World Congress of Soil Science
Frontiers of Soil Science
Technology and the Information Age

Program
July 9–15, 2006
Philadelphia, Pennsylvania, USA
General Congress Schedule at a Glance

Sunday, July 9, 2006
1300–1700 IUSS Council
1500 Exhibits open
1900–2200 Opening Reception

Monday, July 10, 2006
0800 Opening Ceremony
1030 Symposia
1300 Symposia
1600 Symposia
1700 Business Meetings—Divisions 1 and 3
1745 Business Meetings—Commissions in Divisions 2 and 4

Tuesday, July 11, 2006
0800 Symposia
1030 Symposia
1300 Symposia
1600 Symposia
1700 Business Meetings—Divisions 2 and 4
1745 Business Meetings—Commissions in Divisions 1 and 3
1800 Exhibits close

Wednesday, July 12, 2006
Local tours

Thursday, July 13, 2006
0800 Symposia
1030 Symposia
1300 Symposia
1600 Symposia
1700 Business Meetings—Working Groups
1900 Gala Dinner

Friday, July 14, 2006
0800 Symposia
1030 Symposia
1300 Symposia
1300 IUSS Council
1600 Symposia

Saturday, July 15, 2006
0900 Closing Ceremony
Welcome

On behalf of the sponsors, the U.S. National Committee for Soil Science of the U.S. National Academy of Sciences, the Soil Science Society of America, and the International Union of Soil Sciences, we welcome you to the 18th World Congress of Soil Science (WCSS). We are delighted to host the Congress in the USA for the first time since 1960.

With the World Congress of Soil Science theme, "Frontiers of Soil Science: Technology and the Information Age", the scientific program focuses on soil science advances with an emphasis on remote sensing, geographic information systems, landscape analysis, state-of-the-art molecular scale analytical techniques, environmental soil biology, plant/soil interface processes, computer and computational modeling of soil processes and reactions, precision agriculture, and other applications of information science and technology. The technical program includes over 2700 oral and poster presentations in which Divisions, Commissions and Working Group convenors/co-convenors have assembled into 83 oral and poster symposia. There are also IUSS Council Meetings and Division, Commission, and Working Group Business Meetings during the week.

The must-see opening session on Monday will open with one of America's most illustrious historical figures, Benjamin Franklin, the great inventor, publisher, politician and diplomat, who is celebrating his 300th birthday. Other opening speakers include Michael Clegg, Foreign Secretary of the U.S. National Academy of Sciences; Ambassador Kenneth Quinn, recognizing the 2006 World Food Prize Laureate who is a soil scientist; Bruce Knight, Chief of the Natural Resources Conservation Service (NRCS); and Ed de Mulder, Past President of the International Union of Geological Sciences, discussing the Year of Planet Earth (YPE) initiative. The plenary address will be given by Jeffrey D. Sachs, the noted economist at Columbia University and author of the acclaimed book, The End of Poverty. Professor Sachs is the Director of the Earth Institute at Columbia and serves as Special Advisor to UN Secretary-General Kofi Annan on the Millennium Development Goals.

Two must-attend social events are the Sunday evening opening reception and Thursday evening Gala Banquet. The opening reception will be held in the historic Grand Hall of the Convention Center, in the beautifully renovated Reading Terminal train shed. This is an opportunity for you to gather with your colleagues for food and fellowship, renewing old acquaintances and making new friends. The historical, cultural, athletic, and ethnic flavors of the City of Brotherly Love will be featured including its food and entertainment. Be on the lookout for Ben Franklin or a strutting mummer.

The Gala Banquet will be an exquisite affair with good food, fellowship, presentation of awards, entertainment, dancing, and fine wine for all. Our entertainment for the evening, the Mahoney Brothers, will take us on a stroll through the history of Rock and Roll. The Dokuchaev Basic Soil Science Award, the Liebig Applied Soil Science Award, and Kübiena Medals will be presented at this event. Additionally, new Honorary Members of IUSS will be recognized.

Finally, we encourage you to discover the wonderful historical, cultural and culinary attractions while you are in the City of Brotherly Love. Don't miss out on a number of local tours on Wednesday, and a host of companion and family cultural/historical activities that are available during the week.

We wish all of you an enjoyable and rewarding week in Philadelphia!

Don Sparks
IUSS President

Gary Petersen
IUSS Vice President

Lee Sommers
Co-Chair, Organizing Committee

Larry Wilding
Co-Chair, Organizing Committee
IUSS gratefully acknowledges our corporate sponsors and individual donors

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**Platinum Level ($25,000-$49,000)**
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  - *Opening Session, Gala Dinner, Abstract CD*
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Proclamation

For the first time since 1960 the world’s leading professionals in soil science will come together in the United States at the 18th World Congress of Soil Science. This prestigious gathering of professionals will take place in America’s most historic city, Philadelphia.

Philadelphia is pleased to serve as the Host City for this major event. Your organization is to be congratulated for leading the way in soil science education and research. Furthermore, your members are helping to advance the discipline and practice of soil science by acquiring and disseminating information about soils in relation to crop production, environmental quality, recycling, and intelligent land use. Philadelphia supports the worthwhile mission of the WCSS and its members and welcomes you to the City of Brotherly Love and Sisterly Affection.

THEREFORE . . .

I, John F. Street, Mayor of the City of Philadelphia, do hereby proclaim July 9–15, 2006 as

WORLD CONGRESS OF SOIL SCIENCE WEEK

in Philadelphia and am happy to join with the 18th World Congress, Soil Science Society of America, the International Union of Soil Sciences, and the U.S. National Committee for Soil Science of the National Academy of Sciences in recognizing the significance of this gathering of the world’s leading professionals in soil science.

JOHN F. STREET
Mayor

Given under my hand and the Seal of the City of Philadelphia, this ninth day of July, two thousand and six.
18th World Congress of Soil Science  
July 9 - 15, 2006  
Philadelphia, Pennsylvania

On behalf of the United States Department of Agriculture (USDA), I want to extend warm greetings to all the participants of the 18th World Congress of Soil Science (Congress). It has been 46 years since the Congress was held in the United States, so we are especially pleased that you are meeting in one of our Nation’s finest cities — Philadelphia, Pennsylvania.

USDA cannot stress enough the importance of your work and the critical role you play in agriculture and the quality of our environment. The world is faced with concerns and challenges that soil scientists can and must address. Food production, food security, land degradation, water quality and quantity, plus the loss of some of our most fertile and productive soils to development are just some of the challenges facing all of us. Sustaining the world’s natural resources has never been more important, and we are pleased and grateful that each one of you is helping to lead that charge.

My best wishes for a successful and productive Congress.

Sincerely,

Mike Johanns  
Secretary
WCSS Organizing Committees

Executive Organizing Committee

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### Division 1 Soil in Space and Time

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**Commission 1.1 Soil Morphology**

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**Commission 1.2 Soil Geography**

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**Commission 1.3 Soil Genesis**

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**Commission 1.4 Soil Classification**

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**Commission 1.5 Pedometrics**

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**Commission 1.6 Paleopedology**

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### Division 2 Soil Properties and Processes

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**Commission 2.1 Soil Physics**

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**Commission 2.2 Soil Chemistry**

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**Commission 2.3 Soil Biology**

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**Commission 2.4 Soil Mineralogy**

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**Commission 2.5 Soil Interfacial Reactions**

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### Division 3 Soil Use and Management

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<td><a href="mailto:destott@purdue.edu">destott@purdue.edu</a></td>
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Commission 3.1 Soil Evaluation & Land Use Planning
Chairperson Ricardo Ralisch  Brazil ralisch@uel.br
Vice-Chairperson Lamourdia Thiombiano  Burkina Faso Lamourdhth@yahoo.fr
2nd Vice-Chairperson Miguel Aitarza  Honduras ciathill@colorado.edu

Commission 3.2 Soil & Water Conservation
Chairperson Don Suarez  USA dsuarez@ussl.ars.usda.gov
Vice-Chairperson Yeong-Sang Jung  Korea jungysn@kangwon.ac.kr
2nd Vice-Chairperson Matilde Somarrriba-Chang  Nicaragua Matilde.Somarrriba@una.edu.ni

Commission 3.3 Soil Fertility & Plant Nutrition
Chairperson John Ryan  Syria j.ryan@cgiar.org
Vice-Chairperson Alvaro Garcia-Ocampo  Colombia sccsueloagarcia@uniweb.net
2nd Vice-Chairperson Cheryl Palm  USA c.palm@cgiar.org

Commission 3.4 Soil Engineering & Technology
Chairperson Rainer Horn  Germany rhorn@soils.uni-kiel.de
Vice-Chairperson Mukand Brar  India brarms@yahoo.com
2nd Vice-Chairperson Bin Zhang  P. R. China bzhang@issas.ac.cn

Commission 3.5 Soil Degradation Control
Chairperson Ravi Naidu  Australia ravi.naidu@adl.clw.csiro.au
Vice-Chairperson Tibor Toth  Hungary tibor@rissac.hu
2nd Vice-Chairperson Yonguan Zhu  China ygzhu@mail.rcees.ac.cn

Division 4 Soils in Sustaining Society and the Environment
Chairperson Emmanuel Frossard  Switzerland emmanuel.frossard@ipw.agrl.ethz.ch
Vice-Chairperson Tom Sims  USA jsims@udel.edu
2nd Vice-Chairperson Domy C. Adriano  USA Adriano@srel.edu

Commission 4.1 Soils and the Environment
Chairperson Lars Bergstrom  Sweden lars.bergstrom@mv.slu.se
Vice-Chairperson Peter Kleinman  USA pjk9@psu.edu
2nd Vice-Chairperson To be elected

Commission 4.2 Soils, Food Security, and Human Health
Chairperson Charles Rice  USA cwise@ksu.edu
Vice-Chairperson Josef Kozak  Czech Rep. kozak@af.czu.cz
2nd Vice-Chairperson Mary Beth Kirkham  USA mbk@ksu.edu

Commission 4.3 Soils and Land Use Change
Chairperson Andrew Sharpley  USA an3@psu.edu
Vice-Chairperson Deanna Lynn Osmond  USA deanna_osmond@ncsu.edu
2nd Vice-Chairperson Louis Verchot  Kenya l.verchot@cgiar.org

Commission 4.4 Soil Education and Public Awareness
Chairperson Mireille Dosso  France dosso@cnearc.fr
Vice-Chairperson Pam Hazelton  Australia p.hazelton@uts.edu.au
2nd Vice-Chairperson Rabah Lahmar  Algeria rabah@alliance21.org

Commission 4.5 History, Philosophy, and Sociology of Soil Science
Chairperson Benno Warkentin  USA benno.warkentin@orst.edu
Vice-Chairperson Dan Yaalon  Israel yaalon@vms.huji.ac.il
2nd Vice-Chairperson Hans Van Baren  Netherlands hans.vanbaren@wur.nl

Working Group AS Acid Sulfate Soils
Chairperson Leigh Sullivan  Australia lsulliva@scu.edu.au

Working Group CR Cryosols
Chairperson Sergey Goryachkin  Russia sergey.gor@mail.ru

Working Group LD Land Degradation
Chairperson Bal Ram Singh  Norway balram.singh@ipm.nilh.no

Working Group RB Reference Base
Chairperson Erika Micheli  Hungary micheli@kk.szie.hu

Working Group SCA Saline Soils
Chairperson Tibor Toth  Hungary tibor@rissac.hu

Working Group SCE Forest Soils
Chairperson P. K. Khanna  Germany pkhanna@gwdg.de

Working Group SU Urban Soils
Chairperson Wolfgang Burghardt  Germany wolfgang.burghardt@uni-essen.de
Dokuchaev Basic Soil Science Award

Victor Targulian has spent his 50-year scientific career striving to develop a pedology model as a basic Earth and Biosphere science. During that time, he has described the place and role of the pedosphere among the surface exogenic systems of the Earth and other terrestrial planets while formulating the concept of soil memory as a specific type of record of the biosphere-geospheres interactions. Targulian has developed the general theory of soil system behavior in-time based on the concept of characteristic times of the specific pedogenic processes. He has also studied and revealed the main features of the weathering and pedogenic processes in arctic and boreal humid areas of the northern Eurasia, while developing the method of very detail-field meso-morphological investigation in complex-organized soil bodies (Albeluvisols) and has studied their cutans assemblages as soil memory carriers and intrasoil barriers and membranes.

Liebig Applied Soil Science Award

Rattan Lal, Ph.D., professor of soil physics in the School of Environment and Natural Resources, and Director of the Carbon Management and Sequestration Center, FAES/OARDC at The Ohio State University (OSU), Lal served as a soil physicist from 1970 to 1987 at the IITA, Ibadan, Nigeria, conducting long-term experiments on land use, watershed management, methods of deforestation, erosion control, no-till farming, and agroforestry. Since joining OSU in 1987, he has worked on soils and climate change, soil degradation and global food security. He is a fellow of the American Society of Agronomy (ASA) Soil Science Society of America (SSSA), Third World Academy of Sciences, American Association for the Advancement of Sciences, Soil and Water Conservation Society (SWCS), and Indian Academy of Agricultural Sciences. He received the International Soil Science Award, the Soil Science Applied Research Award, and the Soil Science Research Award of the SSSA, the International Agronomy Award and Environment Quality Research Award and Carl Sprengel Agronomic Research Award of the ASA, the Hugh Hammond Bennett Award of the SWCS, and 2005 Borlaug Award. He was awarded an honorary degree of Doctor of Science from Punjab Agricultural University, India and of the Norwegian University of life Sciences, Aas, Norway. He is past president of the World Association of the Soil and Water Conservation and the International Soil Tillage Research Organization, and President-elect of the SSSA. He was a member of the U.S. National Committee on Soil Science of the National Academy of Sciences (1998-2002) and Lead Author of IPCC (1998-2000). He has served on the Panel on Sustainable Agriculture and the Environment in the Humid Tropics of the National Academy of Sciences. He has authored and co-authored about 1100 research publications, in addition has written 9 and edited or co-edited 43 books.

2006 Kubiëna Medal

Dr. Herman Mücher, one of three nominees for the Kubiëna Medal, 2006, was unanimously awarded the medal for his outstanding and innovative research based on a combination of meticulous observations in the field, in the laboratory, and in thin sections. During his early career, he founded the micromorphological laboratory at the University of Amsterdam, greatly improving preparation techniques. Recently, he has directed his research towards palaeosols, a theme that Kubiëna also probed. A most important aspect of his work has been his experimental approach toward sediment and soil transport as a basis for micromorphological interpretation of natural soils. During his career at the University of Amsterdam, he trained many graduate and postgraduate students, and was involved in all the Erasmus intensive courses on micromorphology until his retirement.

Kubiëna Medal Posthumous Award

Dr. A. Jongerius passed away in mid-life, shortly after the establishment of the Kubiëna Medal award. The Committee noted that, had Dr. Jongerius been nominated, he would have proved an outstanding candidate. Apart from his innovative and extensive scientific work, he was the de facto founder of the of the International Working Meetings on Soil Micromorphology, the driving force behind the International Working Group on Soil Micromorphology and the person who saw to the recognition of micromorphology as Subcommission B of the ISSS. Had he survived to the present we are certain he would have actively supported the Commission 1.1 Soil Morphology under the new structure. The posthumous award of the Kubiëna Medal to the late A. Jongerius is seen as an expression of appreciation for his outstanding and pioneering contribution to soil micromorphology.
Honorary Members

**Winfried E. H. Blum** earned his PhD in Natural Sciences in 1968 and became an associate professor in 1972, teaching soil science and serving as lecturer for clay mineralogy at the University of Freiburg, Germany, then became a visiting Professor and Director of a University Partnership Project at the State University of Paraná in Curitiba/Brazil. Since 1979 he has been Professor of Soil Science and Director of the Institute of Soil Research at the University of Natural Resources and Applied Life Sciences (BOKU) in Vienna/Austria. Since 2004 he has served as President of the European Confederation of Soil Science Societies (ECSSS). Blum was Chairman of the Commission of Soil Protection at the Council of Europe, Strasbourg/France (1989-1994) and Secretary-General of the International Union of Soil Sciences (IUSS) (1990-2002). He is a member of the Scientific Committee of the European Environment Agency (EEA), Copenhagen/Denmark (1994-2002). He has served as a Member of the Executive Board, of the Committee on Scientific Planning and Review (CSPR) and Chairman of the Standing Committee “Sciences for Food Security” of the World Council for Science (ICSU), Paris/France (1996-2002). He has served as Co-editor or member of editorial boards of 14 scientific journals and written about 450 publications in 9 languages in the areas of soil chemistry and mineralogy, land use, soil and environmental protection. He is an honorary member of several academies and national soil science societies, and has received numerous distinctions and awards.

