viable and profitable agricultural systems. Given that diversity has been broadly defined to include biological, economic, and social components of agricultural systems, some authors' recommendations for the use or preservation of diversity have inevitably included political and social changes.
Price: USD 24.
Orders to: see below.

Data Reliability and Risk Assessment in Soil Interpretation. W.D. Nettleton, A.G. Hornsby, R.B. Brown and T.L. Coleman, editors. SSSA Special Publication 47, American Society of Agronomy, Crop Science Society of America, and Soil Science of America, Madison, 1996, xvii + 164 p. ISBN 0-89118-823-1. Softcover.

Much soil information has been recorded and stored in soil survey reports and databases. As references to soil survey information are increasing in policy, regulatory, and societal decision-making processes, the reliability of the information or data in the soil survey reports are increasingly being scrutinized. The early information was descriptive and qualitative. Today, more quantitative soil survey information is needed by decisionmakers for numerous land use issues. This publication offers assessments of the state-of-the-art status of various soil databases and analyses of the risks associated with using the available data, employing a number of risk assessment techniques. It should help to assess the validity and usefulness of existing databases and to define future research needs.
Price: USD 37.40 (includes foreign postage)
Orders to: see below.

Applications of GIS to the Modeling of Non-Point Source Pollutants in the Vadoze Zone. SSSA Special Publication No. 48. D.L. Corwin & K. Loague, editors. Soil Science Society of America, Madison, 1996, 319 p. ISBN 0-89118-824-X. Softcover.

The computer-based GIS (geographic information system) has been shown to be an cost effective means to collate remotely sensed soil and landscape data and organize them in a meaningful way at the landscape scale. When GIS is combined with models applicable to simulate processes at landscape scale, or to produce

integrative databases, characterization of interactive factors within a whole watershed can now be possible. This publication contains the papers presented at a Bouyoucos Conference, 1995, addressing one of the major issues challenging soil science today - how to quantify the distribution and magnitude of non-point source pollutants in terrestrial ecosystems across a landscape and to develop appropriate methodology for cleaning up the pollutants.
Price: USD 47
Orders to: see below.

Stubble Over the Soil. The Vital Role of Plant residue in Soil Management to Improve Soil Quality. C.C. Lamarca. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Madison, 1996, xxii + 245 p. ISBN 0-89118-131-8. Soft cover.
The author is an experienced farmer in Chile. He farmed with traditional methods, using the mouldboard plow, until soil erosion became a serious problem. He eliminated the use of the plow and planted his entire farm to permanent grass and trees. After his study he implemented his new philosophy through no-tillage; planting row crops, forages and trees; improving habitat for wildlife; and improving the quality of the soil while at the same time providing economical returns in an environmentally sound manner. This publication is the negation of the plow and tools that cultivate the soil, the irrational burning of crop residue, and the deforestation of native vegetation on fragile soils. Ploughing causes erosion, which destroys the surface organic layer, resulting in lost fertility and capacity to absorb water. No-till is a new concept in the use and management of soils. It allows for sowing any seed without ploughing or disturbing the soil surface. No-till is the prolongation of the natural activities that produced forests, shrubs and pastures. The stubble and roots that remain on and in the soil after harvest are active participants in the genetic processes of the soil and soil improvement. The greatest benefit of this system is that is makes use of crop residue to improve fertility and conservation of the soil.
Price: USD 40.
Orders to: see below.

Precision Agriculture. Proceedings of the 3rd International Conference. June 23-26, 1996, Minneapolis, Minnesota. P.C. Robert, R.H. Rust and W.E. Larson, editors. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, 1996, xxi + 1222 p. ISBN 0-89118-132-6. Softcover.

Field applications of precision farming have increased over the past few years. It requires the latest in management prescriptions, machinery, sensors, and software. Precision agriculture will change agricultural management by bringing new technology and information to the farm. This extensive publication contains the following chapters. 1. Natural resources variability (22 papers); 2. Managing variability (42 papers); 3. Engineering technology (42 papers); 4. Profitability (13 papers); 5. Environment (8 papers); 6. Technology (11 papers). Of interest are also the recommendations from the 15 working groups, dealing with research development needs in precision agriculture. In addition to the conference proceedings this publication contains also the nine papers from the pre-conference workshop on „Precision Nitrogen Management-Latest Research Results."
Price: USD 44.20 (includes postage outside USA)
Orders to: see below

Methods for Assessing Soil Quality. J.W. Doran and A.J. Jones, editors. Soil Science Society of America, Special Publication Number 49, 1996, xix + 410 p. ISBN 0-89118-826-6. Paperback.

Soil quality describes the soil's ability to produce food and fiber and to function as an important interface with the environment. It also contributes to maintaining and enhancing air and water quality. This publication bridges our understanding of the theory, methods, and applications of soil quality. The first chapters focus on the linkages of soil quality to the health of plants, animals, and humans, and farmerbased approaches to assessing soil quality. The concluding chapters highlight preliminary case studies that discern land use and management impacts on soil quality; develop and synthesize possible soil quality indices for sustainability; and demonstrate educational tools and techniques to increase knowledge and understanding about soil quality and its role in the biosphere.
Price: USD 39.60 (includes foreign postage)
Orders to: see below.

The State of Site-Specific Management for Agriculture. F.J. Pierce and E.J. Sadler, editors. American Society of Agronomy, Madison, 1997, xii + 430 p. ISBN 0-89118-134-2. Soft bound.

This publication contains the invited chapters and the proceedings of a Symposium in St. Louis, Missouri, 31 October 1995.
Site-specific management (SSM) for agriculture is the management of soils and crops according to localized conditions within a field. Site-specific management is intuitively appealing because it offers a means to improve crop performance and environmental quality in production agriculture. It depends on how much soil and pest conditions vary within a given field, how well the conditions at any location are known, the site-specificity of current input recommendations, and the accuracy of application equipment. It also depends on how well agriculture is prepared to accept and adapts SSM technology into their crop production systems and build site-specificity into the products and services that support production systems and build site-specificity into the products and services that support production agriculture. This book addresses the myriad of issues related to the SSM in an attempt to document its current state.
Price: USD 38.00
Orders to: ASA, CSSA, SSSA Headquarters Office; Attn: Book Order Department; 677 South Segoe Road; Madison, Wisconsin 53711-1086 USA. Fax: +1 608-273-2021; E-mail: books@agronomy.org.

New IBSRAM Publications

Soil Data for Sustainable Land Use: A Training Workshop for Asia. IBSRAM Proceedings no. 15. N. Kanchanakool and J.K. Syers, editors. International Board for Soil Research and Management (IBSRAM), Bangkok, 1996, v + 284 p.

A common feature of Asian agriculture is the accelerating rate of land degradation, resulting from pressures on land by the ever-increasing population. There are many efforts being made to retard this process in different countries, with varying degrees of success. A major limitation is the lack of basic information on land resources in many countries. The methodology for soil analysis is often different and the degree of quality control is invariably poor. By the lack of calibration of laboratory data, the interpretation of soil analysis against the results of field experiments is limited. There is little information on soil distribution and soil properties at the farm level and the soil-survey procedures vary between countries. This is a obstacle to transferring technology from experimental sites to farmers and for creating the awareness for the conservation of natural resources. There is a need to standardize analytical methods to develop quality assurance procedures for laboratory analyses and to improve the interpretation of laboratory data and the utilization of results. Scientists must be able of recognize different types of soils in the field.

In recognition of this need this training workshop on Soil Data for Sustainable Land Use was organized in May 1995. The course was divided into three parts: Lectures presented by experts from Thailand and abroad; fieldwork where the soil data obtained from laboratories were be compared with field conditions, interpreted, and analyzed for soil improvement with regard to chemical and physical properties, and the last part was devoted to the Quality Assurance Programme for soil analysis. Twenty-five papers from the three technical sessions are included in the proceedings.

The Management of Acid Soils in Southeast Asia. (IBSRAM/ASIALAND). Network Document no. 18. R.J.K. Myers and C.R. Elliott, editors. International Board for Soil Research and Management (IBSRAM), Bangkok, 1996, 186 p. ISBN 974-89403-0-6. Paperback.

This publication comes from the fifth annual review meeting of the network held in Vietnam, 1995. The main business was to receive and discuss reports from the network sites which are located in 5 countries in the region. The report has eleven scientific articles and listings of related publications about the results of trials at the network sites. Especially different fertilizer applications, organic matter behaviour and soil management techniques are being discussed.

Sustainable Land Management in the South Pacific. Network Document no. 19. D. Howlett, editor. International Board for Soil Research and Management (IBSRAM), Bangkok, 1996, 364 p. ISBN 974-89770-0-5. Paperback.

This publication is the result of the third annual meeting and workshop of the PACIFIC network of IBSRAM in Papua New Guinea, 1995. The theme was sustainable land management in the South Pacific. Most of the country reports concern progress made over two years following the previous annual review meeting in 1993. There were five main objectives: (i) Present country report of national projects from the PACIFICLAND network; (ii) Identify major issues surrounding sustainable land management in the South Pacific; (iii) Develop potential indicators of sustainable land management in the South Pacific; (iv) Extend participants' skills in participatory rural appraisal (PRA) and its use in agricultural research; (v) Finalize proposals for the second phase of PACIFICLAND.

The Management of Sloping lands in Asia (IBSRAM/ASIALAND). Network Document no. 20. A. Saj-japongse, editor. International Board for Soil Research and Management (IBSRAM), Bangkok, 1996, i + 348 p. ISBN 974-89848-9-3. Paperback.

The ASIALAND management of sloping lands network of IBSRAM was established in late 1988 to assist its member countries in conserving the soil resources on sloping lands to achieve sustainable agriculture. To realise this goal, conservation farming must be adopted and practised by the farmers who cultivate the sloping lands.

The network is now in its third phase and on-farm research is one of the main activities. The on-farm research is implemented by farmer cooperators and facilitated by researchers. In addition to the on-farm research, some of the research sites established in Phases 1 and 2 are maintained to gather information on data on a long-term basis. Phase 3 of the network started in 1995 and the first annual meeting was held in Thailand in October 1995.

This publication contains material and reports presented by invited scientists and the network cooperators from different countries. It is divided into three sections: 1. Thailand's experience; 2. Network reports and 3. Case studies, which report in-depth studies on the economic returns at the sites in the Philippines and Thailand.

The Management of Sloping Lands in Asia (IBSRAM/ASIALAND). Network Document no. 22. Report of the eighth annual review meeting, Vientiane, Laos, 1996. Adisag Sajjapongse, editor. International Board for Soil Research and Management (IBSRAM), Bangkok, 1997, iii + 284 p. ISBN 974-7722-15-1. Paperback.

This publication contains the proceedings of the Vientiane meeting. It has three sections: 1. the Laotian experience, which reports on agricultural development, farming systems, land use, and production constraints in Laos (4 papers); 2. Country reports, which describe the results obtained from the on-farm research and the long-term sites from different network-participating countries (9 papers); and 3. the evolving research paradigm, in which the move from consultative to interactive participation is discussed (1 paper). This last contribution lists a series of key questions which still have to be addressed.

Orders to: R.N. Leslie, IBSRAM, PO Box 9-109, Jatujak, Bangkok 10900. Thailand. Fax: +66 2561 1230, E-mail: oibsram@nontri.ku.ac.th *or* ibsram@cgnet.com

Environmental Behaviour of Crop Protection Chemicals. Proceedings of a Symposium held in Vienna, 1-5 July 1996. Jointly organized by IAEA and FAO. International Atomic Energy Agency, Vienna, 1997, 518 p. ISBN 92-0-104596-4. Softcover.

This symposium was organized to examen the circumstances under which extrapolation from one environment to another is valid on the basis of data generated under comparable conditions. It also considers ways in which relatively simple methods can be used to verify the field applicability of data obtained under sophisticated experimental conditions. They are generated using radioisotopes and other nuclear or related methods. Developing countries often have to rely on data generated elsewhere in order to assess the acceptability of a compound.
Price: ATS 1520.
Orders to: IAEA, P.O.Box 100, A-1400 Vienna, Austria. For Canada and the USA: Bernan Associates, 4611-F Assembly Drive, Lanham, MD 20706-4391, USA.

Erosion and Sediment Yield: Global and Regional Perspectives. D.E. Walling & B.W. Webb, editors. IAHS Publication no. 236. International Association of Hydrological Sciences, Oxfordshire, 1996, x + 586 p. ISBN 0-947571-89-2. Softbound.

These 61 papers were presented at the International Symposium on Erosion and Sediment Yield: Global and Regional perspectives, held at Exeter, in 1996. They are presented under the following sections: 1. Global patterns (3 papers); 2. Regional and national patterns (23 papers); 3. Soil erosion perspectives (4 papers); 4. Sediment dynamics in contrasting environments (12 papers); 5. Trends in sediment yield (7 papers); 6. Sediment problems and sediment management (12 papers). The symposium was a contribution to Projects 2.1 and 2.2 of UNESCO's International Hydrological Programme (IHP-V) which focus on vegetation, land use and erosion processes and on sedimentation processes in reservoirs and deltas. This IAHS publication and several other ones are certainly of interest to soil scientists engaged in different aspects of erosion.
Price: GBP 55.
Orders to: see below

Human Impact on Erosion and Sedimentation. D.E. Walling & J.-L. Probst. IAHS Publication No. 245. International Association of Hydrological Sciences, Wallingford, 1997, viii + 311 p. ISBN 1-901502-30-9. Paperback.

These 33 papers were presented at the international symposium on „Human Impact on Erosion and Sedimentation" in 1997. It brings together case studies and findings from countries representative of many different environments. The first eight papers focus on human impact on erosion rates and provide examples of the potential magnitude of the changes associated with different human activities in a range of environments and directing attention to the development of procedures for predicting the magnitude of the changes involved. Eleven papers consider the downstream effects of accelerated erosion on sediment transport and sediment yield and these document a range of examples of the impact of human activity and land development in different parts of the world. Six papers explore problems and approaches associated with the development of sediment management and control strategies. The last eight papers deal with reservoir sediment and related problems and with the impact of river regulation on sediment loads and channel morphology.
Price: GBP 42.
Orders to: IAHS Press, Institute of Hydrology, Wallingford, Oxfordshire OX10 8BB, UK; Fax: +44 1491 692448/692424; E-mail: jilly@iahs.demon.co.uk.

Matching Trees and Sites. Proceedings of an International Workshop held in Bangkok, Thailand 27-30 March 1995. T.H. Booth, editor. Australian Centre for International Agricultural Research, Proceedings No. 63, 1996, 126 p. ISBN 1-86320-169-6. Paperback.

This publication presents the results, mainly from ACIAR Project 9127 (Predicting tree growth for general regions and specific sites in China, Thailand and Australia) and from the ITP (Improving Tree Productivity for Environmental Conservation in Southeast Asia) and NMFP (National Masterplan for Forest Plantations in Indonesia) projects which are highly complementary to the 9127 work. Project 9127 has four research objectives: 1. to develop climatic mapping programs for China and Thailand; 2. to develop simulation mapping programs for China, Thailand and Australia; 3. to develop descriptions of the environmental requirements of at least one provenance from each of six Australian tree species; and 4. to improve an existing climatic mapping program for Southeast and South Asia.
Price: AUD 50 + postage and handling- AUD 8.00 Asia/Oceania (first book); AUD 12.00 Europe/North America (first book).
Orders to: Bibliotec, Anutech Pty Ltd, GPO 4, Canberra 2601, Australia; Fax: +61 2 6217 0501; E-mail: Lynch@aciar.gov.au.

International Symposium and Workshop Combating Desertification: Connecting Science with Community Action. Abstracts. 12-16 May 1997, Tucson, Arizona, USA. K.McGinty, editor. United States Department of the Interior, Bureau of Land Management and International Arid Lands Consortium, 1997. 84 p.

This publication contains the abstracts of the 18 oral presentations and 140 poster presentations in the following fields: Stressors, indicators and processes related to land degradation operating at local to global scales; Effective techniques for monitoring and assessing desertification; Lessons learned at the community level in combating desertification and mitigating the effects of drought; Socioeconomic/human dimensions of desertification and its control; Linking science to community action through knowledge sharing; Region-

al aspects of desertification. The geographical coverage is mostly Africa and some Latin America, China, Australia, Europe, Indian subcontinent and U.S.
Request to: United States Department of the Interior, Bureau of Land Management, Arizona State Office, 3707 N. 7th Street, P.O.Box 16563, Phoenix, Arizona 85011-6563, U.S.A.

Global Environment Outlook. Prepared by UNEP GEO Team. United Nations Environment Programme and Oxford University Press, 1997, vii + 264 p. ISBN 0-19-521351-1; ISSN 0-1366-8080.

This publication is the first report in the Global Environment Outlook (GEO) Series. The Global Environment Outlook (GEO) Project examines crucial questions such as these through a participatory environmental assessment process that incorporates regional view and perceptions and builds consensus on priority issues and actions. The GEO process also provides an effective mechanism for international environmental policy setting, engaging experts and decisionmakers from industrial and developing worlds and from international agencies as equal partners. The principles focus of this volume is a review of major environmental issues from a regional perspective, and an initial evaluation of policy responses that address regional priority concerns. It takes a glimpse at a possible future using quantitative modelling techniques. Soil Scientists have a role to play in these important issues!
Orders to: Oxford University Press, Walton Street, Oxford OX2 6DP, UK.

Gestion Durable des Sols de la Mangrove au Sénégal en Période de Sécheresse. Dynamique de l'eau et géochimie des sels d'un bassin versant aménagé. J.-P. Montoroi. ORSTOM Éditions. Collections Études et Thèses, Paris, 1996, 263 p. ISBN 2-7099-1309-7.

Cet ouvrage a fait l'objet d'une thèse en Sciences de la Terre en trois partie: 1. Le milieu physique et sa transformation récente; 2. La dynamique de l'eau et des sels à l'échelle du bassin versant et du bas-fond; 3. La réhabilitation des sols sulfatés acides salés. Pour lutter contre les effets néfastes d'une sécheresse prolongée, notamment contre la salinité élevée des eaux de surface, de nombreuses petites vallées de Basse-Casamance ont été aménagées par un barrage anti-sel qui a pour fonction la collecte des eaux de ruissellement afin de les utiliser pour dessaler les sols sulfaté acides situés en amont. De la bonne utilisation de la ressource eau dépend l'avenir de la riziculture pratiquée dans ces vallées. Le livre explique les mécanismes mis en jeu dans la mobilisation des éléments solubles, de quantifier l'importance de ces mouvements et d'estimer les conséquences agronomiques.
Prix: FRF 130.
Commandes à: ORSTOM Éditions, Centre d'Ile de France, 32, Avenue Henri Varagnat, 93143 BONDY Cedex, France. E-mail Monteroi: montoroi@bondy.orstom.fr.