**Hans-Peter Blume** as a student of agriculture and chemistry earned his Doctoral of Agricultural Science degree at Kiel University. His career included serving as assistant professor for Soil Science, at Stuttgart-Hohenheim, and professor of Soil Science at the Department of Ecology, Technical University of Berlin (West). At the University of Keil Dr. Blume has served as professor and director at the Institute of Plant Nutrition and Soil Science, and director at the Ecological Centre. His research has included “Stagnosols”, desert soils in the Central Sahara, soil ecology, and Cryosols in Antarctica. He has served as President of the German Society of Soil Science, as a member of the ISSS committee on Standardization, as a member of ISSS-WRB and an honorary member of the Polish, Romanian, and German Societies of Soil Science. Dr. Blume is Emeritus Professor, Institute of Plant Nutrition and Soil Science, University of Kiel.

**Johan Bouma** received his MSC and PhD degree at Wageningen University, the Netherlands, and served as a postdoc at the Soils Dept. University of Wisconsin in Madison, USA, studying soil disposal of septic tank effluent. In 1973 he became a UW Associate Professor with tenure. In 1975 he returned with his family to the Netherlands where he started the Department of Soil Physics at the Netherlands Soil Survey Institute (STIBOKA), becoming Deputy Director in charge of research in 1983. In 1986, he joined Wageningen University as Professor of Soil Inventarization and Land Evaluation, a position from which he retired in 2004. His research covered water and solute movement in structured soils, relating soil morphology to flow patterns; development of pedotransferfunctions; effects of soil management defined in terms of phenoforms, to be derived from a given taxonomic soil-genof orm; land use policy; and interactive research with stakeholders and policy makers. From 1998 to 2003 he was a member of the Scientific Council for Government Policy, a think-tank in the prime minister’s office. He is a fellow of the SSSA (1983), an elected member of the Royal Dutch Academy of Sciences (1989) and a Korrespondierender Mitglied Deutsche Bdenkundliche Gesellschaft (1989).

**Seong-Jin Cho** earned his PhD degree from Chungnam National University in 1967, specializing in soil fertility. He worked for 30 years as a professor of soil science and served for 4 years as the President of the Chungbuk National University, Korea, where he recently retired as an emeritus professor. During 1987 to 1988, Cho served as President of The Korean Society of Soil Science and Fertilizer. He organized a number of international symposia in soil sciences and related fields.

**Em. Prof. Jan Glinski** is a full member of the Polish Academy of Sciences. As the Director of the Institute of Agrophysics in Lublin during 1982 to 2003, he was the initiator and active promoter of scientific cooperation with many universities and institutes in Poland and abroad and organizer of international conferences on agrophysics. A member of the ISSS (since 1961) and vice-chairman of the Commission I (Soil Physics) of the ISSS (1986-1990) Glinski served as author or co-author of over 300 papers, 2 books (1985 and 1990), 26 monographs, 18 patents and 7 multilingual dictionaries of agrophysics. He specializes in searching for soil erosion processes, soil chemistry, soil aeration and its role in agriculture and environmental protection, as well as soil-root interactions. He has been an active participant of 8 World ISSS Congresses (1960, 1964, 1974, 1978, 1986, 1990, 1994, and 1998) and served as Editor-in-Chief of the journal International Agrophysics (since 1992).
Marcel G.H. Jamagne, now Emeritus Research Director of the National Institute for Agronomic Research (INRA), was President of the French Soil Science Society from 1995 to 1999 and Vice-President of ISSS/IUSS from 1994 until 1998. He was co-organizer of the 16th World Congress of Soil Science in Montpellier in 1998. Born in Brussels, he served as Engineer of Agronomy and Forestry in 1955, and earned his Doctor in Sciences (PhD) in 1973. He worked in Soil Survey in Central Africa for four years, returning to France to INRA, Soil Science Department. In 1961, he initiated a specific method of detailed survey that has been used later on by many countries in Europe and Northern Africa. In 1968, he created the Soil Survey Staff of France and served as Director and kept this responsibility until 1997, when he was appointed Emeritus Director. Since the 1970’s he has been national delegate and international expert for FAO, UNESCO, UNEP and the Council of Europe and the European Commission dealing with soil survey, use and conservation. He was nominated Chairman and general coordinator for the elaboration of the European Soil Geographic Database. He has professional experience in different regions of Europe, Africa, South America and Asia. Jamagne is still an active referee and reviewer for numerous editorial boards of scientific publications, and Chief Editor of the journal of the French Soil Science Society. He has been lecturer at different universities in Europe and South America. He is a Member of the Agricultural Academy of France and has received many awards during his career.

Donald R. Nielsen, Professor of Soil and Water Science at the University of California, Davis, taught soil physics courses, integrating chemical and biological processes. His research and that of his students included miscible displacement, microbiological transformations, scaling soil properties and analyzing field soil variability. While at Davis, he collaborated with 90 soil scientists from 40 countries. Nielsen retired in 1994, but he continues to visit and encourage young colleagues worldwide. He has served as president of Soil Science Society of America, American Society of Agronomy, Hydrology Section of the American Geophysical Union and Soil Physics Commission of ISSS. He is chair of the US National Committee of Soil Science.

J.H.V. van Baren, a long-term officer and first class leader in the ISSS and IUSS, has made major contributions to the Soil Map of the World and has been instrumental in the establishment and development of the unique World Soil Museum (ISRIC) in Wageningen. Dr. van Baren joined FAO-Unesco, working on the FAO-Unesco Soil Map of the World. Its completion in the mid 1970s is by many regarded as an important milestone in soil science. Later, van Baren conducted soil surveys in Bangladesh for FAO for two years before being posted to Kenya to assist with the development of the national soil survey institute. With his Dutch colleagues, (a.o. Dr. W. Sombroek) the first soil reconnaissance of the whole country was made followed by detailed mapping of areas of high agricultural potential. van Baren collected and prepared soil monoliths during his tenure with the International Soil Museum (ISM, now ISRIC following the classification of the FAO-Unesco Soil Map of the World). These monoliths were the foundation of the unique ISRIC collection of today, with over 900 soil profiles. The transfer of the International Soil Museum from Utrecht to Wageningen took place in 1978. In addition to the work on monoliths, van Baren was concerned with developing the display of soil monoliths in the exhibition hall. This display was based upon the categories of the Legend of the FAO-Unesco Soil Map of the World, extending the fascinating work he began with Dr Dudal in Rome. van Baren started the book review section of the ISSS Bulletin in the early 1970s. Each year the number of reviews grew and in the 1990s, he reviewed 100 to 150 books annually for the Bulletin. Many readers of the Bulletins have indicated that they found the book review section the most useful and informative part of the Bulletin. Elected Deputy Secretary General of the ISSS in 1999, he became heavily involved in the day-to-day management of the society including its transformation to a union (IUSS). He has been supportive in national soil science societies, particularly in developing countries and has maintained a wide global network of soil scientists. In 2002, he officially retired from his Deputy Secretary General post of the IUSS, but he continues to review books for the IUSS Bulletin.

Larry P. Wilding is Professor Emeritus, Soil and Crop Sciences Department, Texas A&M University, College Station, TX. He earned his PhD from the University of Illinois in 1962 and has served as a pedologist on the faculty of The Ohio State University from 1962 to 1976; as Visiting Professor at the University of Guelph, Ontario, Canada, from 1971 to 1972; and as Professor of Pedology at Texas A&M University from 1976 until his retirement in 2003. He has over 40 years of teaching and research experience in near surface geoscience processes, soil diversity, soil micromorphology, hydric soils, soil classification, Vertisol genesis, soil carbonate enrichment, soil carbon sequestration, surface mine reclamation, and international agriculture land use and development. He served as president of the Soil Science Society of America, charter member of the US National Committee on Soil Science, member of several NRC/NAS Committees, member of the Executive Committee of the American Geological Institute, Chairman of Subcommission B (Soil Micromorphogy) of the International Soil Science Society, Member of Statutes and Structure Standing Committee of the International Union of Soil Sciences, and currently serves as the co-chairperson of the 18th World Congress of Soil Science Organizing Committee. He is a registered Professional Soil Scientist and Professional Agronomist with ARCPACS, Soil Science Society of America, and Professional Licensed Geoscientist (Soil Scientist) in the State of Texas.
Language

English is the official language of the Congress.

Transportation

Taxi Cabs

A fleet of 1,400 cabs serves the area. Fare is metered. There is an additional charge for two or more passengers. Fare from the airport to Center City is a flat rate.

Local Transit System

The Southeastern Pennsylvania Transportation Authority (SEPTA), http://www.septa.org/, offers commuter service to Philadelphia’s suburbs. Suburban Station and Market East regional rail stations are in the heart of the business, shopping and hotel districts. SEPTA also operates a large number of bus routes throughout the city and suburbs.

Parking

Parking is available at hotels and at lots located near the Convention Center.

Onsite Registration

WCSS Registration Center

On-site Registration services will be available from 9 am to 6 pm on Saturday, July 9, 2006 and from 9 am to 7 pm on Sunday, July 10. On-site registration will also be available from 8 am to 5 pm Monday through Thursday, July 10-13 and from 8 am to 10 am on Friday, July 14.

Pre-Registration services will be available from 9 am to 6 pm on Saturday, July 9, 2006 and from 9 am to 9 pm on Sunday, July 10. Registration services will also be available from 8 am to 5 pm Monday through Thursday, July 10-13 and from 8 am to 10 am on Friday, July 14.

Badge

When you arrive on site, you will receive your registration materials and a badge that you must wear throughout the Congress and in the Convention Center. It is not possible to attend any sessions, exhibits, or lectures without your badge. Access to the opening reception, exhibit hall, and other Congress events requires badge identification.

Congress Business Office

The Congress will host a business office in Room 303A at the Pennsylvania Convention Center. Hours of the business office will be 8 am to 5 pm on Monday, July 10 through Friday, July 15, 2006. On Saturday and Sunday, July 8 and 9, 2006, business hours will be from 9 am to 7 pm.

Certificate of Attendance

Each registered participant will receive a certificate of attendance with their registration materials.

Exhibit Space

The exhibits are located in Hall A at the Pennsylvania Convention Center. Exhibit hours are 3:00 –7:00 pm on Sunday, July 9 and from 9:00 am-6:00 pm Monday, July 10, 2006 and Tuesday, July 11, 2006.

Press Room

Members of the media and public information officers will have access to the WCSS Press Room located in Room 302 of the Pennsylvania Convention Center. Press Room hours: 7:30am - 5:30 pm, Monday–Friday (closed Wednesday for tours), July 10–14. If your institution/organization has written a Press Release that covers the WCSS, these can be dropped off at the Press Room. Press/PIO contact: Sara Uttech, Soil Science Society of America, suttech@soils.org

Accompanying Person Lounge

A lounge for registered accompanying persons is located in the WCSS Registration Center on the second floor of the Pennsylvania Convention Center. It will be open 1 pm to 4 pm on Sunday, July 9 and 8 am –12 noon on Monday through Friday, July 10-14.

Message Board

Connect with colleagues through the message board, available in the WCSS Registration Center on the second floor of the Pennsylvania Convention Center.

Email Oasis

Computers with internet access are available for you to stay connected to home. The Email Oasis is located in Room 106 of the Pennsylvania Convention Center and will be open from 12 noon to 10 pm on Sunday, July 9, from 7 am to 10 pm on Monday through Thursday, July 10-11, and from 7 am to 6 pm on Friday, July 14. Please limit yourself to 10 minutes per visit to allow all attendees to utilize this service.

Congress Program

The Congress begins at 7 pm on Sunday, July 9 with the Opening Reception. Technical sessions begin at 8 am on Monday, July 10 with the Opening Session and continue through the week, ending on Saturday, July 15, with the Closing Session from 9 am to 11:30 am. Educational sessions will be held on the first floor of the Pennsylvania Convention Center with the exception of the Opening and Closing Sessions, which are held in the Grand Ballroom, located on the second floor of the Pennsylvania Convention Center. Poster theatre sessions provide an opportunity for poster authors to present a brief synopsis of their abstract that is available for viewing. Poster theatre sessions are held in the Exhibit Hall A throughout the congress.

Poster Location

An unprecedented number of poster abstracts are available for viewing at the World Congress of Soil Science. All posters will be available for viewing throughout the Congress. Posters 101-1976 are located in the Exhibit Hall A on the second floor of the Pennsylvania Convention Center. All other posters are located on the first floor of the Pennsylvania Convention Center. Posters 2001-2408 are located in Room 105, posters 2501-2806 are located in Room 104 and posters 2901-3516 are located in room 103. All poster abstract authors are asked to display a 2-hour period of time in which they will be available at their poster for discussion.
**Speaker Ready Room**

The Speaker Ready Room is located in Room 101 of the Pennsylvania Convention Center. All oral presenters are required to bring their presentations to the Speaker Ready Room by 4 pm of the day prior to their presentation. Presenters are able to review, edit, and finalize their presentations prior to loading it onto the presentation management system. A computer specialist will be able to assist you in this process. Upon completion, your presentation will be loaded onto the computer in the meeting room in which you will be presenting. This process allows for a smooth transition between presenters within sessions. The Speaker Ready Room will be open from 12 noon to 6 pm on Sunday, July 9, from 7 am to 6 pm Monday through Friday, July 10-14.

**Stamp Collection**

A stamp collection is available for viewing near the WCSS Registration Center on the second floor of the Pennsylvania Convention Center. Viewing hours are consistent with hours in which the WCSS Registration Center is open.

**Currency**

Currency in the United States of America is the U.S. Dollar.

**Credit Cards**

Commonly accepted credit cards in hotels, restaurants, and shops and at the registration desk are Master Card, Visa, American Express, and Discover. Restaurants and shops generally display signs indicating which cards they accept.

**Cash Dispensers (ATM)**

Several automatic teller (ATM) or banking machines (ABM) are available in the Marriott Hotel, the Pennsylvania Convention Center, and at numerous locations in nearby businesses.

**Tourist Information**

Pick up a Visitor’s Guide to Philadelphia at the Restaurant Desk in the WCSS Registration Center on the second floor of the Pennsylvania Convention Center. Tourist information is also available at http://www.phillyvisitor.com/.

The Restaurant Desk is also available to assist in making dinner reservations throughout the week.

Many Philadelphia businesses offer discounts to convention attendees. Please refer to the Show Your Badge and Save flyer included in your registration materials.

**Communication**

**International Telephone Calls**

If you will be making an international telephone call from Philadelphia to another country, please consider using phone calling cards. If you dial an international call from your hotel room without using a phone card, the rates will be very high. You can still use the phone in your hotel room to place the call, but do so by using a phone card. These cards are available in various drug stores on Market Street.

**Internet Access**

Wireless internet access is available in the Convention Center on a fee basis. The Organizing Committee will make arrangements to provide participants with a limited number of computers connected to the Internet.

**Tourist Information**

Information on additional activities in Philadelphia is available at http://www.phillyvisitor.com/.

**Concessions**

Concessions are available during lunch in the back of Hall A, Pennsylvania Convention Center, second floor.

**University of Pennsylvania Dorms**

**UPA Dorm Guides**

To better assist individuals staying at the UPA dorm, the WCSS has arranged to have graduate student volunteers available to lead groups of individuals to and from the UPA dorm through use of public transportation at specified times (please see schedule below). Volunteers will be wearing a burgundy WCSS polo shirt and a host ribbon on their name badge. The volunteer guide is a complimentary service, however, individuals are responsible for the $2.00 one-way fee for public transportation.