Togo. État de dégradation des terres résultant des activités humaines. Carte des indices de dégradation, échelle 1:500.000. Notice explicative de la carte des indices de dégradation. Human-induced land degradation status. Map of degradation index rating, scale 1:500,000. Explanatory notes on the land degradation index. P. Brabant, S. Darracq, K. Égué, V. Simonneaux. ORSTOM Éditions, Paris, 1996, 55 p. ISBN 2-7099-1348-8.

Soil degradation has been recognized as a phenomenon for many years now, and soil conservation measures taken accordingly, both nationally and worldwide. It is the tropical countries that are in greatest danger in this regard. Togo is one of very few African countries to have a recent land degradation map - a countrywide inventory of human-induced land degradation. The map shows the location, extent and degree of land degradation as reflected in a single index, the degradation index. The map is accompanieD by simple, didactically written explanatory notes. This documents explains how, starting from the baseline documents and extensive field work, the authors established the types and degrees of land degradation for Togo as a whole and for each of its administrative Regions. It also proposes a new nomenclature of degradation types. the approach used for Togo is applicable in other countries in the intertropical zone, especially in West and Central Africa. map and report have an English and French text.
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Orders to: ORSTOM Éditions, 209-213, rue La Fayette, 75480 Paris cedex 10, France;
Fax: + 33 1 48473088.

Environnement Humain de l'Erosion. Réseau Erosion. Bulletin 15, 1995. ORSTOM, CTA, Montpellier, 1995, 612 p.

Dans cette publication on rapport sur toutes les communications qui on été présentées aux XIèmes Journées du Réseau Erosion. Il y a trois thèmes: Relations entre structures agraires, démographie et érosion; Thème 2: Stratégies de lutte antiérosive, aspects économiques et rôles des divers acteurs; Thème 3: Processus d'érosion et gestion de l'eau, de la parcelle au bassin-versant; Bibliographie.

Erosion en Montagnes Semi-arides et Méditerranéennes. Réseau Erosion. Bulletin 17, 1997. ORSTOM, CTA, Montpellier, 1997, 534 p.

Dans ce bulletin toutes les communications sont regroupés qui ont été présentées, ou par écrit ou oralement, lors des XIIIèmes journées en Ardèche sur le thème de L'érosion en montagne semi-arides et méditerranéennes. Thème 1: Processus et facteurs d'érosion en montagnes semi-arides et méditerranéennes; Thème 2: Conséquences de l'érosion et lutte anti-érosive; Thème 3: Les méthodes de mesures et d'évaluation de l'érosion; Thème 4: L'érosion fluviatile. Bibliographie: ouvrages reçus et signalés et thèses. L'équipe d'animation est composés par: G. de Noni, J.M. Lamachère et E. Roose.
Commandes à: Centre ORSTOM, BP 5045, F-34032, Montpellier cedex 1, France. Fax: +33 467.41.62.94; Email: denoni@mpl.orstom.fr.

Organic Recycling in Asia and the Pacific. RAP Bulletin Vol 12:1996. F.J. Dent, editor. Regional Office for

Asia and the Pacific (RAP), Food and Agriculture Organization of the United Nations, Bangkok, 1996, iv + 137 p.

This bulletin is based on screening of more than 300 references, out of which about 160 have been selected. In order to provide information on latest concepts and developments in areas of interest, some information from outside the region has also been included. The ten sections organise the news items and developments in organic recycling. The topics cover: N-Biofertilisers, P-Biofertilisers, Compost and Industrial wastes, Green Manures and Mulches, Biogas, Sewage and Night Soil and Integrated Farming together with information on recent publications and News from the Asian Bio and Organic Fertiliser Network.

Orders to: see below.

Approaches to the development of simple and practical diagnostic tools for integrated soil and plant nutrition management usable by farmers and extension officers. RAP Publication:1997/2. F.J. Dent, editor. Regional Office for Asia and the Pacific, Food and Agriculture Organization of the United Nations, Bangkok, 1997, 37 p.

This publication are the Proceedings of the Expert Consultation of the Asian Network on Bio and Organic Fertilizers, Bangkok, November, 1996. The objective of the meeting was to enable experts from member Network institutions engaged in research and development of bio and organic fertilizers to: Identify and discuss simple and practical diagnostic tools for soil management in general, and plant nutrition management in particular, usable by farmers and/or extension officers. The eventual aim being to incorporate plant nutrition management and IPNS concepts in the IPM education programme. Secondly: Update the Network directory of institutions and resource persons by country and field(s) of interest; also update the Network reference database for inter-country exchange in matters relating to bio and organic fertilizer research, development and use; discuss possible network activities for the 1996-98 biennium including the dates and venue of the sixth meeting of the Network.

Orders to: Regional Soil Management and Fertilizer Use Officer, FAO Regional Office for Asia and the Pacific, Maliwan Mansion, Phra Atit Road, Bangkok 10200, Thailand.

Environmental Impacts of Converting Moist Tropical Forest to Agriculture and Plantations. IHP Humid Tropics Programme Series no. 10. W.R.S. Chritchley and L.A. Bruijnzeel. UNESCO, Paris, 1996, 48 p.

Together with its companion volume (Environmental Impacts of Logging Moist Tropical Forests, no 7 in the series), these booklets deal with the environmental impacts of change in land use from undisturbed moist tropical forest. The two publications look at the most common types of interference by man to tropical forests; selective logging for timber, and clearing for agriculture of plantations, respectively. Collectively they give an overview, individually they cater for specific concerns. Each booklet is self-standing, together they are complementary. These are two of a series of 10 about issues of importance in the humid tropics.

Requests to: UNESCO, Division of Water Sciences, International Hydrological Programme, 7, Place de Fontenoy, F-75352 Paris 07 SP, France. Fax: +33 1 45 67 58 69.

Land quality indicators and their use in sustainable agriculture and rural development. FAO Land and Water Bulletin 5. Proceedings of the Workshop organized by the Land and Water Development Division, FAO Agriculture Department and the Research, Extension and Training Division FAO Sustainable Development Department, January 1996. FAO, Rome, 1997, viii + 212 p. ISBN 92-5-103975-5.

The workshop aims were to: seek consensus on major issues related to measuring land quality; move toward an integrated set of Land Quality Indicators (LQIs) for assessing the resource base and monitoring change conditions; identify sources of data and information required to develop indicators; establish linkages between social/economic issues and LQIs (and promote the use of LQIs by economists and social scientists); identify opportunities for practical testing plus application of LQIs in the countries.

LQIs provide a way to monitor and respond to changes in agro-ecosystems. The kinds of environmental, social and economic indicators needed are different at the farm, village, district and national levels, and generic indicators have limited utility at the local level. This publication also addresses the management and interpretation of data and information to develop indicators, the testing and application of LQIs in countries and future work needed in this field.

Requests to: see below.

Land husbandry. Components and strategy. E. Roose. FAO Soils Bulletin 70. Soil Resources Management and Conservation Service. Land and Water Development Division, FAO, Rome, 1996, xvii + 381 p. ISBN 92-5-103451-6.

This publication presents a new approach of land husbandry, based on a improved use of farmers' land and labour, following an analysis of small farmers' strategies and modern strategies for erosion control. The study is based on the outcome of 30 years of research, primarily in French-speaking Africa, and includes ten case-studies from West Africa, mountainous regions (Haiti, Ecuador, Rwanda, and Algeria) and a temperate region (France). Land husbandry aims at improving infiltration, increasing the biomass and better management of available nutrients to enhance crop growth. It is well-illustrated with (colour) photographs and many figures.

Requests to: see below.

Agro-ecological zoning. Guidelines. FAO Soils Bulletin 73. Soil Resources, Management and Conservation Service, FAO Land and Water Development Division, Rome, 1996, 78 p. ISBN 92-5-103890-2.

This bulletin no. 73 contains a set of guidelines on the use of FAO's agro-ecological zoning (AEZ) methodology. The guidelines are intended to assist land

resources specialists, land-use planners and managers and other users wishing to implement AEZ studies at the regional, country and subnational levels. It describes AEZ concepts and methods, the sequence of activities and the tools involved. It provides a stepwise guide to carrying out an AEZ study, including simple and advanced applications, drawing examples from FAO's experience in various countries.
Requests to: FAO Sales Agents, or: Marketing Group FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy.

AFRICAGIS '95. Documents. Abidjan, 6-10 March 1995. xxvi + 692 p.

The purpose of this conference was to promote the development and use of Geographic Information Systems (GIS) and, in general, Environmental Information Systems (EIS) and the Integrated Information Systems on the Environment (IISE); to promote South-South and North-South dialogue; and to strengthen the communication networks between partners involved in these issues in Africa.