**To the Pennsylvania Convention Center**

Meet the volunteer guide in the lounge on the first floor in the back of Hamilton College House. Guides will depart at the following times.

- **Sunday, July 9, 2006**
  - 8:30 am and 10:30 am
- **Monday, July 10, 2006**
  - 6:30 am, 7:30 am, 8:30 am, and 9:30 am

**To the University of Pennsylvania (UPA) Dorm**

Meet the volunteer guide in the WCSS Registration Area on the second floor of the Pennsylvania Convention Center. Guides will depart at the following times.

- **Sunday, July 9, 2006**
  - 4:30 pm and 6:30 pm
  - 8:30 pm and 10:00 pm
- **Monday, July 10, 2006**
  - 4:30 pm, 5:30 pm, and 6:30 pm
Pre Congress

Tour 7—Acid Sulfate Soils of U.S. Mid-Atlantic/Chesapeake Bay Region

Contact: Del Fanning, Univ. of Maryland (dsf@umail.umd.edu)
Tour Starts: July 6, 2006, in Philadelphia, PA
Tour Ends: Saturday, July 8, 2006
No. of Participants: Minimum 30; Maximum 45
Cost: $550

This tour will bring together soil scientists with a strong interest in acid sulfate soils to demonstrate the kinds of acid sulfate soils, and societal environmental problems related to them, in the region surrounding the Delaware and Chesapeake Bay. A primary goal will be to show the wide variety of acid sulfate soils (potential, active, and post-active) that occur in this region. Potential acid sulfate soils, primarily Sulfaquents and Sulfihemists, occur as tidal marsh soils and as subaqueous soils in shallow bays. Many of the tidal marsh soils around Chesapeake Bay are “submerged upland” soils because of slowly (sea level rise of about 5mm/year) subsiding landscapes. Active acid sulfate soils (Sulfaquents, Sulfudalpts and Sulfic Endoaquents) occur primarily because of human disturbance of sulfidic materials. They occur in dredged materials in diked disposal areas and in uplands where Cretaceous and Tertiary sediments have been exposed by construction activities. Many of the native upland soils of this region, many of which are Ultisols by Soil Taxonomy, are post-active acid sulfate soils. Jarosite that formed thousands if not millions of years before present is found in the oxidized zone in which these soils exist. Pyrite occurs in the unoxidized zone that may be found at depths of 2 to 20 meters. These and other sulfur-bearing minerals (e.g. gypsum formed from carbonate shells) attest to the role that acid sulfate soil processes have played in the development of these soils. Iron “oxide” and silica cementation features from some of these soils are thought to have formed by acid sulfate soil processes. The need for improved acid sulfate soil education of engineers involved in construction activities in these landscapes will be pointed out.

Post Congress | SOLD OUT

Tickets are no longer available

Tour 1—Cryosols and Arctic Tundra Ecosystem

Formerly listed as a Pre Congress Tour
Contact: Chien-Lu Ping, Univ.of Alaska (pfclp@uaf.alaska.edu)
Tour Starts: July 16, 2006, at Fairbanks, AK
Tour Ends: July 22, 2006, at Fairbanks, AK
No. of Participants: Minimum 15; Maximum 20
Cost: $2380

NOTE: Sleeping bags are required for the 4 night stay at Toolik Lake Station.

The tour will take participants through the boreal forest in the Fairbanks area of interior Alaska to view the effects of landform and slope aspect on soil formation. The interior Alaska is in the zone of discontinuous permafrost. The distribution of permafrost is controlled by drainage, slope and aspect, and vegetation succession after wildfires. In Fairbanks near the University Campus the tour will lead the delegates to a catena in which the effect of slope and aspect on permafrost distribution is evident. Also in the area the delegates will see the result of land clearing 50 years ago in soils with ice lens and ice wedges. In addition, the tour will tour the Fox Permafrost Tunnel to study the formation of ice wedges and lenses from under the ground surface. The construction of the pipeline and the engineering solutions to overcome permafrost hazards will be discussed. Further north, the tour will lead the delegates to cross the Arctic Circle and across the Brooks Range into the treeless arctic tundra of the North Slope of Alaska. The delegates will examine the non-sorted circle formation and the cryoturbated tundra soils on Arctic Foothills and the Arctic Coastal Plain. Infrastructure design to overcome potential problems caused by permafrost in the oil field on the arctic coast will be discussed. Here in northern Alaska, the delegates will experience 24 hours of sunlight and see wildlife along the way. The tour starts with a bus from Fairbanks and also ends in Fairbanks.

Mid Congress Tours

Wednesday, July 12, 2006

To purchase a ticket for a Mid Congress tour go to the WCSS Registration Center located on the Bridge, second floor at the Pennsylvania Convention Center. Tours depart from the 12th Street tunnel

Tour 19—The Rodale Institute® Regenerative Agriculture Tour, Crystal Cave, and Cabela’s Outfitters

Contact: John Chibirka (john.chibirka@pa.usda.gov)
No. of Participants: Minimum 30; Maximum 45
Cost: $180
Time: 8:00 am to 8:00 pm

For more than half a century, The Rodale Institute has promoted the message of “Healthy Soil, Healthy Food, Healthy People”® to a global audience. Situated on 333 rolling acres in Kutztown, Pennsylvania, this truly dynamic non-profit organization works to support the positive attributes of organic/regenerative agriculture locally, regionally and internationally, based on scientific assessment, practical application and outreach. The Farm Tour provides a guided look at the Farming Systems Trial, plus a unique opportunity to see organic no-till research, mycorrhizal fungi studies and use, composting, and compost tea technology. In addition, you will have the opportunity to visit the museum exhibit “Food Essence of Life” and The Institute’s Bookstore that sells a variety of gardening accessories and gifts.

Tour 20—New Frontiers in Soil Survey

Sponsor: Chester County Conservation District and USDA-NRCS
Contact: John Chibirka (john.chibirka@pa.usda.gov)
No. of Participants: Minimum 30; Maximum 90
Cost: $170
Time: 8:00 am to 6:00 pm

We will travel through Southeast Pennsylvania to visit a MLRA Soil Survey Project Office and view the methods and technologies that are being used to update and maintain soil surveys on a Land Resource Area basis. Demonstrations will show how Geographic Information Systems, the National Soil Information System (NASIS), Global Positioning Systems, computer Stereo Analysis of landforms and digital soil maps, Spatial Analysis and other technologies are being used to update and maintain soil survey maps and data. The field portions of this tour will travel through Lancaster County looking at land use changes and their influence on soil properties, Farmland Preservation and provide demonstrations of field survey field data collection using methods that include soil property measurements, GPS, non-invasive geophysical tools (Ground Penetrating Radar and Electro-Magnetic Induction) techniques. Comparisons of historic soil surveys and maps with modern soil survey data will be observed at the field sites.
Tour 21—Watershed Research & Management in Action
Sponsor: USDA-ARS
Contact: Andrew Sharpley (Andrew.Sharpley@ars.usda.gov)
No. of Participants: Minimum 30; Maximum 45
Cost: $100
Time: 7:30 am to 6:30 pm

A one-day tour of the U.S. Department of Agriculture - Agricultural Research Service Watershed Management research facility at Klingerstown, Pennsylvania will be offered. This location is about 150 miles from Philadelphia; an approximate three-hour drive. At the location, tour members will be shown how ARS is investigating the impact of agricultural management on water quality in several watersheds. Demonstrations will be given of specialized equipment that quantifies surface and subsurface water movement and nutrient transport. Inspection pits of local soils will be available for viewing. Visits to local farms will also highlight current pressures and practical solutions to farming and of Best Management Practices that protect water quality. Stops during the trip to and from Philadelphia will be made highlighting state-of-the-art feed management for concentration animal feeding operations and its role in nutrient management planning strategies.

Tour 23—The du Pont Family Legacy
Sponsor: du Pont Company, Longwood Gardens, and University of Delaware
Contact: Gerald Hendricks (hendrick@udel.edu)
No. of Participants: Minimum 30; Maximum 45
Cost: $100
Time: 8:30 am to 9:30 pm

A full day tour of ancestral homes of members of the du Pont family that currently showcase the history of industrial development and technology, horticulture, and American art history. We first visit Hagley Museum and Library. Located on 235 acres along the banks of the Brandywine River, Hagley is the site of the gunpowder works founded by E. I. du Pont in 1802. This example of early American industry includes restored mills, a workers' community, and the ancestral home and gardens of the du Pont family.

Next stop will be Winterthur, the former home of Henry Francis du Pont, an avid antiques collector and horticulturist. In the early 20th century, H. F. du Pont and his father, Henry Algrenon du Pont, designed Winterthur in the spirit of 18th and 19th-century European country houses. We'll start with lunch, followed by the Elegant Entertaining Tour to experience elegant rooms where the du Pont family entertained, with some time allowed to wander through the 60-acre naturalistic Winterthur Garden.

The final stop is Longwood Gardens, one of the world's premier horticultural display gardens. Created by industrialist Pierre S. du Pont, Longwood offers 1,050 acres of gardens, woodlands, and meadows; 20 outdoor gardens; 20 indoor gardens within 4 acres of heated greenhouses; 11,000 different types of plants; and spectacular fountains. We will be treated to a behind the scenes tour of Longwood's Soil and Compost Facility, followed by time to explore the gardens, and finishing the day with dinner at the Terrace restaurant.

Tour 24—Cedar Meadows Farm & Lancaster County
Sponsor: USDA-NRCS and Lancaster County, PA
Contact: Ed White (ed.white@pa.usda.gov)
No. of Participants: Minimum 30; Maximum 45
Cost: $165
Time: 7:15 am to 7:00 pm

Steve Groff and his family farm 175 acres of vegetables and crops on hilly land in Lancaster County, Pennsylvania. He has pioneered the “Permanent Cover Cropping System”, which includes no-tillage, cover crops, and effective crop rotations as a way to increase profits, enhance soil and water quality, and reduce pesticides. The cornerstone of this system is a unique emphasis on maintaining a permanent cover of crop residues and cover crops on the soil surface and having something living in the soil at all times. All vegetables and crops are then seeded or transplanted into the organic mulch. This permanent cover aids in weed control, has virtually eliminated soil erosion on the farms 3-17% slopes, and has increased soil and water quality. This trip will travel through Pennsylvania Dutch County and Amish Farms, stop at a Preserved Farm in Lancaster County, Pennsylvania for a discussion of farmland preservation programs and a look at the soil profile of the famous limestone soils of Lancaster County. Then travel with a local tour guide to an Old Order Amish farm for a home cooked meal. The tour will then travel to Cedar Meadow Farm and hear about the no-till farming systems and research that has been conducted at the farm by Penn State University, University of Maryland, and the USDA-NRCS. At Cedar Meadow Farm the tour will also observe the soil profiles under long-term no-tillage, conventional cropping and woodland within the Pennsylvania Piedmont in Lancaster County.

(NOTE: lunch will be at an Amish Farm with no air conditioning, it can be very hot and humid in July)

Tour 26—New Jersey Pine Barrens Soils Ecology
Sponsor: Rutgers University and USDA-NRCS
Contact: Joseph Heckman (heckman@aesop.rutgers.edu) 
No. of Participants: Minimum 30; Maximum 45
Cost: $155
Time: 8:00 am to 6:00 pm

The tour will visit sites across the coastal plain of New Jersey to learn about the unique ecosystem known as the “Pine Barrens”, or Pinelands. Native vegetation covering the infertile, droughty, sandy (Spodosol/Podzol) soils of this region is primarily pitch pine-scrub oak forest, growing no more than 2 meters in height in some places (Pygmy Plains). Specialty agriculture finding its niche in the area includes cranberry bogs and blueberry fields, which will be discussed at the Rutgers-NJAES/USDA-ARS Marucci Blueberry and Cranberry Research & Extension Center in Chatsworth. A stop at Batsto Village will illuminate the historical extraction of bog iron and production of glass from sand mines. Finally, a historic greensand mining region will be visited to examine the distinctive soils of glauconitic parent material. The tour will include a visit to a New Jersey winery.

Tour 27—Sustainable Systems and Crop Modeling Research at Beltsville Agricultural Research Center
Sponsor: USDA-ARS
Contact: V. R. Reddy (vreddy@asrr.ars.usda.gov)
No. of Participants: Minimum 30; Maximum 45
Cost: $135
Time: 7:30 am to 5:30 pm

This tour will encompass some of the sustainable systems and crop modeling research at the Beltsville Agricultural Research Center (BARC) in Beltsville, Md. The first stop of this tour will be at the Crop Systems and Global Change Laboratory’s Soil-Plant-Atmospheric-Research (SPAR) facility. The Sunlit controlled environment chambers, known as SPAR chambers, have been built to evaluate plant responses to important environment and soil variables. The second stop will view crop research currently being conducted by the Sustainable Agricultural Systems Lab. Lunch will be served at the ARS National Visitors Center. The third stop is the long-term Farming Systems Project (FSP) which contains conventional cropping systems and organic cropping systems for sustainable production of field crops. The focus of this site is on changes in soil physical properties, nutrient dynamics, and biological communities in response to cropping system effects and spatially distributed landscape effects. The final stop will discuss research on glomalin and rhizosphere colonization.
Tour 28—Animal and Natural Resources Research at the Beltsville Agricultural Research Center

Sponsor: USDA-ARS
Contact: V. R. Reddy (vreddy@asrr.arsusda.gov)
No. of Participants: Minimum 30; Maximum 45
Cost: $135
Time: 7:30 am to 5:30 pm

This tour will encompass some of the soil and water research being conducted at the Beltsville Agricultural Research Center (BARC) in Beltsville, Md. The first stop of the tour will be at the Hydrology and Remote Sensing Lab’s (HRSL) OPE3 watershed study site. Research is being conducted to determine how farming methods can be altered for better long-term environmental and economic consequences. The second stop of the tour will be at the HRSL’s and Natural Resources Conservation Service’s Soil Climate Analysis Network (SCAN) site. This site is part of cooperative nationwide comprehensive soil moisture, soils and climate system to support natural resource assessments and conservation activities. Lunch will be served at the ARS National Visitors Center. The third stop will be at Environmental Management and By-Product Utilization (EMBU) Laboratory phytoremediation field test site. Natural metal hyperaccumulator plants will be shown growing on the metal rich soils. Raised bed plots with several ecotypes will illustrate the range of plant variation available for breeding improved cultivars for commercial phytoremediation. The final stop will be at the Beltsville Composting & Research Facility. You will learn about research by the Sustainable Agricultural Systems, Environmental Microbial Safety, and the EMBU labs that has led to development of criteria for pathogen reduction in manure compost, hybrid composting technologies, designer products, innovative uses, and novel delivery systems for field, landscape, and horticultural uses of compost in rural and urban settings.

Workshops

Measuring Water Content, Water Potential and Water Flow in Soils: A Short Course for Soil Scientists

Sponsor: Decagon Devices, Pullman, WA
Date: July 8, 2006
Cost: $75
Location: Marriott Hotel, Room 401–402, Fourth floor
Time: 8:30 am–5:30 pm

Modern methods for measuring soil moisture will be presented, discussed and used. TDR, capacitance, and thermal probe measurements for water content; tensiometer, thermal, dielectric, and psychrometric methods for water potential; and tension infiltrometers and lysimeters techniques for hydraulic conductivity and flow will be presented. The material will be presented through lectures and short, hands-on lab sessions.