The manner in which natural resources are managed will, to a large extent, determine whether or not sustainable development is achieved. If these techniques are to have their desired impacts, they must support strategic planning for environmental and natural resource management at all levels. They can play a critical role in enhancing cooperation among institutions, providing guidance for decision-making, and helping to establish and communicate priorities. They are thus important tools for pursuing the goals of sustainable development in Africa. This publication, which is partly in English and partly in French, contains the texts of the plenary sessions and the papers presented in the meetings of the six working groups. A separate booklet of 59 p. gives a synthesis of this well-attended meeting.
Requests to: Mr. C. Nuttalle, UNITAR, Palais des Nations, CH-1211 Geneva 10, Switzerland. Fax: + 41 22733 1383. E-mail: unitan@itu.ch.

Science, Agriculture, and Food Security. J.H. Hulse. National Research Council of Canada Monograph Publishing Program, Ottawa, 1995, xiv + 242 p. ISBN 0-660-16210-5. Softbound.

Food security connotes consistent access to food sufficient for bodily health and activities. It should be counted as a basic human right. The author discusses differing concepts of what diets are perceived as adequate or inadequate, well- or ill-balanced, for various age and sex categories and levels of activity. Food security, communally and individually is demonstrably dependent on comparative prosperity, power and poverty. The text deals with technical, economic, social and political issues critical to food security; conditions that may provoke or aggravate insecurity. The author discusses divergent concepts of 'sustainable agriculture" proposed not infrequently to poor countries by advocates whose own security will be immune to the risks inevitably imposed; soil and water management, genetic diversity, atmosphere and climate, various production systems as these relate to food security. The book is also available in French (ISBN 0-660-95109-6).
Price: CAD 44.95; USD 44.95.
Orders to: Monograph Orders, NRC Research Press, M-55, National Research Council Canada, Ottawa, Ontario K1A 0R6, Canada. Fax: +1 613 952-7656; E-mail: research.journals@nrc.ca.

Description of EDGAR Version 2.0: A set of global emission inventories of greenhouse gases and ozone-depleting substances for all anthropogenic and most natural sources on a per country basis and on 1°x° grid. RIVM report nr. 771060 002/TNO-MEP report nr. R96/119. J.G. Olivier, A.F. Bouwman, E.W.M. van der Maas et al. National Institute of Public Health and the Environment, Bilthoven, 1996, xxix + 141 p.

This report describes the results of a project to establish a Emission Database for Global Atmospheric Research (EDGAR), comprising a number of consistent global inventories of direct and indirect greenhouse gas emissions, including halocarbons, both on a per country basis as well as on 1°x° grid. This study combines data both at the country level and at grid-cell level, disaggregated at the sectoral level, thereby creating internally consistent and complete emission inventories that can be used for policy support applications and for atmospheric modelling. Version 2.0 of EDGAR has been validated at a limited scale; a more thorough validation at the regional and sectoral level is anticipated in a follow-up project.
Orders to: National Institute of Public Health and the Environment, P.O.Box 1, NL-3720 BA Bilthoven, The Netherlands. Fax: +31 30 274 2971.

Ninth International Congress on Soilless Culture. Jersey 1996, Proceedings. The International Society for Soilless Culture, Wageningen, 1996. 583 p. ISBN 90-70976-07-2. Case-bound.

This book contains the proceedings of the congress on the fundamental and practical aspects of new developments on soilless culture (hydroponics). It has papers in the following sections: Systems; Techniques; Substrates; Composition and maintenance of nutrient solutions; Plant pathology; Sewage treatment. The importance of soilless culture continues to increase. Not only in the classic area of a technique for horticulture research and crop production, it is also being used as a tool to solve a widening range of problems, such as effluent treatment, reducing soil and groundwater contamination and manipulating the level of unwanted nutrients in produce.
Price: NLG 175; NLG 140 (members of ISOSC)
Orders to: Secretariat of ISOSC, P.O.Box 52, 6700 AB Wageningen, The Netherlands. Fax: +31 317 423457.

Chemical Weathering Rates of Silicate Minerals. Reviews in Mineralogy. Volume 31. A.F. White & S.L. Brantley, editors. Mineralogical Society of America, Washington, 1995, xv + 583 p. ISBN 0-939950-38-3. Paperback.

Chemical weathering of silicate minerals results from the differences in the thermodynamic conditions that existed at the time of mineral formation and that of ambient conditions at the earth's surface. The solid state characteristics of silicate minerals, generally

established at high temperature and/or pressures, continue to be reflected during weathering through mineral compositions, crystallographic structures and the petrographic fabric and textures of rocks. The processes which most influence silicate weathering are associated with the flow and chemistry of water at the earth's surface. The term „weathering" implies strong dependency on processes associated with the hydrosphere, atmosphere and biosphere.

This book reviews current thinking on the fundamental processes that control chemical weathering of silicates, including the physical chemistry of reactions at mineral surfaces, the role of experimental design in isolating and quantifying these reactions, and the complex roles that water chemistry, hydrology, biology, and climate play in weathering of natural systems. Secondly, the book is meant to serve as a reference from which researchers can readily retrieve quantitative weathering rate data for specific minerals under detailed experimental controls or for natural weathering conditions. Finally, this volume serves as a forum in which suggestions and speculations concerning the direction of future weathering research are discussed. The text is well-illustrated and supported by many up-to-date references. All volumes in the Series Review in Mineralogy are moderately priced.
Price: USD 30.00
Orders to: Mineralogical Society of America, 1015 Eighteenth Street, NW, Suite 601,
Washington, D.C. 20036, USA.

Development of a Computerized Aid to Integrated Land Use Planning (CAILUP) at regional level in irrigated areas: A case study for the Quan Lo Phung Hiep region in the Mekong Delta, Vietnam. Hoanh, Chu Thai. Thesis Wageningen, Agricultural University. ITC Publication 38, Enschede, 1996, xiii +297 p. ISBN 90-6164-120-9.

Land use planning is an essential activity in any country, because the demands for different land uses usually exceed the available resources. It implies weighting of trade-offs among conflicting goals, as different interests exist in society. The challenge in land use planning is how to incorporate the diversity in land use, comprising land users, goals, management and technologies, into the planning process. A computerized Aid to Integrated Land Use Planning, „CAILUP", was formulated. It takes into account the diversity in land use by integrating promising land uses for agriculture, fisheries and forestry with land uses for other purposes and focuses on integration of land use selections at different hierarchical levels, of bio-physical and socio-economic factors, of local expertise and global (international) expertise, and computer technology and land use planning. CAILUP consist of four units: a core expert unit, a database unit, a GIS unit and a model unit. CAILUP for the Quan Lo Phung Hiep region has been developed and used in analyzing the effects of different construction schedules and land use strategies. A corresponding software system was developed and tested successfully in this region.
Requests to: International Institute for Aerospace Survey and Earth Sciences (ITC), P.O.Box 6, 7500 AA Enschede, The Netherlands. Fax: +31 53.4874400

Physics of Soil Water. Zeszyty Problemowe Post_pów Nauk Rolniczych. Vol. 436. Institute of Agrophysics, Polish Academy of Sciences, Lublin, 1996, 191 p. ISBN 83-901426-8-6.

This Volume contains 24 papers reporting results of original research in the field of soil water physics, as presented at the XI Polish-Slovak Seminar, held in Lublin, June 8, 1995. The papers are published in English with summaries in Polish.
Price: USD 15 (plus postage).
Orders to: see below.

Book of Abstracts. Volume 1-3 on the 6th International Conference on Agrophysics, September 15-18, 1197, Lublin, Poland. Institute of Agrophysics, Polish Academy of Sciences, Lublin, 1997, 455p. ISBN 83-87385-02-6.

This publication contains extended summaries in English of 294 papers presented at the Conference. The abstracts concern the following topics: 1. Physical properties of agronomic materials; 2. mass and energy transport in the soil-plant-atmosphere continuum (description, modelling, prediction); 3. Relation between technologies and physical properties of agronomic materials; 4. Application of agrophysics in problem areas and phenomena (erosion, salinisation, desertification, waterlogging, pollution, etc.): 5. Agrophysical metrology (measures, and methodology). A selected number of papers will in due course be published in International Agrophysics.
Price: USD 20 (plus postage).
Orders to: see below.

Atlas of the redox properties of arable soils in Poland. Z. Stepniewska, W. Stepniewski, J. Gli_ski and J. Ostrowski. Institute of Agrosphysics, PAN, Lublin; and Institute of Reclamation and Grassland Farming, Falenty, 1996, size: 41x30cm. ISBN 83-87385-05-0.

This atlas elaborated in a Polish-English version, contains 33 maps showing a new soil feature - its resistance to reduction which is an expression of stability of nutrients and pollutants in soils. This soil characteristic, reflecting its redox buffering capacity is a resultant effect of microbial activity, carbon availability, temperature and of the pool of oxidized forms of nitrogen manganese, iron, sulphur and phosphorus. It is defined as a time during which soil redox potential under flood conditions at a definite temperature drops to the values of 400 mV corresponding to nitrate decomposition or to 300 mV corresponding to the reduction of manganese and iron. The atlas was elaborated on the basis of the results from long lasting investigations of soil redox phenomena carried out in the Institute of Agrophysics in Lublin, comprising analyses of soil material from 3 horizons of 953 soil profiles of arable mineral soils of Poland, with the use of Data Base on Computer Cartography of the Institute of Land Reclamation and Grassland Farming in Falenty. The Atlas is composed of an extended explanation and of a set of the following maps: - soil redox resistance t_{300} and t_{400} of arable humus horizons and 2 deeper horizons at 4.10.15 and 20° C for t_{300}, and 4,7,20° C for t_{400} - standardized redox potential

for 3 soil horizons at 2 temperatures (4 and 20° C). Percent of particular t_{300}, t_{400} and Eh at pH7 classes for different temperatures in the total surface of the investigated soils are presented in the diagrams.

The atlas is an addition to two others: „Atlas of Climate Elements and Harmful for Polish Agriculture Phenomena" (Pulawy, 1990) and „Atlas of Soil Moisture in Poland" (Szczecin, 1995).

Price: USD 40

Orders to: Foundation for Development of Agrophysical Research, P.O.Box 121, 20-236 Lublin, Poland.

Workshop on National Soil Reference collections and Databases (NASREC). Wageningen, The Netherlands, November 1995. Volumes 1-3. N.H. Batjes, J.H. Kauffman and O.C. Spaargaren, editors. ISRIC, Wageningen, 1996. ISBN 90-6672-069-7. Softbound.

The workshop is the first occasion in which 36 soil scientists, from 30 countries, could share their experiences on soil reference collection projects completed in the last 15 years. It was the opportunity to identify, discuss and propose follow-up actions at the national, regional and global level. The consensus of the workshop was that the scope of the NASREC programme should be broadened, in a possible third phase. These proceedings consists of three Volumes. Volume I: Background and Summary of Discussions; 2. Use of ISRIC's databases for the characterization of soils of major agroecological zones; 3. Papers and Country Reports.

Price: USD 55 for 3 volumes.

Orders to: see below.

Soil Micromorphology: Studies on Soil. Diversity. Diagnostics. Dynamics. Proceedings of the X International Working Meeting on Soil Micromorphology, Moscow, Russia, July 1996. Sub-Commission of Soil Micromorphology, ISSShoba, M. Gerasimova and R. Miedema, editors. Moscow-Wageningen 1997, 452 p.

These proceedings include the presentations of the plenary sessions and the contributions presented in the six topical sessions. This 10th meeting reflects the topics of the presented papers and is congenial with the traditional direction in which the Russian school of soil micromorphology has developed. Studies on soil diversity were traditional in Russia because of many natural zones and zonal soils. Strong emphasis was given to diagnostic horizons (Conceptually and methodologically). One of the aims of the meeting was to demonstrate how micromorphological insight in this recent Holocene history of the soils has progressed. These proceedings demonstrate the progress made in recent years on many aspects of soil micromorphology.

Price: USD 25 plus mailing charges.

Orders to: ISSS/ISRIC, P.O.Box 353, 6700 AJ Wageningen, The Netherlands. Fax: +31 317 471700; E-mail: isss@isric.nl.

The Biology and Fertility of Tropical Soils. Report of the Tropical Soil Biology and Fertility Programme, TSBF, 1996. M.J. Swift, editor. TSBF/Unesco, Nairobi, 1997, 48 p. ISBN 9966-9892-3-4. Paperback.

The TFBF Programme aims to contribute to human welfare and the conservation of environments in the tropics by developing adoptable and sustainable soil management practices that integrate the biological, chemical, physical and socio-economic processes that regulate soil fertility and optimize the use of organic and inorganic resources available to the land-users.

The programme was founded with the aim of promoting the biological management of soil fertility as an essential component of sustainable agricultural development. This report covers the biennium of 1995 and 1996.

Requests to: TSBF, c/o UNESCO, P.O.Box 30592, Nairobi, Kenya. Fax: +254 2-622733,521159; E-mail: TSBFINFO@TSBF.UNON.ORG

Proceedings of the Second International Conference on Pedo-Archaeology. Anthropological Studies 10. A.C. Goodyear, J.E. Foss and K.E. Sassaman, editors. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, 1997, v + 157 p.

this publication contians 14 papers presented at the conference. They deal mostly with ped-archaeology in the U.S., but a few are about thissubject in other countries and on method of analysis. One of the objectives of the conference was to incorporate the geology and pedology of the region with that of the local archaeology to give a field-based appreciation for pedo-archaeology in the midlands of South Carolina. Fieldwork was done at key sites in the vicinity of Columbia. Backhoe trenches were excavated and studied in several alluvial settings with typical expressions in the pedosedimentary cycle. Data from these trenches were analyzed.

Price: USD 15.

Orders to: Dianne M. Boyd, Head Publications SC Institute of Archaeology & Anthropology, University of South Carolina, 1321 Pendleton Street, Columbia, SC 29208, USA.

Catalogue of Conservation Practices for Sloping Land Agriculture. A.A. Gomez & M.Th.A. Baril, editors. SEARCA, College, Laguna, 1997, x + 160 p.

This publication lists practices which enhance conservation of the natural resource focusing on agricultural practices shown to be useful on farms in the humid and sub-humid tropics. It supports practitioners who are promoting successful conservation technologies arising out of research or experience. Technologies are grouped into general practices that have a farmer-focus rather than the traditional scientific disciplines. Each general practice is divided into specific practices. Some of the selected case studies illustrate more than one specific practice. This well-illustrated catalogue covers those practices which have a significant impact on the conservation component.

Requests to: Publications Manager, ACIAR, GPO 1571, Canberra ACT 2601, Australia. Fax: +61 62170501; E-mail: Lynch@aciar.gov.au.

Geography of the Forest Resources of Ukraine, protection, utilization, regeneration. S.A. Gensiruk and M.S. Nizhnik. Ministry of Education of the Ukraine. Ukrainian State University of Forestry and Wood Technology, Lviv, 1995. ISBN 5-7773-0291-2. Paperback

This publication (with summaries in English, German and Russian) deals with the geography of forests and forested area change in Ukraine, with the problems of forestry science and nature protection development. A system of measures aimed at productivity increase and species composition quality improvement, strengthening of their protection and water-protective functions, rational utilization and regeneration of forest resources has been proposed. For the improvement of the ecological situation in the Republic the formation of an ecological system of nature-oriented objects should be formulated.

Handbuch der Umweltwissenschaften. Grundlagen und Anwendungen der Ökosystem-forschung. O. Fränzle, F. Müller und W. Schröder (Hrsg.). ECOMED, 1997, Loseblattwerk im Leinenordner, ca. 400 Seiten. ISBN 3-609-73940-1.

Umweltbelastungen und Umweltverschmutzung gefährden zunehmend das Gesamtsystem Erde und ihre einzelnen Ökosysteme. Nur übergreifendes und vernetztes Denken kann dem komplexen Wirkungsgefüge Mensch - Natur gericht werden. Der zukunftsweisende Ansatz der „Ökosystemforschung" trägt dem Rechnung. Er vereinigt das Wissen traditioneller naturwissenschaftlicher Disziplinen wie Biologie, Agrarwissenschaften, Geowissenschaften und Chemie und strebt die Verknüpfung mit den Rechts- und Sozialwissenschaften an. Das Dieses Handbuch gibt einen Gesamtüberblick, was unter Ökosystemforschung zu verstehen ist. Es schildert Grundlagen, Methoden und den aktuellen Erkenntnisstand. Auch zeigt es Wege auf, Erkenntnisse der Ökosystemforschung in praktische Ökosystemschutz umzusetzen. Das Handbuch konzipiert als Loseblattsystem, greift mit seinem Ergänzungsservice alle neuen Strömungen zeitnahe auf und bietet immer eine aktuelle Datenlage.
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Handbuch des Pflanzenbaues. Verlag Eugen Ulmer, Stuttgart, 1997. ISBN 3-8001-3097-1

Dieses Handbuch umfaßt mit vier Bänden den gesamten Pflanzenbau auf dem Acker. Es bietet einen umfassenden Überblick über den heutigen Stand des Wissens und trägt so zu einer besseren Überschaubarkeit der Wissensgebiete untereinander bei. Das Handbuch fördert somit das Erkennen von Zusammenhängen und damit eine ganzheitliche Denkweise, die durch die zunehmende Spezialisierung immer weiter erschwert wird.
Im Pflanzenbau haben sich neben den produktionstechnischen und ökonomische Zielen die Rückwirkungen der Produktionssysteme auf die Umwelt stärker in den Vordergrund geschoben. Diesem Umstand trägt das Handbuch im besonderen Maßen Rechnung. Führende Wissenschaftler aus den einzelnen Fachgebieten garantieren die wissenschaftlich Kompetenz und Aktualität der Beiträge. Das Handbuch konzentriert sich auf die sorgfältige Vermittlung grundsätzlicher Fakten und Erkenntnisse. Der erschienene Band 1, beschäftigt sich mit den Grundlagen der landwirtschaftlichen Pflanzenproduktion. Die einzelnen Themen werden nach ökologischen, biologischen und physiologischen Gesichtspunkten behandelt und durch produktionstechnische Grundlagen ergänzt. Besondere Beachtung wurde den umweltschonenden Bewirtschaftstungssystemen zuteil. Von den ökologischen und physiologischen Grundlagen des Pflanzenbaues über die produktionstechnischen Grundlagen bis hin zu speziellen Kapiteln über den Feldfutterbau und die Rekultivierung von Abbauflächen sind all Themengebiete vertreten. Die folgende Bände sind in Planung: Band 2: Getreide und Futtergräser; Band 3: Knollen- und Wurzelfrüchte, Körner- und Futterleguminosen; Band 4: Ölfrüchte, Faserpflanzen, Arzneipflanzen und Sonderkulturen.
Subskriptionspreis: DEM 320; ATS 2336; CHF 285.
Bestellungen an: Verlag Eugen Ulmer, Postfach 700561, D-70574 Stuttgart, Deutschland.