The Use of Nuclear Techniques in Addressing Soil-Water Nutrient Issues for Sustainable Agricultural Production

Sponsors: Food and Agriculture Organization and International Atomic Energy Agency
Date: July 9, 2006
Location: Pennsylvania Convention Center, room 107 AB, First floor
Cost: $25 (fee waived with IAEA approval)
Time: 8:30 am–5:30 pm

The workshop will provide an excellent opportunity for participants to exchange information on nuclear techniques in agriculture and to attend the 18th World Congress of Soil Science Congress. The scope and issues to be addressed at the Workshop include: (i) The use of isotopic tracers and soil moisture neutron probes to quantify stocks and flows of carbon, nutrients, water and soil in cropping systems, (ii) The use of isotopic markers or tracers in germplasm selection or breeding programmes for enhanced tolerance to abiotic stresses, (iii) Soil carbon sequestration and conservation agriculture in mitigating soil erosion, fertility degradation and desertification, (iv) Agricultural water management and productivity (crop water productivity and agricultural water resource assessment or measurement) and (v) Integrated soil-nutrient management in agro-ecosystems (e.g., use of crop residues and fertilizer utilization efficiency and losses to environment). Additional information is available at www.18wcss.org. Applications for grants to attend the Workshop and conditions for grant applications can be obtained from IAEA (Official.Mail@iaea.org ).
Cultural Activities

Sunday, July 9

The Barnes Foundation
1:00–5:00 pm based on availability.
Minimum 20; Maximum 23
Fee per person: $48.00*
The Foundation was established in 1922 by Dr. Albert Barnes "to promote the advancement of education and the appreciation of the fine arts." The Barnes Foundation houses one of the world's finest private collections of Post-Impressionist and early French modern art, including works by Renoir (180), Cézanne (69), Matisse (60), and Picasso, Monet and Manet. Art from every corner of the globe is grouped with fine examples of antique furniture, ceramics, hand-wrought iron and Native American jewelry. The gallery is located on a 12 acre arboretum on the Philadelphia Main Line and once was the home of Dr. Barnes.

Historic Philadelphia
1:00–5:00 pm
Minimum: 35; Maximum: 44
Fee per person: $36.00*
King Charles II granted William Penn, an English Quaker, a parcel of land in the new World in 1682 as payment for a debt the Crown owed Penn's father. The city grew rapidly, becoming the second largest English-speaking city in the world just before the American Revolution. Philadelphia was the Revolutionary War capital, except for nine months during the British occupation. You will see the Liberty Bell, the hallowed symbol of our nation's freedom; see where the Declaration of Independence was adopted; Congress Hall where Congress sat while Philadelphia was the capital of the United States from 1790 to 1800; Franklin Court, the site of the house and print shop of one of Philadelphia's most prominent citizens - Benjamin Franklin, and more.

Monday, July 10

Longwood Gardens
9:00 am–1:00 pm
Minimum: 35; Maximum: 44
Fee per person: $50.00*
Longwood is sure to delight anyone who loves exquisite flowers, majestic trees, and opulent architecture. Here, amid 1050 outdoor acres and 20 indoor gardens, you'll find perfection at every turn. Spend some time enjoying the water gardens, arboretum, bonsai displays, desert house and much more at this duPont estate. Longwood is always in bloom! http://www.longwoodgardens.org/

Valley Forge
1:00 pm–5:00 pm
Minimum: 35; Maximum: 43
Fee per person: $38.00*
Of all places associated with America's War for Independence, none conveys the suffering, sacrifice and ultimate triumph more than Valley Forge. Here you'll tour Washington Headquarters, visit the soldiers huts, see the Memorial Arch and visit the Memorial Chapel. Valley Forge is the story of an army's epic struggle to survive against terrible odds, hunger, disease and the unrelenting forces of nature. http://www.valleyforge.org/vfpark.asp

Tuesday, July 11

Historic Philadelphia
8:30 am–12:30 pm
Minimum: 35; Maximum: 44
Fee per person: $36.00*
King Charles II granted William Penn, an English Quaker, a parcel of land in the new World in 1682 as payment for a debt the Crown owed Penn's father. The city grew rapidly, becoming the second largest English-speaking city in the world just before the American Revolution. Philadelphia was the Revolutionary War capital, except for nine months during the British occupation. You will see the Liberty Bell, the hallowed symbol of our nation's freedom; see where the Declaration of Independence was adopted; Congress Hall where Congress sat while Philadelphia was the capital of the United States from 1790 to 1800; Franklin Court, the site of the house and print shop of one of Philadelphia's most prominent citizens - Benjamin Franklin, and more.

Atlantic City
9:00 am–5:00 pm
Minimum: 35; Maximum: 44
Fee per person: $50.00*
Spend the day or evening in the Las Vegas of the East where a cash bonus awaits you upon arrival. Atlantic City is a must if you've never been there and is always recommended for repeat fun. A beautiful boardwalk beside the Atlantic Ocean, excellent restaurants and wonderful shopping offer endless adventure. And of course, the extensive selections of casinos for your gambling pleasure. Must be 18 years old. http://www.atlanticcitynj.com/

Italian Market
2:00 pm–5:00 pm
Minimum: 20; Maximum: 22
Fee per person: $35.00*
Philadelphia's Italian Market is the oldest and largest working outdoor market in the United States. Still predominantly Italian, it offers the best of many cultures and cuisines to the shopper. Termini Brothers Bakery is a Philadelphia landmark and one of our most unique and treasured traditions for over 75 years. Using recipes and tools dating back to 1890, Termini's depicts "The Way it Was" and of course, some samples. Another family owned and operated business for over 50 years is DiBruno Brothers' "House of Cheese". This old world European style cheese shop features over 400 different types of cheeses and an overwhelming variety of gourmet food from around the world. http://www.phillyitalianmarket.com/

Spirit of Philadelphia-Dinner Cruise
6:00 pm–10:30 pm
Minimum: 35; Maximum: 44
Fee per person: $85.00*
Come aboard the Spirit of Philadelphia and see the city from the river. Enjoy a breathtaking view of the city's skyline as you cruise along the historic Delaware River. Enjoy a freshly prepared buffet, a festive floorshow, lively dance music and a fascinating tour of the Delaware River. See the famous Walt Whitman Bridge, the New Jersey State Aquarium and Penn's Landing where William Penn first anchored his ship on his voyage to the New World. Good food, lively entertainment and free-spirited laughter - this is what a Spirit cruise is all about!

*Tour fees include transportation, guide, admissions, meals as listed in individual tours and amenities.
**Wednesday, July 12**

**Pennsylvania Dutch Country**
9:00 am–5:00 pm  
Minimum: 35; Maximum: 44  
Fee per person: $50.00*  
Your guide will acquaint you with the customs and lifestyles of these quiet people who live without the modern conveniences we all take for granted. You will visit an Amish house/farm; and enjoy a real Pennsylvania Dutch style lunch with all of the trimmings including Country Baked Ham, Fried Chicken, Mashed Potatoes, Sausage, Noodles, Chow Chow, Shoofly pie and much more. There will be time for shopping at Kitchen Kettle in Intercourse for Amish specialties such as jams and relishes, quilts and other crafts before returning to the hotel and the 21st century. [http://www.800padutch.com](http://www.800padutch.com)

**Atlantic City**
9:00 am–5:00 pm  
Minimum: 35; Maximum: 44  
Fee per person: $50.00*  
Spend the day or evening in the Las Vegas of the East where a cash bonus awaits you upon arrival. Atlantic City is a must if you’ve never been there and is always recommended for repeat fun. A beautiful boardwalk beside the Atlantic Ocean, excellent restaurants and wonderful shopping offer endless adventure. And of course, the extensive selections of casinos for your gambling pleasure. Must be 18 years old.  

**Winterthur**
9:30 am–2:30 pm  
Minimum: 35; Maximum: 44  
Fee per person: $55.00*  
Beginning in 1811, four generations of du Pont’s farmed the Winterthur landscape. Henry Francis du Pont (1880-1969), Winterthur’s last private owner developed a renowned herd of Holstein-Friesian dairy cattle, collected American Decorative Arts and pursued a lifelong interest in horticulture and landscape design. Your visit will include a docent tour of du Pont’s remarkable collection in the 16 period rooms and a tram ride through the gardens and time for browsing in their wonderful gift shop. Lunch on own and closed on Mondays.  

**Battles on the Delaware**
1:00 pm–5:00 pm  
Minimum: 35; Maximum: 44  
Fee per person: $60.00*  
Take the ferry across the Delaware River and enjoy the beautiful Philadelphia skyline. Once on land you will be able to tour the Battleship U.S. New Jersey. The New Jersey was one of the most decorated battleships on the U.S. Naval history and a floating city. The Battleship New Jersey had a complement of nearly 3,000 men during World War II. Enjoy the skyline of Philadelphia as you take the ferry back. Once on land, we’ll tour the Independence Seaport Museum and learn about the river and what an important part it is to Philadelphia’s economy.

**Candlelight Tour/City Tavern**
6:30 pm–10:30 pm  
Minimum: 35  
Fee per person: $80.00*  
Step back in time as you board a trolley that will transport you back to colonial Philadelphia. Stroll the cobblestone streets of Society Hill, one of the oldest and most elegant neighborhoods in the country. Here you’ll pass by hidden gardens and courtyards as you learn about life in colonial times. Dinner is served at The City Tavern, once called “the most genteel tavern in America” by John Adams.
Exhibit Hours
Hall A, Pennsylvania Convention Center
3:00–7:00 pm Sunday, July 9
8:00 am–6:00 pm Monday, July 10
8:00 am–6:00 pm Tuesday, July 11

19th World Congress of Soil Science
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REPRESENTATIVES: Albert Knol, Wim Bulten

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Elementar has thousands of enthusiastic users all over the world. For more than 20 years, Elementar has manufactured quality instrumentation for plant and soil scientists. Elementar’s instruments include the vario Max CNS elemental analyzer with automatic ash removal and the vario MACRO CNS analyzer, which has a high level of performance at a modest cost. The vario Max CNS elemental analyzer with automatic ash removal will be shown. The Max can run from milli-gram to multi-gram samples of liquids or solids. 2.5 gram soil samples or 4 ml water samples are typical. The Max may also be coupled with Isotope Ratio Mass Spectrometers. The vario Max IRMS system has the ability to determine isotopic ratios of C, N and S simultaneously. We are also featuring the vario MACRO CNS analyzer, which has a high level of performance at a modest cost.

REPRESENTATIVES: Scott Hughes, Sandy Hughes

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Environmental Growth Chambers (EGC) has over fifty years experience in the design and manufacture of controlled environment chambers. EGC has the largest selection of plant growth chambers for agriculture research of any company worldwide. We also produce tissue culture chambers; walk-in controlled environment rooms, lighted and refrigerated incubators, day-lit chambers, root zone cabinets, microprocessor, and central computer systems for control and monitoring. Please stop by to discuss your upcoming projects.

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Booth 108
Environmental Sensors Inc. is a global market leader in the field of moisture sensing instruments. Over the last decade, ESI has pioneered the use of moisture monitoring sensor technology in a broad range of environmental, civil engineering and agricultural applications. We specialize in working with challenging soil conditions, such as clay or saline soils. The full range of ESI moisture sensing and advanced irrigation control products is currently being used in scientific institutions around the world to supply equipment with the accurate reliable data that they need for their work. Visit our display booth (#108) to hear the full ESI story.
REPRESENTATIVES: Graham Howe  Pierre Ballester

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With annual sales of more than $560 million, ESRI remains the world leader in the geographic information system (GIS) software industry. Our business involves the development and support of GIS software for all types of organizations—from the one-person office to multinational corporations to innovative Internet GIS solutions.
REPRESENTATIVE: Anne Taylor

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Website: www.agrarstudium.de; www.dbges.de
Booths 502, 504
The purpose of the Deutsche Bodenkundliche Gesellschaft (DBG) is to promote soil science as an independent scientific discipline and strengthen its integration within related disciplines. The goals of the DBG are: to inspire and enhance scientific research and promote information exchange; to support scientific education; to offer public and educational information about soils, their functions, and their conservation; to support professional relations with national and international soil science societies. The Society publishes reports, circulars, and “Proceedings” as well as the “Journal of Plant Nutrition and Soil Science”, known as “Zeitschrift für Pflanzenernährung und Bodenkunde”. The exhibition will inform about the services of our Society and also of some members like the Hohenheim University.
REPRESENTATIVES: Franz Makeschin  Karl Stahr
Jiraporn Inthasan  Stephen Wagner

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Giddings Machine Company has been leading the industry manufacturing he highest quality soil sampling & coring equipment available, for over 45 years. Giddings Machine Company is the company that started it all and to which all other equipment is compared. Since the beginning we have equipped the industry with the best tooling and components to get the desired results quickly and efficiently. Whether it be hand operated or hydraulically powered machines mounted on ATV, UV, Tractor Three Point, Truck, or Trailer. We are constantly improving our product and introducing new ideas in equipment to meet your needs.
REPRESENTATIVES:  Doug Mohrlang  Dari Mohrlang
Jake Mohrlang  Craig Mohrlang

ICT International PTY LTD
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Booth 610
ICT International is an Australian company that has provided monitoring solutions to soil, plant and environmental research since 1982. Smart Sensor systems enabling “Plug and Play” soil salinity monitoring both in the field and laboratory will be the focus of the display. Hourly monitoring of soil solution salinity with the Salinity Field Station as used in biosaline agricultural research will be demonstrated. www.ictinternational.com.au/salinity.htm This will illustrate the application of this technology to monitoring soil moisture, soil sauction, sapflow, stem water potential, meteorology, soil mechanics, thermocouples, water quality etc.
REPRESENTATIVES: Peter Cull  Alec Downey

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Booth 308
Environmental monitoring (ENVIS). Since 1984 IMKO is expert for designing and constructing network based environmental monitoring systems as well as data logging. Features of ENVIS systems are modularity, operational reliability and comfortable handling. A wide variety of environmental sensors can be integrated into ENVIS networks. ENVIS enables data transmission over several kilometres within the network as well as GSM/GPRS remote data transmission via e-mail and internet. Soil moisture measurement (TRIME®-TDR). IMKO’s unique TRIME®-TDR soil moisture measurement systems
guarantee high accuracy, outstanding robustness and easy handling at reasonable costs for both, mobile and stationary applications. Take a look at http://www.imko.de/ for detailed information on the wide variety of TRIME®-TDR soil moisture sensors.

REPRESENTATIVES: Peter Blume Rolf Becker

The International Year of Planet Earth

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Booth 306

The International Year of Planet Earth has been proclaimed by the United Nations for 2008, and its activities will span 2007 to 2009. Earth scientists are today’s key players in building a sustainable world, but their knowledge is underused by politicians and planners, and under-appreciated by the public. The Year is a global research and outreach initiative that aims to bring home the importance of Earth sciences to everyone. IUGS, the International Union of Geological Sciences, is one of the year’s two founding partners (UNESCO being the other). The 33rd International Geological Congress (Norway, August 2008) will present the highlights of the Year.

REPRESENTATIVES: Ed de Mulder Werner Janoschek

LI-COR Biosciences

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Email: envsales@licor.com
Website: www.licor.com
Booths 202, 204

Visit LI-COR’s booth (#202-204) to see the latest instrumentation for environmental research, including radiation measurement equipment, infrared gas analyzers, and the LI-8100 Automated Soil CO2 Flux System. The LI-8100 is an economical, lightweight system for measuring soil CO2 flux. It is rugged, portable and weather tight with low power consumption. It is ideal for ideal for long-term survey or long-term unattended soil CO2 flux measurements over a variety of conditions. LI-COR is also introducing the new LI-8150 Multiplexer, which greatly expands the LI-8100’s capabilities by providing a convenient platform for connection of as many as 16 soil chambers at one time.

REPRESENTATIVES: Chris Mantzios Liukang Xu

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Lippincott Williams & Wilkins is a unit of Wolters Kluwer Health, a group of leading information companies offering specialized publications and software for those in the scientific and medical communities. LWW is proud publisher of the journal Soil Science, celebrating its 90th year of publishing in 2006. The authoritative research articles published in the journal report the most significant work of leading experts from every area of soil and plant science-soil chemistry, physics, fertility, morphology, microbiology, and environmental soil science. Soil Science also keeps readers current with reviews of the newest books in the field, editorials and letters to the editor.

REPRESENTATIVES: Kevin Anderer Michael Hargrett

NRC Research Press

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Booth 220

Submit manuscripts to the Canadian Journal of Forest Research (CJFR)—one of 16 international journals published by NRC Research Press. Published both online and in print, CJFR is features rapid online publications, no submission or page charges, and online manuscript submission. A 20% discount will be available on all our books including the updated edition of the Canadian System of Soil Classification.