Problems of Arid Land Development. A.G. Babaev. Translated from Russian by G. Leib. Moscow University Press, 1996, ii + 282 p. ISBN 5-211-03803-7. Hardbound.

This book is the result of many years of research and writing about the critical and urgent problems of developing the natural and economic potential of arid lands. The author proposes to accelerate our understanding of the complex scientific basis for their development. Special attention is given to the methods needed for the rational sustainable utilization of the natural resources of arid lands. Attention is also given to the development in the future of the fundamental direction for scientific research at local, national, regional and international levels. The author stresses the need to strengthen support for one of the earth's remaining frontiers of science: deserts. One chapter deals with deserts of Central Asia, and one chapter with Turkmenistan Deserts.
Available from: UNEP/DEDC/PAC, P.O.Box 30552, Nairobi, Kenya.

Global Environmental Change. P.D. Moore, B. Chaloner & P. Stott. Blackwell Science, Oxford, 1996, vii + 244. ISBN 0-632-03638-9. Paperback.

Global environmental change is not a new phenomenon; climate fluctuations have occurred throughout the earth's history. However, the current public anxiety over global warming and changes in atmospheric composition, apparently as a result of human activity, has given the topic a new immediacy. This book puts these changes into perspective, establishing whether our concerns about change are justified, whether remedial action needs to be taken, and, if so, what action is appropriate. The book begins with an introduction to the science of global processes; followed by the philosophy that the importance of current climate changes can only be interpreted adequately if they are set against their historical background, and against the methodology by which current view have developed. Present day and future predicted climate and pollution problems are discussed, and then reinterpreted in the light of scientific philosophy, political ecology and 'green' economics. Some very worrying claims have been made about the likely consequences of such processes as enhanced

global warming and the effects of a thinning ozone layer. This book takes a critical and dispassionate approach to the subject.
Price: GBP 17.95
Orders to: Blackwell Science, Osney Mead, Oxford OX2 0EL, UK. Fax: +44 1865 721205.

Progress in Nitrogen Cycling Studies. O. van Cleemput, G. Hofman and A. Vermoesen, editors. Developments in Plant and Soil Sciences 68. Kluwer Academic Publishers, Dordrecht, Boston, 1996, xi + 715 p. ISBN 0-7923-3962-2. Hardcover.

This book contains the proceedings and the reports of discussion groups of the 8th Nitrogen Workshop, which was held for the first time outside the UK, in Belgium, in 1994. More than 100 contributions in this publication tackle recent developments within the fields of nitrogen advice systems, plant response to fertilization, immobilization and mobilization, nitrification, denitrification, leaching, ammonia volatilization and biological nitrogen fixation. A large number of papers is devoted to the formation of gaseous nitrogen compounds, while mineralization-immobilization is another topic of important interest. Although nitrogen dynamics in different ecosystems have been studied, new orientations and other emphases came up. Now, nitrogen is especially seen within the context of productivity in combination with environmental consequences. This book is partly reprinted from Plant and Soil, 181:1, in which 20 of the total of 115 contributions were published.
Price: NLG 650; USD 422.50; GBP 286.00.
Orders to: see below.

Modern Agriculture and the Environment. D. Rosen, E. Tel-Or, Y. Hadar, Y. Chen, editors. Developments in Plant and Soil Sciences 71. Kluwer Academic Publishers, Dordrecht, Boston, 1997, xxi + 646 p. ISBN 0-7923-4295-X. Hardbound.

All through the twentieth century modern agriculture has been striving to feed and clothe the ever-increasing multitudes of the human species through improved technology, relying heavily on tremendous inputs of fertilisers, pesticides, and various other agrochemicals. Modern agriculture has become one of the major factors contributing to the degradation of the world's fragile biosphere. This has been manifested in mounting rates of soil, water and air pollution, increased emission of greenhouse gases, depletion of the ozone layer, accumulation of manure and other solid wastes, excessive exploitation of forests and open lands, elimination of the natural habitats of many plants and animals, an almost unprecedented mass extinction of living species, and an alarming destruction of biodiversity. This volume comprises the proceedings of the First International Rehovot Conference on Modern Agriculture and the Environment, held in 1994, and addresses these issues. It is divided into nine sections, addressing various problems of, and suggested solutions to, the complex interaction between modern agriculture and the environment. Section I is devoted to chemical pesticides, means to reduce their utilisation and some of the main alternatives to their overuse and misuse in pest management; Section II deals with chemical fertilisers and how to minimise pollution caused by them; Section III addresses some of the environmental aspects of aquaculture; Section IV presents approaches to the modelling of agricultural pollution; Section V covers the treatment of wastewater and its utilisation in irrigation; Section VI deals with the recycling of municipal and agricultural wastes; Section VII presents pollution problems caused by heavy metals, and some means for their mitigation; Section VIII is devoted to bioremediation of agricultural pollutants; and Section IX presents a discussion of economic and policy aspects of natural resources.
Price: DFL 450; USD 297; GBP 184.50
Orders to: see below.

Nitrogen in Soils of China. Z. Zhao-liang, W. Qi-xiao and J.R. Freney, editors. Developments in Plant and Soil Sciences 74. Kluwer Academic Publishers, 1997, Dordrecht, Boston, xi + 338 p. ISBN 0-7923-4372-7. Hardbound.

Nitrogen is one of the most important nutrients for plant growth and the application of fertilizer nitrogen is playing an important role in agricultural production. Soil nitrogen research in China began in the 1930s and it is only in the last three decades that it has developed rapidly. Great progress has been made in research on slow-release forms of ammonium bicarbonate, the deep placement of ammonium bicarbonate supergranules, nitrogen loss from fertilizer nitrogen in paddy soils, the nitrogen supplying capacities of paddy soils, recommendations for optimum nitrogen application rates, nitrification, denitrification and nitrogen loss in agroecosystems and biological fixation of nitrogen. The annual consumption of fertilizer nitrogen in the world has reached 70 millions tons, and China has an annual consumption of more than 15 million tons and is the largest fertilizer nitrogen consumer in the world. However the efficiency of fertilizer nitrogen is low and losses are large. It is estimated the losses from agriculture in China can be as high as 40-60% of the nitrogen applied. This book was written by soil scientists of the Institute of Soil Science, Academia Sinica in China, and will also be of interest for soil scientists outside China.
Price: NLG 350; USD 224; GBP 137.
Orders to: Kluwer Academic Publishers Group, P.O.Box 989, 330 AZ Dordrecht, The Netherlands. Fax: +31 78 6392392; E-mail: services@wkap.nl. Or Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061, USA.

Conserving Europe's Natural heritage. Towards a European Ecological Network. An International Conference, Maastricht, 9-12 November 1993. G. Bennett, editor. Graham & Trotman/Martinus Nijhoff, London, Dordrecht, 1994, xvi + 334 p. ISBN 1-85966-090-8. Hardcover.

This book includes the speaker's papers, workshop reports and general declaration of the above mentioned conference. The purpose of the conference was to clarify the challenge that the decline in Europe's biological and landscape diversity presents, to review the strategic context for action relating to nature conservation and discuss the development of a European Ecological Network (EECONET) with governments, nature conserva-

tion organisation and researchers from Europe. The aim is not only to protect the most important sites but also to provide for corridors that permit the dispersal and migration of species, either through appropriate linear routes or by way of „stepping stones"- areas where species can rest, shelter and forage. Action may even be taken to restore areas which have been damaged by human activities. EECONET is to transpose this concept to the continental scale by creating an international cooperative framework within which the functioning of the natural and semi-natural systems of European importance can be maintained or enhanced. It will offer the potential of providing a unifying framework that marries common objectives and criteria with the need to accommodate Europe's natural and political diversity and for action to be taken at the most appropriate level and by the most suitable body.
Price: NLG 163; USD 95; GBP 55.
Orders to: Kluwer Law International, P.O.Box 85889, 2508 CN The Hague, The Netherlands. Fax: +31 70 308 1542.

Les Sols Cultivés. 2e édition. R. Morel. Éditions TEC & DOC Lavoisier, Paris, Londres, 1996, xxv + 389 p. ISBN 2-7430-0149-6.

Cet ouvrage peut se définir comme une étude de caractère général sur les sols cultivés des zones à climat tempéré. Le premier chapitre est une initiation à la connaissance du sol, traitant les grandes lignes de sa formation, de sa composition et de son fonctionnement, en soulignant le caractère hétérogène. Faisant suite à ces généralités, l'étude des constituants fondamentaux du sol (chap. 2,3, 4), de leur origine, de leur composition, de leur structure et de leur propriétés, demeure le préliminaire indispensable pour aborder le fonctionnement même du sol: celui-ci dépend, sous ses multiples aspects, des propriétés des constituants du sol. Les chapitres 5, 6 et 7 forment la partie essentielle, traitant de l'environnement racinaire, envisagent sous ses différentes approches le fonctionnement du sol. Le chapitre 7 s'ouvre à l'activité biologique du sol responsable de la transformation de substances organiques et de la libération d'éléments nutritifs. Le dernier chapitre traite de la fertilité des sols. Celle-ci, dont la définition même soulève bien des difficultés, n'est pas susceptible d'une estimation chiffrée globale. Une analyse de la fertilité propre du sol est proposée, accompagnée d'un état descriptif synthétique des méthodes d'étude des sols dans un but agronomique.
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Functioning and Dynamics of Perturbed Ecosystems. 6th European Ecological Congress. Marseille, September 1992. D. Bellan, G. Bonin and Chr. Emig, editors. TEC & DOC Lavoisier, Paris, Londres; Intercept Ltd. Andover, 1995, x + 819 p. ISBN 2-7430-0040-6 (Lavoisier); 1-898298-37-8 (Intercept).