REPRESENTATIVES: Mike Boroczki Suzanne Kettley

ONSET Computer Corp

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REPRESENTATIVE: Eileen Sandherr

Potash & Phosphate Institute (PPI)

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Booth 207

The Potash & Phosphate Institute (PPI) invites participants of the WCSS to visit our exhibit and meet our scientific staff from various regions around the world. PPI is a not-for-profit organization with a long history of activity in agronomic research and education. In addition to active programs in North and South America, PPI also has well-established efforts in China, India, and Southeast Asia. Our mission is to advance the appropriate use of P, K, and other essential nutrients in crop production systems through the worldwide development and promotion of scientific information that is agronomically sound, economically advantageous, and environmentally responsible.

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Booth 406
PP Systems is a leader in the design and manufacture of research instrumentation for plant and soil sciences. Our highly portable, automated and user friendly remote sensing instruments (UniSpec-DC & UniSpec-SC) are commonly used in landscape (vegetation and soil) classification and for studies of ecosystem processes over spatial and temporal scales. In addition, we offer a complete range of field portable CO2/H2O gas analyzers and chambers for measurement of soil respiration/ecoystem CO2 Efflux. Systems can be configured for rapid spot measurements and continuous, unattended long term measurements for analysis of the interaction between soil and atmosphere. You can also visit us at www.ppsystems.com.

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French company created in 1991, SDEC France supplies high quality scientific instrumentation at the best price to soil scientists all over the world. Our company develops and manufactures a wide range of tensiometers for field and lab use, pressure transducers, suction lysimeters, portable vacuum pumps, soil humidimeters...Besides, SDEC France is manufacturer of environmental monitoring equipment for nuclear research and industry. Thanks to its production capacities and skilled staff, SDEC France is also able to supply custom made systems in addition to its standard product range.

REPRESENTATIVES: Raphael Peno-Mazzarino
Guillaume Maire

Smithsonian Soils Exhibit
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Website: www.soils.org

Booth 102
The Soil Science Society of America (SSSA) is working with the Smithsonian Institution’s National Museum of Natural History in Washington, DC, to plan and fund a soils exhibit as part of their Forces of Change Program. The 5,000 square foot exhibit will feature one entire hall of the most visited natural history museum in the world, with more than one million visitors from overseas each year. The exhibit will include a display of state soil monoliths and an educational, interactive section to help the museum’s more than six million visitors understand how soil is intricately linked to the health of humanity, the environment and the planet. Related publications and web activities will reach millions of additional people. A traveling exhibit will be sent to hundreds of other museums and libraries to reach additional communities. Never before have we had such an opportunity to advance the understanding of soil. This work will move forward our journey to sustain Earth and its people by educating visitors to the Smithsonian on the importance of soil and Earth sciences. The exhibit is scheduled to open in 2008 or earlier, depending on funding, and run for two years, with the state soils displayed an additional 5-7 years. Please stop by booth #105 to see the recently released two-minute DVD, view the concept design drawings, and make a gift to ensure a 2008 opening!

REPRESENTATIVE: Paul Kamps

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Website: www.soils.org

Booths 101, 103
The Soil Science Society of America’s mission is to enhance the sustainability of soils, the environment, and society by integrating diverse scientific disciplines and principles in soil science for the wise stewardship of soil and natural resources while advancing the discovery, practice, and profession of soil science through excellence in the acquisition and application of knowledge to address challenges facing society, in the training and professional development of soil scientists, and in the education of, and communication to a diverse citizenry. Since its inception in 1855, SSSA has continued to evolve, modifying its educational offerings to support the changing needs of its members. Today, SSSA is seen as a progressive, scientific society meeting the needs of its members through publications, recognition and awards, placement service, certification programs, meetings, and student activities. Society members are dedicated to the conservation and wise use of natural resources to produce food, feed, and fiber crops while maintaining and improving the environment. Please stop by booth #101 to update your membership or more information on how to become a member.

REPRESENTATIVE: Susan Chapman

Soil Science Society of America Publications
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Booth 105
In pursuing its mission to discover and disseminate knowledge for the wise stewardship of our natural resources, SSSA has become a leading publisher of basic and applied soil science, environmental, and agricultural books and journals. Visit Booth 102 to browse and purchase SSSA publications. Sneak a peek at the makeover of the highly cited Soil Science Society of America Journal, and learn about Vadose Zone Journal, Journal of Environmental Quality, and Soil Survey. SSSA books available include the latest in the SSSA Book Series, as well as the well-received Methods of Soil Analysis series and titles in the Agronomy Monograph and SSSA Special Publications series.

REPRESENTATIVES: Lisa Al-Amoodi
Rebecca Funck

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Booths 606, 608
Many clients, world wide, rely on Soilmoisture agronomic equipment. Tensiometers, Ceramic plate extractors ,TRASE TDR moisture measuring- and a wide range of soil sampling equipment make it possible to characterize the moisture-holding capacities and characteris-
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We continue to add new and innovative equipment and systems that make a difference in more efficient research or in solving the complex problems of today’s technical world. If you have a new idea or just looking for a solution that involves water, moisture or dielectrics give us a call. Let us add your idea or solution to the growing list of accomplishments that now span over 50 years.

REPRESENTATIVES: Alle Van Calker Whitney Skaling

**Spectrum Technologies, Inc.**

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Booth 307

Spectrum Technologies, Inc. offers a full line of affordable measurement technology for nutrient levels, soil quality, light, weather, and other factors directly affecting plant development. Record rainfall, leaf wetness hours, temperature and humidity fluctuations, and other weather events with our WatchDog data logging line, which ranges from stand-alone units to full weather stations. The comprehensive software allows the user to graph the data, run standard reports, create custom reports, export data to excel, and import other weather data. Software is available for 17 disease models and 60 insect models. Over 15,000 customers across the globe count on Spectrum’s easy to use, dependable technology.

REPRESENTATIVES: Doug Kieffer Julian Good

**Springer**

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Booth 507

Springer, one of the leading Life Sciences book and journal publishers, offers insightful, sought-after content from the world’s most prestigious scientists. Highlights of the portfolio include journals such as Plant and Soil and the new journal Potato Research. References, texts, and the very active Soil Biology book series round out our collection. Take advantage of the pre-publication price we offer on The Encyclopedia of Soil Science. Interested in a free journal sample? Looking for a comprehensive source? Have a proposal to discuss with one of our knowledgeable publishers? We’re happy to hear from you: stop by our booth, or visit us at springer.com.

**Stevens Water Monitoring Systems**

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Website: www.stevenswater.com

Booth 206

The company provides products in 3 categories for fast, reliable and easy-to-use water monitoring solutions: sensors and analysis equipment for water-related measurement, data collection units that record the information gathered; communications devices that send and receive the water data. New products include: Hydra Probe II: the only soil sensor offering all-in-one sensing of moisture, salinity and temperature with digital or analog output. The Shark: a Bluetooth-based “wireless serial cable” for data collection. Applications: Irrigation control, hydropower systems, flood forecasting, watershed management, water quality, water supply, waste water, precision agriculture, sports turf, golf courses. Stevens has sold into more than 40,000 installations worldwide since its inception. Stevens’ customer base includes Fortune 500 companies, utilities, heavy industry, and outdoor sports sites, as well as government and local agencies worldwide, leading research institutions and universities

REPRESENTATIVES: Keith Bellingham Fred Holloway

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Booth 301

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REPRESENTATIVE: John Sulzycki

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Booth 407

Founded in 1968, the Korean Society of Soil Science and Fertilizer (KSSSF) is a non-profit organization for the educational and scientific dedication to the development of soil science, fertilizer, plant nutrition and agricultural environment in Korea and Asia regions. As a member of IUSS, the KSSSF plays an important role in connecting soil’s missions among the World. The KSSSF had already submitted the official
proposal for hosting the 20th WCSS in 2014 in Seoul, Korea. The KSSSF wishes to invite all of you to the dynamic Korea. Through the display, we will introduce about the Korea and Korean soils.

REPRESENTATIVES: Han-Myeong Kim Jai-Joung Kim

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The Mosaic Company offers innovative on-the-go soil mapping equipment. On-the-go sensing provides the detail necessary for precise characterization of soil variability. Current on-the-go sensors from Veris include soil pH and soil electrical conductivity (EC). A near-infrared spectroscopy (NIRS) mapping sensor will be available in late 2006.

REPRESENTATIVES: Eric Lund Tyler Lund
International Year of Planet Earth—fertile ground for soils

The United Nations General Assembly, meeting in New York, has proclaimed the year 2008 to be the United Nations International Year of Planet Earth. The Year’s activities will span the three years 2007-2009.

The Year’s purpose, encapsulated in it strapline Earth sciences for society, is to:

- Reduce risks for society caused by natural and human-induced hazards
- Reduce health problems by improving understanding of the medical aspects of Earth science
- Build safer structures and expand urban areas, utilizing natural subsurface conditions
- Determine the non-human factor in climatic change
- Enhance understanding of the occurrence of natural resources so as to contribute to efforts to reduce political tension
- Detect deep and poorly accessible groundwater resources
- Improve understanding of the evolution of life
- Increase interest in the Earth sciences in society at large
- Encourage more young people to study Earth science in university

The Year aims to raise $20 million from industry and governments and will spend half on co-funding research, and half on Outreach activities. It will be the biggest ever international effort to promote the Earth sciences.

Apart from researchers, who are expected to benefit under the Science Programme, the principal target groups for the Year’s broader messages are:

- Decision makers and politicians who need to be better informed about how Earth scientific knowledge can be used for sustainable development
- The voting public, which needs to know how Earth scientific knowledge can contribute to a better society
- Fellow geoscientists, who are very knowledgeable about various aspects of the Earth but who need help in using their knowledge for the benefit of the world’s population.

The research themes of the year, set out in 10 science prospectuses, were chosen for their societal relevance, multidisciplinarity and outreach potential. The Year has 12 Founding Partners, 23 Associate Partners including ISRIC, and is backed politically by 97 countries representing 87% of the world’s population. The Year was promoted politically at UNESCO and at the United Nations in New York by the People’s Republic of Tanzania.

The Year is now open to Expressions of Interest from researchers within each of its 10 themes, one of which is Soils - a research theme set out in broad terms in the Year’s Prospectus number 10, written by a Key Text Team under David Dent comprising Alfred Hartemink and John Kimble. This prospectus is now available as a PDF download from www.yearofplanetearth.org and is open to Expressions of Interest from researchers. The Outreach programme of the year is also now open to expressions of interest, and will work in a similar way by receiving and responding to bids for support from individuals and organizations worldwide.
Land Degradation & Development is an international journal, which seeks to promote rational study of the recognition, monitoring, control and rehabilitation of degradation in terrestrial environments.

www.interscience.wiley.com/journal/ldr
Sunday, July 9

Opening Reception
7:00-10:00 pm
Grand Hall of the Pennsylvania Convention Center

The Grand Hall occupies the renovated Reading Terminal train shed, the oldest surviving single-span arched trainshed roof structure in the world, and the only one of its kind remaining in the United States. The Reading Terminal Headhouse served as a passenger station and company headquarters for the Reading Railroad. The Headhouse was designed in 1891, by the Wilson Brothers Architecture & Engineering firm. It is attributed to the architect F. H. Kimbal. The extravagant building opened in 1893 and was an icon for the Philadelphia & Reading Railroad Company, contributing to the company’s power, prominence and to the city’s importance.

Monday, July 10

WCSS Opening Ceremony
8:00-10:00 am
Pennsylvania Convention Center
Grand Ballroom AB, Second Floor

Program
Introductory Remarks
Don Sparks, IUSS President

Speakers
The Honorable Ruth Ann Minner, Governor of Delaware
Stephen Nortcliff, IUSS Secretary General
Ambassador Kenneth Quinn, World Food Prize
Michael Clegg, U.S. National Academy of Sciences
Bruce Knight, Chief, USDA-NRCS
Ed de Mulder, IUGS Past President
Jeffrey Sachs, Columbia University

Thursday, July 13

Gala Dinner
7:00-11:00 pm
Philadelphia Marriott Downtown
Grand Ballroom, Fifth Floor

The evening’s activities include a review of the Congress in pictures, presentation of IUSS awards, recognition of honorary members, and entertainment. Tickets may be purchased at WCSS Onsite Registration until 12 noon on Thursday, July 13.

Saturday, July 15

Closing Ceremony
9:00-11:30 am
Pennsylvania Convention Center
Grand Ballroom AB, Second Floor

Introductory Remarks
Don Sparks, IUSS President

Status Report on 18th WCSS
Lee Sommers, Co-Chair, Organizing Committee
Larry Wilding, Co-Chair, Organizing Committee

Status Report of IUSS Council
Stephen Nortcliff, IUSS Secretary-General

Closing Comments
Don Sparks, IUSS President
Gary Petersen, IUSS Vice President

Introduction of Incoming IUSS President
Roger Swift, IUSS President-Elect

Joy Unlimited Youth Gospel Choir

Adjourn
### Business Meetings

#### IUSS Meetings
- **IUSS Council**
  - Sun. 1:00 PM–5:00 PM
  - Convention Center Room 113C, First Floor
- **IUSS Council**
  - Fri. 1:00 PM–4:00 PM
  - Convention Center Room 113C, First Floor

#### Division Meetings
- **Division 1 Business Meeting**
  - Mon. 5:00 PM–5:45 PM
  - Convention Center Room 113C, First Floor
- **Division 2 Business Meeting**
  - Tue. 5:00 PM–5:45 PM
  - Convention Center Room 111AB, First Floor
- **Division 3 Business Meeting**
  - Mon. 5:00 PM–5:45 PM
  - Convention Center Room 107AB, First Floor
- **Division 4 Business Meeting**
  - Tue. 5:00 PM–5:45 PM
  - Convention Center Room 107AB, First Floor

#### Commission Meetings
- **Commission 1.1 Business Meeting**
  - Tue. 5:45 PM–6:30 PM
  - Convention Center Room 110A, First Floor
- **Commission 1.2 Business Meeting**
  - Tue. 5:45 PM–6:30 PM
  - Convention Center Room 110B, First Floor
- **Commission 1.3 Business Meeting**
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#### Additional Meetings
- **ASA-CSSA-SSSA Northeast Branch Meeting**
  - Tues. 8:00 AM–6:15 PM
  - Marriott Room 302–304, Third Floor
- **Association of Chinese Soil and Plant Scientists of North America**
  - Tue. 2:00 PM–4:00 PM
  - Convention Center Room 112AB, First Floor
- **European Confederation of Soil Science Societies Council Meeting**
  - Tue. 7:00 PM–10:00 PM
  - Convention Center Room 112AB, First Floor
- **Advisory Committee of the European Journal of Soil Science**
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<td>36</td>
<td>2.2A Soil Organic Matter: Stabilization and Carbon Sequestration—Oral</td>
<td>Tue. 10:15 AM–12:15 PM</td>
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<td>139</td>
<td>2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>73</td>
<td>2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Theater I</td>
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<td>2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Oral</td>
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<td>110</td>
<td>2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Theater II</td>
<td>Fri. 3:30 PM–5:30 PM</td>
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<td><strong>Commission 2.3—Soil Biology</strong></td>
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<td>140</td>
<td>2.3A Microbial Habitat: Evolution, Structure and Distribution in Soils—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>141</td>
<td>2.3B Molecular Approaches to Microbial Ecology in Soils—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>2.3B Molecular Approaches to Microbial Ecology in Soils—Oral</td>
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<td>2.3B Molecular Approaches to Microbial Ecology in Soils—Theater</td>
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<td>2.3P New Strategies for Management of Plant Pathogenic Soil Microorganisms—Natural Soil Suppression or Genetically Modified Plants—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>80</td>
<td>2.3P New Strategies for Management of Plant Pathogenic Soil Microorganisms—Natural Soil Suppression or Genetically Modified Plants—Theater</td>
<td>Thu. 3:30 PM–5:30 PM</td>
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<td>2.4A Poorly Ordered Nanoparticulate materials (PONM) in Soils—Oral</td>
<td>Tue. 8:00 AM–10:00 AM</td>
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<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td><strong>Commission 2.5—Soil Interfacial Reactions</strong></td>
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<td>144</td>
<td>2.5A Soil Physicochemical-Biological Interfacial Interactions: Impacts on Transformations and Bioavailability of Metals and Metalloids—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>2.5A Soil Physicochemical-Biological Interfacial Interactions: Impacts on Transformations and Bioavailability of Metals and Metalloids—Oral</td>
<td>Mon. 3:30 PM–5:30 PM</td>
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<td>51</td>
<td>2.5A Soil Physicochemical-Biological Interfacial Interactions: Impacts on Transformations and Bioavailability of Metals</td>
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<td>145</td>
<td>2.5B Interactions between Clays and Organic Matter and Their Impact on Sorption and Availability of Organic Compounds in Soil Environments—Poster</td>
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<td>2.5B Interactions between Clays and Organic Matter and Their Impact on Sorption and Availability of Organic Compounds in Soil Environments—Oral</td>
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**Division 3—Soil Use and Management**

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<td>Mon. 10:15 AM–12:15 PM</td>
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<td>147</td>
<td>3.0B Emerging Topics in Soil Use and Management—Poster</td>
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<td>Tue. 8:00 AM–10:00 AM</td>
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<td>3.0W Sustainable Soils and Life on Land—Poster</td>
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**Commission 3.1—Soil Evaluation and Land Use Planning**

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<td>111</td>
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<td>150</td>
<td>3.1B Translating Soil Science into Agricultural &amp; Environmental Policy—Poster</td>
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**Commission 3.2—Soil and Water Conservation**

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<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>3.2A Environmental Impacts of Soil Erosion—Measuring and Modeling On- and Off-Site Damages of Soil Erosion—Theater</td>
<td>Mon. 3:30 PM–5:30 PM</td>
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<td>3.2B Dryland Conservation Technologies: Innovations for Enhancing Productivity and Sustainability—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>37</td>
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<td>3.2C Water Use Challenges for the Future—Poster</td>
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**Commission 3.3—Soil Fertility and Plant Nutrition**

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<td>3.3B Nutrient Use Efficiency and Global Agriculture—Poster</td>
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<td>23</td>
<td>3.3C Improved Management of Alkaline Soils for Dryland Agriculture—Poster</td>
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<td>104</td>
<td>3.3P Plant Responses and Adaptation to Ionic Stresses—Theater</td>
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<td><strong>Commission 3.4—Soil Engineering and Technology</strong></td>
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<td>3.4A Combating Global Soil &amp; Land Degradation I. Agroecosystems: Processes &amp; Assessment—Poster</td>
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<td>157</td>
<td>3.4B Combating Global Soil &amp; Land Degradation II. Agroecosystems: Reclamation Strategies—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>3.4B Combating Global Soil &amp; Land Degradation II. Agroecosystems: Reclamation Strategies—Oral</td>
<td>Tue. 3:30 PM–5:30 PM</td>
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<td>3.4B Combating Global Soil &amp; Land Degradation II. Agroecosystems: Reclamation Strategies—Theater</td>
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<td><strong>Commission 3.5—Soil Degradation Control, Remediation, and Reclamation</strong></td>
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<td>3.5C Combating Global Soil &amp; Land Degradation III. Agro- and Forest Ecosystems: Physical, Chemical and Biological Processes—Poster</td>
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<td>159</td>
<td>3.5D Combating Global Soil &amp; Land Degradation IV. Salinization, Sodicification and Other Forms of Degradation in Agricultural and Native Ecosystems—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>3.5P New Methods for Large-Area Assessment of Soil Degradation—Poster</td>
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<td>4.0A Bridging Soil Science, Environmental Policy and Communications—Poster</td>
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<td>4.0A Bridging Soil Science, Environmental Policy and Communications—Oral</td>
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<td>4.1PA Soils and Natural Hazards (Knowledge, Assessment and Mitigation)—Poster</td>
<td>Mon-Fri 8:00 AM–6:00 PM</td>
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<td>4.1PB Soil, Wine and Other Quality Crops—Poster</td>
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<td>4.2C Soil Quality as it Affects Nutrients in Food Crops and Human Health—Poster</td>
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  - Room 105AB, First Floor
- **25** 4.3A Land Use Modeling as a Tool to Combat Soil Degradation—Oral
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  - Room 111AB, First Floor
- **170** 4.3P Intensification of Agricultural Production Systems and the Environment—Poster
  - Mon-Fri 8:00 AM–6:00 PM
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**Commission 4.4—Soil Education and Public Awareness**

- **171** 4.4A Case Histories of the Relationships Among Soils and Societies—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 105AB, First Floor
- **113** 4.4A Case Histories of the Relationships Among Soils and Societies—Oral
  - Fri. 3:30 PM–5:30 PM
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- **172** 4.4P Soil Science and International Organizations—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 105AB, First Floor

**Commission 4.5—History, Philosophy, and Sociology of Soil Science**

- **173** 4.5A History of Soil Science in Developing Countries—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 105AB, First Floor
- **38** 4.5A History of Soil Science in Developing Countries—Oral
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**Working Groups**

- **174** AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 103ABC, First Floor
- **10** AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Oral
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  - Room 109AB, First Floor
- **39** AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Theater
  - Tue. 10:15 AM–12:15 PM
  - Exhibit Hall A, Theater 1, Second Floor
- **175** CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 105AB, First Floor
- **40** CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Oral
  - Tue. 10:15 AM–12:15 PM
  - Room 109AB, First Floor
- **106** CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Theater
  - Fri. 1:15 PM–3:15 PM
  - Exhibit Hall A, Theater 3, Second Floor
- **176** LD Soil Degradation: Processes, Control, and Politics—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 103ABC, First Floor
- **68** LD Soil Degradation: Processes, Control, and Politics—Oral
  - Thu. 10:15 AM–12:15 PM
  - Room 113AB, First Floor
- **83** LD Soil Degradation: Processes, Control, and Politics—Theater
  - Thu. 3:30 PM–5:30 PM
  - Exhibit Hall A, Theater 2, Second Floor
- **179** RB Developments in the World Reference Base (WRB), Soil Taxonomy (ST) and Other National Soil Classification Systems for Soil Resources—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 105ABC, First Floor
- **61** RB Developments in the World Reference Base (WRB), Soil Taxonomy (ST) and Other National Soil Classification Systems for Soil Resources—Oral
  - Thu. 8:00 AM–10:00 AM
  - Room 113AB, First Floor
- **90** RB Developments in the World Reference Base (WRB), Soil Taxonomy (ST) and Other National Soil Classification Systems for Soil Resources—Theater
  - Fri. 8:00 AM–10:00 AM
  - Exhibit Hall A, Theater 2, Second Floor
- **177** SCE Evaluating Management Impacts on Forest Soils—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 103ABC, First Floor
- **17** SCE Evaluating Management Impacts on Forest Soils—Oral
  - Mon. 1:15 PM–3:15 PM
  - Exhibit Hall A, Theater 2, Second Floor
- **47** SCE Evaluating Management Impacts on Forest Soils—Theater
  - Tue. 1:15 PM–3:15 PM
  - Room 109AB, First Floor
- **178** SU Soils in Urban Ecosystems: Characteristics and Functioning—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 103ABC, First Floor
- **98** SU Soils in Urban Ecosystems: Characteristics and Functioning—Oral
  - Fri. 10:15 AM–12:15 PM
  - Room 114, First Floor

**FAO/IAEA Workshop**

- **1** FAO/IAEA Workshop: Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production—Oral
  - Sun. 8:30 AM–5:00 PM
  - Room 107AB, First Floor
- **2** FAO/IAEA Workshop: Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production—Poster
  - Mon-Fri 8:00 AM–6:00 PM
  - Room 103ABC, First Floor
Sunday, 9 July 2006

SESSION NO. 1
Convention Center, Room 107AB, First Floor

FAO/IAEA Workshop: Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production—Oral

Presiding: L. Nguyen, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

1-1 8:30 AM Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production: Opening Address. L. Nguyen and F. Zapata, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

1-2 9:00 AM Influence of Crop Rotation and Tillage System on the Soil Organic Matter Status of an Oxisol in Southern Brazil. C. P. Jantalia1, S. Urquiaga1, C. Petere2, C. Aita1, S. Giacomini2, B. J. R. Alves1 and R. M. Boddey1, (1)Embrapa Agrobiologia, (2)Fundação Centro de Experimentação e Pesquisa, (3)Univ Federal de Santa Maria


1-4 9:50 AM Contribution of Roots, Rhizodeposits and Soil Organic Matter to CO2 Efflux from Maize Rhizosphere as Revealed by 13C Natural Abundance. Martin Werth1, Irina Subbotina1 and Yakov Kuzyakov1, (1)Univ of Hohenheim, Institute of Soil Science and Land Evaluation, (2)State Univ of Rosstov on Don, Dept of Soil Science and Agrochemistry

1-5 10:15 AM Gross N Mineralization-Immobilization Turnover Dynamics in Grassland Soils of Different Age and Texture. P. Boecx1, S. Accoe2, G. Hoffman1 and O. Van Cleemput1, (1)Ghent Univ, (2)EC-JRC

1-6 10:40 AM Soil Delta 15N as an Index of the Degree of Perturbation of an Agricultural Site. C. Perdomo*, C. Mori, E. Hoffman and Y. Amabelia Del Pino, Univ de la Republica


1-8 11:30 AM Combined Application of the 137Cs Radiocative Tracer and Conventional Techniques for Assessing Soil Redistribution Rates and Effectiveness of Protective Measures. V. R. Belaev*, V. N. Golosov, J. S. Kuznetsova and M. V. Markelov, Moscow State Univ

1-9 2:00 PM Sedimentation Rate as Measured by 210Pb Fall-Out and the Discharge of Persistent Organic Pollutants Associated with Sediments from Inland into a Mangrove Forest in Central Vietnam. D. N. Dang1*, Y. Tateda1, H. Q. Nguyen1 and Q. L. Nguyen1, (1)Institute of Nuclear Sciences and Technology, (2)Central Research Institute of Electric Power Industry

1-10 2:25 PM Drip Irrigation and Fertigation of Potato under Light-Textured Soils of Cappadocia Region. M. B. Haittiligil2, H. Onaran2, N. Munsuz2, H. Kısila2, G. Cayci1, C. Kutuk1, A. Akin2 and A. Lunlenen2, (1)Turkish Atomic Energy Authority, (2)Ministry of Agriculture, General Directorate of Research, (3)Ankara Univ

1-11 2:50 PM Soil Water Storage and Water Use Efficiency under Rainfed Cultural Practices as Measured by Neutron Moisture Meter. M. Panomtanachagul*1, M. Fullen2, A. Cass1 and C. Hignett2, (1)Chiang Mai Univ, (2)Univ of Wolverhampton, (3)CSIRO

1-12 3:15 PM Influence of the Irrigation System on the Nitrate Content in Potato Tubers. O. Duenas*, H. Irgouyen, M. Biart and M. Hernandez, Instituto de Suelos


1-14 4:05 PM Application of Isotopic Techniques to Examine the Transformations of Pesticides in Soils. Nanthi Bolan1, Massey Univ

1-15 4:30 PM Labelling Plant with Isotopes for Studying Green Manure and Crop Residues as Nutrient Sources. Takashi Muraoaka*, A. Enedi Boaretto and E. Cabral Da Silva, Univ of Sao Paulo (USP)

4:55 PM Workshop Discussion and Conclusions—Long Nguyen

SESSION NO. 2
Convention Center, Room 107AB, First Floor (Sunday)

Convention Center, Room 103ABC, First Floor (Mon.–Fri.)

FAO/IAEA Workshop: Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production—Poster


2-2 3401b Radiotracer Technique in Establishing Genotypic Divergence of Rice (Oryza sativa L.) Cultivars in Zinc Utilization from Variable Sources. Chinnappan Sudhalakshmi*, Ramasamy Krishnasamy, U. Surendran1 and A. RajaRajan2, (1)Tamil Nadu Agricultural Univ, (2)Regional Research Station

2-3 3402a Soybean Below-Ground N and its Contribution to the N Nutrition of a Subsequent Sorghum Crop. Ednaldo da S. Araujo1, Robert M. Boddey2, Segundo Urquiaga2 and Bruno J. R. Alves2, (1)UFRRJ/Embrapa Agrobiologia, (2)EMBRAPA-Agrobiologia

2-4 3403a Leaching Decreased Microbial Deposition and Sorption of Easily Available Organic Substances in Soils. Holger Fischer* and Yakov Kuzyakov, Univ of Hohenheim

2-5 3403b Variation in Carbon Isotope Discrimination and Its Association with Grain Yield in Durum Wheat in the Eastern High Plains of Algeria. M. Hafsi*, A. Hadij2 and P. Monneveux1, (1)Univ Fertah Abbas, (2)AgroM


2-7 3404b Comparative Study of Water and N Fertilizer Application on Potato Crops under Drip and Sur-
### Simulating Long-term Soil Carbon and Nitrogen Dynamics.

Tao Li*, Dept of Renewable Resources, Univ of Alberta, Yongshe Feng, Dept of Renewable Resources and Xiaomei Li, Alberta Research Council

### SESSION NO. 5

**Convention Center, Exhibit Hall A, Theater 2, Second Floor**

**1.1C Soil Micromorphology, Archaeometry, and Archaeology—Theater**

Authors Present: 10:15 AM–12:15 PM

**Convenor: Alexander Tstskin, University of Haifa**

**Presiding: Selim Kapur, University of Cukurova**

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<td>344a Micromorphological Diagnostics of Soil Polygenesis.</td>
<td>Tatiana V. Tursina* and Ilia A. Sokolov, V.V. Dokuchaev Soil Science Institute</td>
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<td>5-2</td>
<td>143a Phytolith Transport in Sandy Sediments: Experimental Data.</td>
<td>O. Fishkis*, J. Ingwersen, K. Pustovoytov and T. Streck, Univ of Hohenheim</td>
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<td>5-3</td>
<td>444a Study of Macropore and Climate Change by X-Ray Stereo-Radiography in the Later Stage Pleistocene Epoch Hachinohe Tanesashi Volcanic Ash Connected Soil Layer.</td>
<td>Koichi Sato*1, Choichi Sasaki2, Ko-ichi Tokunaga2, Takashi Sase3 and Kieko Takamatu1, (1)Kitasato Univ, (2)Hiroshima Univ, (3)Iwate Univ</td>
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<td>5-4</td>
<td>444b Opportunities for the Use of Andisols in Paleocological Studies.</td>
<td>Femke H. Tonneijck*, Boris Jansen, Klaas G. Nierop, Marcela Moscol and Jacobus M. Verstraten, Institute for Biodiversity and Ecosystem Dynamics – Univ of Amsterdam</td>
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<td>5-5</td>
<td>445a Distinguishing Among Soil Solid Phases Using Micro-CT Scanning.</td>
<td>Richard J. Heck* and Thomas Elliot, Univ of Guelph</td>
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<td>5-6</td>
<td>445b Micromorphological and Microbiological Diagnostics of Elementary Pedogenic Processes in Extremely Arid Desert Soils of Mongolia and the Problem of Their Classification.</td>
<td>Dmitri L. Golovannov*, Geographical Faculty, Moscow Sate Univ and Marina P. Lebedeva (Verba), V.V. Dokuchaev Soil Science Institute</td>
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<td>5-7</td>
<td>244a An Archaeometric Study of Later Stone Age Paintings from KwaZulu-Natal, South Africa.</td>
<td>Boyd Escott, Univ of KwaZulu-Natal, Jeffrey C. Hughes*, Univ of KwaZulu-Natal and Darrell Schulze, Dept of Agronomy, Purdue Univ</td>
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<td>5-8</td>
<td>343a Evidence for “Black Earths” in the Maya Lowlands.</td>
<td>Richard E. Terry*, Ryan Sweetwood1, Chris Balzotti1 and Timothy Beach2, (1)Brigham Young Univ, (2)Georgetown Univ</td>
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### SESSION NO. 6