This publication is a choice of the contributions to the 6th European Ecological Congress. It addresses various aspects of the ecosystem functioning in the natural environment and in anthropized environments, at different study levels and in various ecological contexts. The elements of the ecosystem dynamics are analyzed theoretically but concrete examples are discussed. Ecological constraints, adaptive strategies and issues related to biodiversity are developed as well. The study of the dysfunctioning and the perturbations of the ecosystems, related to the management examples and to their ecological consequences, involves aspects of applied ecology.
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EarthColors. A Guide for Soil & Earthtone Colors. Color Communications, Inc., Poughkeepsie, 1997.

In addition to the well-known Munsell Soil Color Charts of Macbeth/Kollmorgan, USA and the Revised Standard Soil Color Charts of Oyama and Takehare, Japan, this new extensive set of colour chips, as according to the Munsell system, has now become available. A sturdy binder of 220x115x44mm contains 62 pages with large size chips measuring 17x40mm. (52 gley chips; 39 5R chips; 38 7.5R chips; 35 1OR chips; 37 2.5YR chips; 33 5YR chips; 35 7.5YR chips; 36 10YR chips; 31 2.5Y chips; 31 5Y chips). It also has soil structure information and a manual. According to the information provided, chips and pages can with stand field use, even in rainy or even wet conditions - which is certainly an improvement.
The price for the EarthColors Soil Color Book (the Professional Model) with 367 colors is $95.00.
The price of EarthColors The GLOBE Program Edition (Educational), with 208 colors is $35.00.
Orders to: Color Communications, Color Standards Division, 229D Manchester Road, Poughkeepsie, NY 12603, USA. Fax: +1 914.452.6795; Tel: 1-914-452-6794.

A Field Guide for On-Farm Experimentation. H.J.W. Mutsaers, G.K. Weber, P. Walker and N.M. Fischer. International Institute of Tropical Agriculture (IITA), Ibadan, 1997, xv + 235 p. ISBN 978-131-125-8. Softbound.
This is a completely revised and updated edition of the previous 'A Field Guide for On-Farm Research', which appeared years ago in the heyday of the farming systems research era. At that time, the experience with on-farm experimentation - and the very peculiar design and analytical problems it poses - was still quite limited. Much experience has since accumulated, and on-farm research has become an integrated part of the work of most national and international research institutes. Many researchers, however, remain insufficiently familiar with the techniques available to draw reliable conclusions from on-farm trials with their variability. This new edition, with emphasis on the experimental aspects of on-farm research, should help on-farm researchers to arrive at solid conclusions, taking into account, rather than eliminating, variation among farmers. To satisfy this objective, the book has a large section on statistical analysis and calculation techniques. This excellently produced

and illustrated book will be of help to the many scientists in national institutes who are devoting themselves to the difficult task of conducting quality research under real farm conditions for the benefit of real farmers.
Requests to: IITA, Ibadan, Nigeria, c/o L.W. Lambourn & Co, Carolyn House, 26 Dingwall Road, Croydon CR9 3EE, UK. Fax: +44 181-681 8583.

O Solo nos Grandes Domínios Morfolcimáticos do Brasil e o Desenvolvimento Sustentado. V.H. Alvarez, L.E.F. Fontes, M.P.F. Fontes, editors. Sociedade Brasileira de Ciência do Solo, Universidade Federal de Viçosa, Departamento de Solos, Viçosa - MG, 1996, 930 p.

This extensive publication on the soils of Brazil has about 60 chapters on a large variety of soil aspects. Information about the soils of the large ecological regions, e.g. the Amazon region, the Caatinga, the Cerrado and the Pampa region is supplemented with chapters about their agronomic problems and possibilities for a sustainable use. With regard to these last subjects, a number of chapters deal with soil physical conditions, soil fertility and plant nutrition and different forms of soil degradation.
Price: R$ 45
Orders to: L.E.F. Fontes, Departamento do Solos, Universidade Federal de Viçosa, Minas Gerais-Brasil. Fax: +55 31 899.2648. E-mail: Luizfontes@solos.ufv.br.

NEW JOURNALS, NOUVEAU PÉRIODIQUES, NEUE ZEITSCHRIFTEN

Modern Agriculture. The Journal for Site-Specific Crop Management. R. Mangold, publisher and G. Thomason, editor. *Modern Agriculture and EOM, Inc.*, Aurora. 6 Issues per year. ISSN 1076-3430.

The rapid growth of site-specific soil management, mostly related to crop production, gives rise to new journals about this fascinating new field. The present journal is mostly dealing with conditions in the USA. Articles in issues 1 and 2 of Volume 1, published in 1997 deals with applications of remote sensing, GIS/GPS, and data collection and use.
Subscription: USD 16.50 (USA, 1 year); USD 28.50 (Canada, 1 year); USD 38.50 (Rest of the world 1 year)
Orders to: Modern Agriculture, Earth Observation, 13741 E. Rice Place, Suite 200, Aurora, CO 80015. Fax: +1 303 690-2522; E-mail: gt@modernag.com

Precision Agriculture. An International Journal on the Science of Precision Agriculture. P.C. Robert, Editor-in-Chief. Kluwer Academic Publishers, Dordrecht. ISSN 1385-2256.

This new journal promotes the most innovative results coming from research in the field of precision agriculture. It provides an effective forum for disseminating original and fundamental research and experience in the rapidly advancing area of precision farming. There are many topics such as Natural Resources Variability; Managing Variability, Engineering Technology, Environment, Technology Transfer. 1998, Volume 1 (3 issues, 4 thereafter).
Subscription: NLG 480; USD 280 (Institutions); NLG 125; USD 70 (Individuals).
Orders to: Kluwer Academic Publishers, Order Dept., P.O.Box 322, 3300 AH Dordrecht, The Netherlands; Fax: +31-78-6546474; E-mail: services@wkap.nl.

Italian Journal of Agronomy. G. Zerbi, Editor-in-Chief. An official journal of the Italian Society of Agronomy. ISSN 1125-4718.

This journal joins Rivista di Agronomia, which will continue its role of contributing to the progress of agronomy in Italy, in the Italian language. This new journal in the English language, will permit a better international diffusion and the possibility of the published material to be included in the main bibliographic databases. The editorial board of IJA includes the members of the sister publication Rivista di Agronomia and a representative of foreign agronomy scientists. IJA will initially have two issues per year. The journal is available on the Internet. The homepage address is: http://www.unid.it/ija. The subjects covered include: soil-plant relationships, irrigation, soil tillage, fertilization, weed control, crop management, farming systems, applications of agroclimatology, etc. Notes on experimental techniques and apparatus will also be published.
Subscription: ITL 100.000 European Union; ITL 120.000 other countries; ITL 60.000 individuals European Union; ITL 80.000 individuals other countries.
Orders to:Forum Sociètà Editrice Universitaria Udinese srl, via Palladio 8, 33100 Udine, Italy; Fax: +39 432 26001. E-mail ija@agro.dpvta.uniud.it. Fax: +39 432 26001.

Newsletter „Windows for Sustainability" (WS). IICA/GTZ, Costa Rica, Quarterly.

„Windows of Sustainability" (WS) are practical examples that aim to demonstrate and utilize, in situ, the concepts and methods of sustainable development, which have been developed during the last few years by the IICA/GTZ Cooperation Project. WS take account of economic, ecological and social aspects. The idea is to develop tangible and practical examples of sustainable rural development that can be used to disseminate information on this subject by IICA, GTZ and other institutions working in Latin America and the Caribbean.
Requests to: Proyecto IICA/GTZ, Apdo. 660, 2200 Coronado, San José, Costa Rica. Fax: + 506.2291620; E-mail: GTZ-IICA@IICA.AC.CR.

Environment and Development Economics. Ch. Perrings, editor. Cambridge University Press in association with the Beijer Institute, Royal Swedish Academy of Sciences., quarterly. ISSN 1355-770X.

This journal provides a forum for the results of the growing body of research into the linkages between economic development and environmental change. It publishes papers on environmental problems associated with the process of economic development. The journal publishes on topics such as: the environmental impact of economy wide policies; optimal environmental regulation and incentives in a development con-

text; the valuation of environmental resources in developing countries; the environmental effects of institutional change; modelling interdependent economic and environmental processes; book reviews and review essays. First Volume 1996.
Subscription: GBP 81 (institutions); GBP 42 (individuals); GBP 21 (individuals from low-income countries). Orders to: Journals Marketing Department, Cambridge University Press, The Edinburgh Building, Cambridge CB2 1BR, UK. Fax: +44 1223315052; **E-mail enquiries:** journals_marketing@cup.cam.ac.uk. **Enquiries** USA, Canada and Mexico: Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211, USA. Fax: +1 914 937 4712; E-mail: journals_marketing@cup.org.

Ecosystems. S.R. Carpenter and M.G. Turner, editors. Springer-Verlag, New York, 1998, Vol. 1, 6 Issues per year. ISSN 1439-9840.