**Convention Center, Exhibit Hall A, Theater 3, Second Floor**

**1.2P Interdependency of Soils and Soil Scapes—Theater**

Authors Present: 10:15 AM–12:15 PM

**Convenor: Jaume Bech, University of Barcelona**

**Presiding: Reinhold Jahn, Inst. of Soil Science and Plant Nutrition**

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<td>6-1</td>
<td>154a Geomorphic Influence on Southern Driftless Area Soils.</td>
<td>Krista Stensvold*, Dept of Soil Science, Univ of Wisconsin-Madison and Cynthia Stiles, Univ of Wisconsin</td>
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<td>6-2</td>
<td>154b Catena/Toposequence/Soil Association: Unifying Concept in Soil Classification, Soil Genesis and Land Use in the West Africa Sub-Region-Nigeria.</td>
<td>Temitope A. Osukami*, Obafemi Awolowo Univ</td>
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<td>6-3</td>
<td>155a Topo- and Bio-Sequence of the Soils in the Fukiage Coastal Dune.</td>
<td>Tadao Hamazaki* and Taiki Kusahara, Faculty of Agriculture, Kagoshima Univ</td>
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<td>6-4</td>
<td>155b Soil-Landform Relationships in Shallow Estuarine Ecosystems of Downeast Maine.</td>
<td>Christopher T. Flannagan*, Wetland Studies and Solutions, Inc. and Laurie J. Osher, Univ of Maine</td>
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<td>6-5</td>
<td>254a Spatial Variability of Pedogenic Reaction Rates in a Podzolized Watershed.</td>
<td>Blake Ketchum1, Susan Brantley1 and Alan Busacca2, (1)Center for Environmental Kinetic Analysis, (2)Dept of Crops and Soils</td>
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<td>6-6</td>
<td>254b Modern Functioning of Surface Paleosols of the Russian Plain as Related to Lateral Redistribution of Heat Fluxes in the Upper Soil Layers.</td>
<td>Tatiana A. Arkhangelskaya*, Moscow State Univ, Faculty of Soil Science</td>
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<td>6-8</td>
<td>255b Landscape Position Affects the Emission of Greenhouse Gases in a Prairie Pot-Hole Soil in Western Canada.</td>
<td>Adeleji S. Dumnola*, David Lobb1, Dan J. Penock2, Yappa Priyantha3 and Mario Tenuta1, (1)Dept of Soil Science, Univ of Manitoba, (2)Univ of Saskatchewan</td>
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SESSION NO. 7
Convention Center, Room 113AB, First Floor

2.0B Innovative Technologies in Rhizosphere Research—Oral

Convenor: David Crowley, University of California-Riverside

Presiding: Philippe Hinsinger, INRA–ENSA.M–UMR Rhizosphère & Symbiose

7-1 10:15 AM Probing the Speciation of Metals at the Soil-Plant Interface Using Micrometer-Scale X-Ray Fluorescence, Diffraction and Absorption Techniques. Alain Manceau*, CNRS


SESSION NO. 8
Convention Center, Room 108AB, First Floor

3.0A Long-term Agronomic Experiments: Their Importance for Science and Society—Oral

Convenor: Stephen Kaakka, University of California

Presiding: Johnny Johnston, Rothamsted Research


8-3 11:25 AM The Role of Long-term Experiments in Understanding the Sustainability of Organic Farming. Paul Mäder*, Andreas Fliessbach1, Joachim Raupp2, Meike Olmanns2, Lucie Guns1 and David Dubois3, (1)Research Institute of Organic Agriculture (FiBL), (2)Agroscope FAL Reckenholz

SESSION NO. 9
Convention Center, Room 111AB, First Floor

4.0A Bridging Soil Science, Environmental Policy and Communications—Oral

Convenors: J. T. Sims, Dept. Plt. & Soil Sciences; Charles Rice, Dept. of Agronomy, KSU

Presiding: Peter J. Kleinman, USDA-ARS, Bldg. 3702


SESSION NO. 10
Convention Center, Room 109AB, First Floor

AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Oral

Convenors: Delvin Fanning, Univ. of Maryland, H.J. Patterson; Robert Fitzpatrick, CSIRO, Land and Water

Presiding: Leigh Sullivan, Southern Cross University

10-1 10:15 AM Toxic Metals in Runoff from Boreal Acid Sulphate Soils. Mats Aström*, Kalmar Univ


10-3 11:05 AM Post-Active Acid Sulfate Soils. Delvin S. Fanning*, Daniel Wagner2, Philip Zurheide1, Martin C. Rabenhorst1 and J. Patrick Megenigal3, (1)Univ of Maryland, (2)Geo-Sci Consultants, Inc., (3)Smithsonian Environmental Research Center


10-5 11:45 AM Acid Sulfate Soils Management Guidelines—the Queensland, Australian Perspective. Col R. Ahern*, Kristie M. Watling1, Steven Dobos2, Nikki Moore1 and Sue-Ellen Dear1, (1)Queensland Dept of Natural Resources and Mines, (2)Dobos & Associates, (3)Queensland Environmental Protection Agency

SESSION NO. 11
Convention Center, Room 114, First Floor

0.0B Global Priorities in Soil Science Research—Oral

Convenors: Donald L. Sparks, University of Delaware; Charles Rice, Kansas State University

Presiding: Donald Sparks, University of Delaware

11-1 1:15 PM US Priorities in Soil Science Research. Charles Rice, Kansas State Univ and Donald Sparks*, Univ of Delaware

SESSION NO. 11

11-3 1:55 PM European Priorities in Soil Science Research. Winfried E.H. Blum*, Institute for Soil Science, Univ of Natural Resources and Applied Life Sciences

11-4 2:15 PM South America Priorities in Soil Science Research. Carlos C. Cerri*1, Carlos E. P. Cerri1, Martial Bernoux1 and Pedro Sanchez2, (1)Univ de São Paulo, Centro de Energia Nuclear na Agricultura–CENA/USP, (2)Columbia Univ


11-6 2:55 PM Soil Research Priorities in Africa. Lamourdia Thiombiano*, FAO

SESSION NO. 12

Convention Center, Exhibit Hall A, Theater 1, Second Floor

1.0A New Frontiers in Soil Resource Assessment—Theater

Authors Present 1:15 PM–3:15 PM

Convenor: Micheal Golden, USDA-NRCS
Presiding: Jay Bell, University of Minnesota

12-1 102a Soil Resource Inventory of the Great Smoky Mountains National Park. Anthony Khiet* and Doug Thomas, USDA-NRCS

12-2 102b Theatre Symposium for Soil Landscape Predictive Modeling. Jon Hempel*, USDA-NRCS-NGDC and J.C. Bell, Univ of Minnesota

12-3 103a Making the Old New: Rescue, Reuse and Renewal of Legacy Soil Surveys. David G. Rossister*, International Institute for Geo-Information Science and Earth Observation (ITC),


12-5 104a Australian Coastal Acid Sulfate Soils—a National Atlas. Robert Fitzpatrick*, CRC-LEME/CSIRO Land and Water, Bernard Powell, Dept of Natural Resources and Steven Marvanek, CSIRO Land and Water

12-6 104b Soilscape Investigations to Support Vector and Raster Soil Surveys in Far West Texas. Lynn E. Loomis*, USDA Natural Resources Conservation Service and Duane Simonson, USDA-Natural Resources Conservation Service

12-7 105a A Prototype Theory-Based Approach to Predictive Soil Mapping Under Fuzzy Logic. Feng Qi, Dept of Political Science and Geography, A-Xing Zhu*, State Key Laboratory of Resources and Environmental Information System, Institute of Geographical Sciences and Natural Resources, James E. Burt, Univ of Wisconsin-Madison, Mark Harrower, Dept of Geography and Duane Simonson, USDA-Natural Resources Conservation Service

12-8 105b Correlation and Analysis of Soil Maps Produced with the Remote Area Soil Proxy (RASP) Model. Toby Rodgers* and Crystal Briggs, USDA-NRCS

12-9 106a Calcium, Magnesium, and Phosphorus Regimes of West Virginia Forest Soil Series. Anthony Jenkins*, Stephen Carpenter and Mike Wilson, USDA–Natural Resources Conservation Service


12-11 107a Spatial Data Mining for Soil Survey Updates. James E. Burt*1, Rongxun Wang1, A-Xing Zhu2, Tim Meyer3 and Jon Hempel4, (1)Univ of Wisconsin-Madison, (2)State Key Laboratory of Resources and Environmental Information System, Institute of Geographical Sciences and Natural Resources, (3)USDA Natural Resources Conservation Service, (4)USDA-NRCS-National Geospatial Development Center

12-12 107b Regolith-Terrain Analysis and Mapping as a Soil Geomorphological Investigative Methodology for Land Resource Assessment. Robin N. Thwaites*, School of Natural Resource Sciences


12-14 108b Random Catena Sampling for Establishing Soil-Landscape Rules for Digital Soil Mapping. Alex McBratney*, Nathan Ogders and Budiman Minasny, The Univ of Sydney

12-15 109a A Quantitative Energy Model for Predicting Pedogenic Environments. Craig Rasmussen*, Univ of Arizona

SESSION NO. 13

Convention Center, Room 113AB, First Floor

1.0WA Soil Geochemical Patterns at Regional, National, and International Scales—Oral

Convenor: Martin Goldhaber, U.S. Geological Survey
Presiding: David Smith, U.S. Geological Survey


13-3 2:25 PM Regional-Scale Soil Geochemistry in Northern California: Natural and Anthropogenic Sources of Soil Constituents. Martin B. Goldhaber*, Jean M. Morrison, Geoffrey S. Plummer, Richard B. Wanty,
Dennis R. Helsel, Ruth E. Wolf, David B. Smith, Philip L. Hageman, Suzette A. Morman and JoAnn M. Holloway, U.S. Geological Survey

SESSION NO. 14
Convention Center, Room 109AB, First Floor

1.2A Spatial, Societal and Environmental Aspects of Pedodiversity—Oral

Convenor: Robin Thwaites, Queensland University of Technology
Presiding: Jonathan Phillips, University of Kentucky

14-1 1:15 PM Perspectives and Challenges of Pedodiversity Analysis. Juan Jose Ibanez*, Centro de Investigaciones sobre desertificación (CIDE)

14-2 1:45 PM Soils in the Anthropocene. Ronald Amundson*, Univ of California

14-3 2:05 PM Scale Dependence and Complexity in the Spatial Distribution of Soil Resources. K. Murray Lark*, Environmetrics Group, Bioinformatics and Biomathematics Division, Rothamsted Research


14-5 2:45 PM Taxonomic and Functional Pedodiversity in Relation to Landscape Variability and Land Utilization Types. Inakwu Ominy A. Odoh*, The Univ of Sydney and John Trantafilis, The Univ of New South Wales

SESSION NO. 15
Convention Center, Exhibit Hall A, Theater 3, Second Floor

2.2A Soil Organic Matter: Stabilization and Carbon Sequestration—Theater

Authors Present 1:15 PM–3:15 PM

Convenors: Alvin Smucker, Dept. of Crop & Soil Sci., MSU; Ingrid Kögel-Knabner, Lehrstuhl für Bodenkunde
Presiding: Alessandro Piccolo, Università di Napoli


15-7 839a A Non-Compartment Approach to the Modeling of Carbon Cycle in Soils. Yongsheng Feng*, Univ of Alberta and Xiaomei Li, Alberta Research Council

15-8 839b Multidimensional Characterization of Soil Carbon Pools Using Stable Isotope and Quadrupole Mass Spectrometry Coupled to Thermal Analysis. David A. C. Manning*, Elisa Lopez-Capel and Maggie White, School of Civil Engineering and Geosciences, Univ of Newcastle


15-10 936b Isotopic Investigations into the Role of Aggregation in Stabilizing Soil Organic Carbon. Julie Iastrow*, Argonne National Laboratory and Johan Six, Dept of Plant Sciences, Univ of California-Davis


15-12 937b Humus Accumulation, Microbiological Indicators and Respired Carbon Dioxide in Soil. Oliver M. Dilly*, Lehrstuhl für Bodenschutz und Rekultivierung, Brandenburgische Technische Universität

15-13 938b Evaluating the Microbial Role in Soil Carbon Dynamics Using Markov Chain Analysis. Chao Liang*, Guang Cheng and Teresa Balser, Univ of Wisconsin-Madison

SESSION NO. 16

Convention Center, Room 108AB, First Floor

3.4A Combating Global Soil & Land Degradation I: Agroecosystems: Processes & Assessment—Oral

Convenor: Miguel Ayarza, TGU: 00087

Presiding: Matilde Somarriba-Chang, Universidad Nacional Agraria (UNA)

16-1 1:15 PM Decision support tools and technologies to assess and reverse land degradation in tropical savanna and hillside agroecosystems of Latin America. Miguel Ayarza* Sr., Edgar Amezquita, Edmundo Barrios, Marco Rondon and Idupulapati Rao, Tropical Soil Biology and Fertility Institute of the Inter-American Center for Tropical Agriculture, CIAT

16-2 1:45 PM Land degradation: An assessment of the human impact on global land resources. Hari Eswaran*1, Paul Reich1 and Friedrich Beinroth2, (1)USDA Natural Resources Conservation Service, (2)University of Puerto Rico


SESSION NO. 17

Convention Center, Exhibit Hall A, Theater 2, Second Floor

SCE Evaluating Management Impacts on Forest Soils—Theater

Authors Present 1:15 PM–3:15 PM

Convenor: Chris Johnson, Dept.of Civil Eng.

Presiding: Zhihong Xu, Griffith University

17-1 3505a Management of Forest Soils on Disturbed Grounds. Wolfgang Schaaf* and Reinhard F. Hüttl, Brandenburg Univ of Technology

17-2 3505b Organic Carbon Restoration during the First Twenty Years on the Debris Avalanche Deposit of the Ontake Volcano, Japan. Kazuhiro Morisada* and Mitsue Shibata, Forestry and Forest Products Research Institute

17-3 3506a Using Soil and Climatic Data to Predict Carbon Sequestration in Reforestation and Recharge Reduction at Different Scales. Richard J. Harper*, Cooperative Research Centre for Greenhouse Accounting and Keith R.J. Smettem, Univ of Western Australia

17-4 3506b Properties of Typical Forest Soils of China in Different Climatic Zones Affecting Methane and Ethylene Consumption and Nitrous Oxide Production. Xingkai Xu*, Institute of Atmospheric Physics, Chinese Academy of Sciences

17-5 3507a Information Needed for for Sustainable Management of Hardwood Forests: More than 50 years of Research on the Fernow Experimental Forest. Mary B. Adams* and James Kochenderfer, USDA Forest Service

17-6 3507b Lignocellulosic Enzyme Activities and Litter-Layer Composition (NMR Spectra) of a Pine Forest Soil, Five Years after Thinning. Sebastian Maassen*, Minh-Phuong Huynh-Le2, George D. Cody2 and Stephan J. Wirth*3, (1)Leibniz-Centre for Agricultural Landscape Research (ZALF), Institute of Landscape Matter Dynamics, (2)Carnegie Institution of Washington, Geophysical Laboratory

17-7 3508a Mineral Soil Organic Matter in Forest Sites of Coastal British Columbia, Canada. Caroline M. Preston*, Tony Trofymow1, Christopher Swanston2 and Chris Van Kessel1, (1)Pacific Forestry Centre, (2)Center for Accelerator Mass Spectrometry, (3)UC Davis

17-8 3508b Fire-Derived Carbon in Boreal Forests—Current Knowledge and Uncertainties. Caroline M. Preston, Pacific Forestry Centre, Natural Resources...
Canada and Michael W. I. Schmidt*, Dept of Geography, Physical Geography, Soil Biogeochemistry

**SESSION NO. 18**

Convention Center, Room 108AB, First Floor

**1.5A Diffuse Reflectance Spectroscopy, Soil Sensing, Remote Sensing and Image Analysis—Oral**

**Convenor: Sabine Grunwald, Soil & Water Sci. Dept. Univ. FL**

**Presiding: Endre Dobos, University of Miskolc**

18-1 3:30 PM Infrared Spectroscopy—New Technology for Boosting Agricultural Productivity and Monitoring Environment in Developing Countries. Keith Shepherd* and Markus Walsh, World Agroforestry Centre (ICRAF)

18-2 4:00 PM Diffuse Reflectance Spectroscopy as a Major Input to the Soil Inference System. Budiman Misnasyn*, Alex McBratney and Raphael Viscarra-Rosell, The Univ of Sydney