The study and management of ecosystems represent the most dynamic field of contemporary ecology. Ecosystem research bridges fundamental ecology and environmental problem-solving, and spans boundaries of scale, discipline and perspective. Ecosystem science has links to other disciplines including landscape ecology, global ecology, biogeochemistry, aquatic ecology, soil science, hydrology, ecological economics and conservation biology. Studies of ecosystems employ diverse approaches, including theory and modeling, long-term investigations, comparative research and large experiments. The first issue will appear in 1998.
Subscription: USD 195.00 (Institutional rate); USD 60.00 (Personal rate).
Orders to: Springer-Verlag New York, Attn: Bruce Lyons, 175 Fifth Avenue, New York, NY 10010, USA; Website: http://www.springer-ny.com/journals/Ecosystems.

TERRA NOVA; Nature and Culture. C. Rothenberg, editor. MIT Press Journal, Cambridge, 1996. Quarterly, 144 p. per issue. ISSN 1081-0749.

This journal aims to become a journal of major cultural importance based upon understanding that environmental issues are part of the mainstream of cultural critique and commentary as well as a thriving scholarly concentration. It seeks to understand the ethical, metaphysical, and aesthetic aspects of human relationship to nature. Contributions will be published from a wide range of fields including philosophy, literature, history, anthropology, geography, environmental studies, psychology, politics and the arts.
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Urban Ecosystems. M.R. Walbridge, editor. Chapman & Hall, Andover, 1997, Volume 1.

This new journal is devoted to scientific investigations about the ecology of urban environments and their policy implications, including interactions between urban ecosystems and associated suburban and rural environments. Special emphasis is placed on the ecology of urban forests. It fosters communication between environmental scientists and environmental managers.
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The state-of-the-art of phytoliths in soils and plants. A. Pinilla, J.Juan-Tresserras and M.J. Machado, editors. Monografías 4 del Centro de Ciencias Medioambientales, SCIS. Madrid, 1997, xx + 292 p. ISBN 84-00-07674-5.
This publication contains 28 papers out of the 54 presented in the 1st European Meeting on Phytolith Research, in Madrid, Spain. 25 are in English, 3 in Spanish. The phytoliths are microscopic bodies formed in the tissues of the plants. There are phytoliths formed from silica that occurs in ground water as monosilicic acid, and other phytoliths are calcium oxalate crystals, formed from calcium and oxalic acid. This book makes evident the importance of phytoliths for the knowledge of the paleoenvironment in soils and sediments. They also help in clarifying archeobotanical problems in relation with the use of plants by man in an evolutionary and cultural change context. They allow the reconstruction of the plant history of certain areas, and the taxonomic value of silicophytoliths and clcium oxalate crystals has been proven. Regarding the latter, their relevance in the calcium cycle in soil has also been considered. Papers in this book offer very important and diverse information since their authors are researchers from Europe (among them there is a work with African Material), America, China, India, and Australia.
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History of Soil Science - International Perspectives. Advances in GeoEcology 29, Dan H. Yaalon, S.M. Berkowicz (Editors), Catena Verlag GMBH, Reiskirchen, Germany, 442 pages, ISBN 3-923381-40-9, hardcover.
The book presents a wideranging perspective on the history of soil science comprising a collection of 23 papers. Following an overview on the main paradigms, developments of the concepts of humus, horizons, classification of soil types and soil series usage are treated in specific chapters. Some selected topics in the history of soil chemistry and soil physics are treated in detail. A number of articles deal with regional aspects of soil science and the contribution of some outstanding personalities from the 18th to the 20th centuries. This is the first original history in soil science in the English language.
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A. Salt Affected Soils/Sols Salins/Salzböden
Dr. M. Rédly, Research Inst. for Soil Science & Agric. Chem., Hungarian Academy of Sciences, Herman O. ut, 15, 1022 Budapest, Hungary

B. Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie
Prof.Dr. Sergey Shoba, MSU, Dokuchev's Soil Institute, Pygevsky per 7109017 Moscow, Russia

C. Soil and Water Conservation/Conservation des Sols et des Eaux/Boden- und Wasserschutz
Dr. Ch. Valentin, ORSTOM, B.P. 11416, Niamey, Niger

D. Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit IUBS)
Prof.Dr. D. Parkinson, Dept. Of Biological Sciences, University of Calgary, 2500 University Drive N.W., Calgary, Alberta T2N 1N4, Canada;

E. Forest Soils/Sols forestiers/Waldböden
Dr. P.K. Khanna, CSIRO, Div. of Forest Research, P.O.Box 4008, Queen Victoria Terrace, Canberra, ACT 2600, Australia

F. Land Evaluation/Evaluation du Terrain/Landbewertung
Prof.Dr. K.J. Beek, ITC, P.O.Box 6, 7500 AA Enschede, The Netherlands

G. Soil Remediation/Restitution des sols/Bodensanierung
Prof.Dr. D.C. Adriano, Savannah River Ecology Lab., Savannah River Site Bldg. 737A, Aiken, S.C., USA

Working Groups/Groupes de Travail/Arbeitsgruppen – Chairpersons/ Présidents/Vorsitzende:

AS Acid Sulphate Soils/Sols Sulphatés Acides/Saure Sulfatböden
Dr. S. Sadio, ISRA/ORSTOM, B.P. 1386, Dakar, Senegal

CR Cryosols/Cryosols/Frostböden
Dr. D.A. Gilichinsky, Inst. of Soil Science & Photosynthesis, Pushchino, Moscow District 142292, Russia

DE Soil Resources of Desert Ecosystems/Ressources de sol dans des ecosystèmes de désert/Böden in Wüstenökosystemen
Dr. A. Souirji, Rue de la ville 2, 5660 Couvin, Belgium

DM World Soils and Terrain Digital Data Base/Carte Internationale Numérique des Sols et des Terrains/Digitalisierte Internationale Boden- und Land karte (SOTER)
Prof.Dr. M.F. Baumgardner, Dept. of Agronomy, Purdue University, West Lafayette IN 47907, USA

FA Soil Organic Fertilizers and Amendments/Produits organiques d'engrais et d'amendement du sol/Organische Dünger und Bodenverbesserungsmittel
Prof.Dr. P. Sequi, Istituto Sperimentale per la Nutrizione delle Piante Via della Navicella 2-4, 00184 Roma, Italy

LI Land Evaluation Information Systems/Informatique de l'Evaluation des Terres/Informationssysteme zur Landbewertung
Dr. J. Dumanski, Land Resources Research Institute, Agric. Canada, Ottawa, Ontario, Canada K1A 0C6

MO Interactions of Soil Minerals with Organic Components and Microorganisms/Interactions entre les Minéraux du Sol, les Composées Organiques et les Microbes/Wechselwirkungen zwischen Bodenmineralen, organischen Substanzen und Mikroorganismen
Prof. Dr. P.M. Huang, Univ. of Saskatchewan, Dept. of Soil Science, Saskatoon, Sask., Canada S7N 0W0

MV Soil and Moisture Variability in Time and Space/Variabilité du Sol et de l'Humidité dans le Temps et l'Espace/Boden- und Feuchtigkeitsvariabilität in Raum und Zeit

PM Pedometrics/Pedométrique/Pedometrik
Prof.Dr. A.B. McBratney, Dept. of Agric. Chem.&Soil Science, A03 Ross St. University of Sidney, NSW 2006, Australia

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Prof.Dr. Arnt Bronger, Dpt. of Geography, University of Kiel, 24098 Kiel, Germany

PS Paddy Soils Fertility/Fertilité des Sols Rizicoles Irrigués/Fruchtbarkeit von Reisböden
Prof.Dr. Tasnee Attanandana, Dept. of Soil Science, Faculty of Agric., Kasetsart University, Bangkok, 10903, Thailand

PT Pedotechnique/Pédotechnique/Pedotechnik
Dr. J. Koolen, Dept. of Soil Tillage, Wageningen Agric. Univ. Diedenweg 20, 6703 GW Wageningen, The Netherlands

RB World Reference Base for Soil Resources/Base de référence mondiale pour les ressources de sol/weltweite Referenzbasis fuer Bodenressourcen
Prof.Dr. J. Deckers, Wildenhoge 13, 3020 Winksele, Belgium

RS Remote Sensing for Soil Survey/Pédologie et Télédétection/Fernerkundung für Bodenkartographie
Dr. M. Mulders, Dept. of Soil Science & Geology, Wageningen Agric. University, P.O. Box 37, 6700 AA Wageningen, The Netherlands

RZ Rhizosphere/Rhizosphère/Rhizosphäre
Prof.Dr. P.J. Gregory, Dept. of Soil Science, Univ. of Reading, Whiteknights P.O.Box 233, Reading, RG6 2DW, U.K.

SG Soils and Geomedicine/Sols et Géomédecine/Böden und Geomedizin
Prof. Dr. J. Låg, Dept. of Soil Science – AUN, P.O.Box 28, 1432 Ås-NLH, Norway

SP Soil and Groundwater Pollution/Pollution du Sol et des Eaux
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CIP Committee on International Programmes/Comité sur les Programmes Internationaux/ Komitee für Internationale Programme
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CES Committee on Education in Soil Science/Comité pour l'Enseignement de la Pédologie/ Komitee für Bodenkundeausbildung
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