18-5 5:00 PM Reflectance Spectroscopy for the Determination of Soil C: Where Are We? and What Are the Problems Which Need to Be Solved?. James B., Reeves* III, EMBUL, ANRI, ARS, USDA, Dean Martens, SWRC, ARS, USDA and Gregory McCarty, HRSLS, ANRI, ARS, USDA

**SESSION NO. 19**

Convention Center, Exhibit Hall A, Theater 3, Second Floor

**1.5B Soil Sampling in Space and Time—Theater**

Authors Present 3:30 PM–5:30 PM

**Convenor: Jan Hendrickx, Dept. of Earth & Env. Sci.**

**Presiding: Gerard B.M. Heuvelink, Wageningen University and Research Centre**

19-1 538a Generating Geo-Pedological Maps Using GIS of Study Areas in Baharya Oasis. Mohamed Abbas Rasheed V and Khaled Mohamed Darwish, National Research Centre

19-2 538b Spatial Variability in the Electro Conductivity of Soil and Groundwater in the Balaroud Area Located in the Southwest of Iran. Farzad Nazari-zadeh*, Khuzestan Water and Power Authority

19-3 539a Establishing Digital Spatial Pattern Map of Macronutrients in Soils under Irrigated Wheat in Golestan Province. Ghorban Ali Roshani* and Sohrab Sadeghi, Golestan Agricultural Research Center

19-4 539b The Comparative Analysis of Methods for Physical Properties Investigation of Soil Solid Part. Igor V. Morozov* and Irina Morozova, Rostov State University

SESSION NO. 19


19-7 541a Spatial Modeling of Trace Elements in Soils Using Partial Least Squares Regression and Pre-existing Information. Hocine Bouremene*, National Institute for Agronomic Research (INRA)

19-8 541b Can Variable Rate Technology Using Active Sensors Work in Bermudagrass and Ryegrass Production? J. Jagadeesh Mosali1, Jeffrey B. Ball1, Keyfaylew Girma2, Shawn L. Norton1 and W.R. Raun2, (1)The Noble Foundation, (2)Ohio State University

19-9 640a Soil Chemical Properties as a Tool in Archaeological Investigations: Identifying Previous Anthropogenic Disturbances. Tadzio Luxton1, Matthew Eick and Stephanie M. Garman, Virginia Tech

19-10 641a Site-Specific Management Zones: Soil-Color Based and Yield-Based. Rajiv Khosla*, Danny Inman, Andrew Hornung, Dwayne Westfall and Robin Reich, Colorado State University

19-11 641b Technique of Detailed—Level-by-Level Definition of Soil Moisture with TDR TRIME-FM3. Olga S. Ermolaeva*, Moscow State University of Environmental Engineering and Anatoly Zeiliger, Moscow State University Of Environmental Engineering

19-12 741a Evaluation of a New, Perforated Soil Heat Flux Plate Design. Thomas J. Sauer1, Pierre Thery2, Josh L. Heitman3, Thomas M. DeSutter1 and Robert Horton2, (1)USDA-ARS National Soil Tilth Laboratory, (2)CAPTEC, (3)Iowa State University

19-13 741b Correlation between the Common Bean Grains Yield and Attributes of Relation Mass/Volume in a Typical Haplic Acrustox of the Brazilian Savannah. Morel de Passos Carvalho*, Flavia Araujo Matos, Mariana Ventura Martins and Gilberto Rosa Filho, Sao Paulo State University

SESSION NO. 20

Convention Center, Exhibit Hall A, Theater 1, Second Floor

2.3A Microbial Habitat: Evolution, Structure and Distribution in Soils—Theater

Authors Present 3:30 PM–5:30 PM

Convenors: Donald Gabriels, Ghent University; Gupta Vadakattu, CSIRO

Presiding: Richard Dick, Ohio State Univ./Sch. of Nat. Res.

20-1 848a Mechanisms of Solute Transport Modify Small-Scale Abundance and Function of Microorganisms in Soil. Ellen Kandeler1, Christian Poll1, Joachim Ingwersen2, Thilo Streck2, Esther Enowashu1 and Sven Marban2, (1)Institute of Soil Science, Soil Biology Section, University of Hohenheim, (2)Institute of Soil Science, Biogeophysics Section, University of Hohenheim

20-2 952b Quantification of Root-Soil and Root-Insect Interactions Using X-Ray Microtomography. Peter J. Gregory1, Scott N. Johnson1, Derek B. Read1, Caroline E. Hargrave1, Dimitry V. Grinev1 and Iain M. Young1, (1)SCR, (2)Department of Soil Science, (3)SIMBIOS Centre

20-3 850b Macroaggregate Environment Influences the Composition and Activity of Associated Microbiota Communities. Gupta V.S.R. Vadakattu1, M. L. Kasper1, T. Jankovic-Karasoulos2 and E. T. Elliott2, (1)CSIRO Entomology, (2)CSIRO, University of Nebraska

20-4 947a Effects of Grapevine Roots, Soil Resources and Depth on Soil Microbial Communities in a Pinot Noir Vineyard. Kerri L. Steenwerth1, Shane R. Parker1, Daniel A. Kluepfel1, Jean-Jacques Lambert2 and David R. Smart2, (1)USDA/ARS Crops Pathology and Genetics Research Unit, (2)University of California, Davis, (3)Department of Viticulture and Enology

20-5 852a Comparison of Bacterial Community Structures at Main Habitats in Paddy Field Ecosystem Based on DGGE Analysis. Susumu Asakawa2 and Makoto Kimura, Graduate School of Bioagricultural Sciences, Nagoya University

20-6 948b Diversity of Culturable Methane-Oxidizing Bacteria in a Japanese Rice Field Ecosystem. Chihoko Ueno1, Dayeri Dianou2, Makoto Kimura1 and Susumu Asakawa1, (1)Graduate School of Bioagricultural Sciences, Nagoya University, (2)National Center of Scientific Research

SESSION NO. 21

Convention Center, Room 114, First Floor

2.5A Soil Physicochemical-Biological Interfacial Interactions: Impacts on Transformations and Bioavailability of Metals and Metalloids—Oral

Convenor: P. M. Huang, Soil Sci., Univ. Saskatchewan

Presiding: A. Violante, Università di Napoli–ITALY

21-1 3:30 PM The Role of Synchrotron-Based Research on Soil Physicochemical and Biological Interfacial Interactions Pertaining to Metals and Metalloids in the Environment. Ken M. Kenner*, Argonne National Laboratory

21-2 4:00 PM Spectromicroscopic Investigation of Cohabit Specialization in a Ni/Co Hyperaccumulator Plant used for Phytoremediation and Phytomining. Ryan V. Tappero1, R. L. Chaney2 and Donald L. Sparks1, (1)U of DE, Environmental Soil Chemistry, (2)USDA-ARS-ANRI

21-3 4:20 PM Transformation of Metals and Minerals by Microorganisms. M. Fomina* and Geoffrey M. Gadd, University of Dundee

21-4 4:40 PM Rhizosphere – A Unique Interface for Understanding the Fate of Trace Elements – the Example of Copper. Philippe Hinsinger1, Valérie Chaignon1, Benoit Cloutier-Hurteau2, Jean-Yves Cornu1, P Legrand2, Aurélie Michaud1, Véronique Séguin1 and François Courchesne2, (1)UMR 1222 Rhizosphere & Symbiose INRA-ENSAM, (2)Département de Géographie. Université de Montreal

21-5 5:00 PM Major Role of Interactions between Organic Matter Biodegradability, Iron Reducing Bacteria and Ferric Oxide Availability and Partitioning of Metals in Soils. Jacques Berthelin*, Nouredine
SESSION NO. 22
Convention Center, Room 109AB, First Floor

3.2A Environmental Impacts of Soil Erosion—Measuring and Modeling On- and Off-Site Damages of Soil Erosion—Oral
Convenors: Sonia Dechen, Centro de Pesquisa e Desenvolvimento; Diane Stott, USDA-ARS National Soil Erosion Res.
Presiding: Nicola Fohrer, Fachabteilung Hydrologie und Wasserwirtschaft des ÖZK

22-1 3:30 PM Using RUSLE2 to Predict On-Site Soil Degradation and Off-Site Sediment Yield. Seth M. Dabney, Mathias J. M. Romkens, Daniel C. Yoder and Michael Hubbs. (1)USDA-ARS National Sedimentation Lab, (2)University of Tennessee, (3)USDA-NRCS.


22-4 4:40 PM Wind Erosion in the Conditions of Climate Change. Jana Dufkova and Frantisek Toman. Mendel University of Agriculture and Forestry Brno, Department of Applied and Landscape Ecology.


SESSION NO. 23
Convention Center, Exhibit Hall A, Theater 2, Second Floor

3.3C Improved Management of Alkaline Soils for Dryland Agriculture—Theater
Convenors: John Ryan, ICARDA; Dwayne G. Westfall, Colorado State University
Presiding: John Angus, CSIRO Plant Industry, GPO Box 1438

23-1 1829b Evaluating the Process of Desalinization of Sodic and Saline Soils by the Theoretical Models of Southeast Khuzestan Province. Mohammad Reza Momayezit, Islamic Azad University of Varamin.
SESSION NO. 24
Convention Center, Room 113AB, First Floor

4.2C Soil Quality as it Affects Nutrients in Food Crops and Human Health—Oral

Convenor: John J. Mortvedt, Colorado State University
Presenting: Umesh Gupta, Agriculture & Agri-Food Canada

24-1  3:30 PM  Heavy Metal Toxicities in Soils, Crops, and Humans: Some Control Measures. Umesh C. Gupta*, Agriculture & Agri-Food Canada and Subhas C. Gupta, Division of Plastic Surgery

24-2  4:00 PM  Soil as a Public Health Threat or Savior. Ian Pepper*, Deborah Newby, Charles Gerba and Charles Rice, (1)Univ of Arizona, (2)Idaho National Engineering and Environmental Laboratory, (3)Kansas State Univ

24-3  4:20 PM  Does a Food Chain Approach Help to Target Zinc Bio-Fortification Efforts in Cereal Crops? Tjeerdjan Stomph, Maja A. Slingerland, Ellis Holfland and Rob Nout, Wageningen Univ

24-4  4:40 PM  Increased Rice Uptake of Zinc by Optimization of Water and Crop Residue Management. Sarah E. Johnson*, Jack Deodato C Jacob, Roland J Burshel, John M. Duxbury and Julie G. Lauren, (1)International Rice Research Institute, (2)Cornell Univ

24-5  5:00 PM  Relationships between Distribution of Longevous Population’s Rate and Trace Elements in Soils of Rugao County, Jiangsu, China. Biao Huang*, Rongqin Yang, Weixia Sun, Zhong Zou, Jianping Su and Feng Ding, (1)State Key Laboratory of Soil and Sustainable Agriculture, Institute of Soil Science, the Chinese Academy of Sciences, (2)Service Station of Soil and Fertilizer Technology, Bureau of Agriculture of Rugao County

SESSION NO. 25
Convention Center, Room 111AB, First Floor

4.3A Land Use Modeling as a Tool to Combat Soil Degradation—Oral

Convenor: Timothy Green, USDA-ARS Great Plains Systems Res.
Presenting: Rainer Schulin, Institute of Terrestrial Ecology


25-4  4:40 PM  Modeling Spatial-Temporal Soil Water and Overland Flow in a Dryland Wheat-Fallow Field using MARIA-GIS. Timothy Green*, James Ascoug, Robert Erskine, Bruce Vandenberg and Laipat Ahuja, (1)USDA-ARS-NPA, Great Plains Systems Research Unit, (2)USDA, Agricultural Research Service (ARS)

25-5  5:00 PM  Distinction between the effects of management and climate factors in long-term experiments as a tool for comparing adaptation strategies under future climate. Vladimir A. Romanenkov, Vera N. Pavlova, Tatyana V. Raskatova and Lyudmila K. Shevtsova, (1)Pryanishnikov All-Russian Institute of Agrochemistry, (2)All-Russia Institute of Agricultural Meteorology
Tuesday, 11 July 2006

SESSION NO. 26
Convention Center, Room 114, First Floor

0.0A Innovation, Speculation and Disneyfication in Soil Science Education—Oral
Convenor: Alex McBratney, University of Sydney
Presiding: Alfred Hartemink, ISRIC—World Soil Information

26-1 8:00 AM Teaching Soil Science, Educating the Numbers. Alfred Hartemink*, ISRIC—World Soil Information and Alex McBratney, Univ of Sydney


26-3 8:50 AM Innovation, Speculation and Disneyfication in Soil Science Education. Tony Koppi*, Univ of New South Wales

SESSION NO. 27
Convention Center, Room 108AB, First Floor

1.0B Soil Change in Anthropocene—Oral
Convenor: Hariharan Eswaran, USDA-NRCS
Presiding: Victor Targulian, Inst. of Geography, Russian Academy of Sciences

27-1 8:00 AM Human Effects on Soils in Urban Areas. John M. Galbraith*, Virginia Tech


SESSION NO. 28
Convention Center, Exhibit Hall A, Theater 3, Second Floor

1.2A Spatial, Societal and Environmental Aspects of Pedodiversity—Theater
Authors Present: 8:00 AM–10:00 AM
Convenor: Robin Thwaites, Queensland University of Technology
Presiding: Jonathan Phillips, University of Kentucky

28-1 348a The Effect of Classification on Soil Richness-Area Relationships. Jonathan D. Phillips*, Tobacco Road Research Team

28-2 348b Unique and Rare Kinds of Soils on Samarskaya Luka (Middle Volga, Russian Plain). Evgeny V. Abakumov*, Elvira I. Gagarina and Natalia A. Rudenko, Saint-Petersburg State University

28-3 349b Pedodiversity and its Application in Geocological Systems. Robin N. Thwaites*, School of Natural Resource Sciences and Brian Slater, School of Natural Resources

SESSION NO. 29
Convention Center, Room 109AB, First Floor

2.4A Poorly Ordered Nanoparticulate materials (PONM) in Soils—Oral
Convenor: Balwant Singh, University of Sydney
Presiding: Jerry Bigham, 420A Kottman Hall Sch. Natl Res

29-1 8:00 AM Chemistry of Fe and Al Nanoparticles in the Environment. Satish Myneni*1, Michael Hay1, Laura Harrington1 and Juraj Majzlan2, (1)Princeton University, (2)Mineralogisch-Geochemisches Institut

29-2 8:30 AM Magnetism and Moessbauer Spectroscopy of Loessic Soils/Paleosols as a Key to Pedogenic Transformation of Fe Minerals and Climate Change. Tatyana S. Gendler*, United Institute of Physics of the Earth RAS, Friedrich Heller, Institut fur Geophysik ETH, Alexander Tatskin, Zinman Institute of Archaeology University of Haifa and Alla A. Novakova, Physics Faculty Moscow State University

29-3 8:50 AM Concomitant Formation of Maghemite and Hematite in Aerobic Soils. Vidal Barrón, Estrella Cabello and José Torrent*, Universidad de CORDoba

29-4 9:10 AM Incorporation of Trace Metals into Polymorphs Alpha- (Goethite) and Gamma- (Lepidocrocite) FeOOH. Markus Gräfe*, Balwant Singh and Navdeep Kaur, The University of Sydney

SESSION NO. 30
Convention Center, Room 113AB, First Floor

3.0B Emerging Topics in Soil Use and Management—Oral
Convenor: John Havlin, NCSU-Dept. of Soil Science
Presiding: Wolfgang Burghardt, Universitat–GH Essen

30-1 8:00 AM Introduction to the Symposia 3.0B and Thematic Restrictions of Soil Resources Availability—an Emerging Topic in Soil Use and Management. Wolfgang Burghardt*, Univ Duisburg–Essen, Faculty of Biology and Geography, Dept of Soil Technology


30-3 9:10 AM Soil: The First Filter of Our Water. Brent E. Cloutier*, HortResearch

SESSION NO. 31
Convention Center, Exhibit Hall A, Theater 2, Second Floor

3.3B Nutrient Use Efficiency and Global Agriculture
—Theater
Authors Present 8:00 AM–10:00 AM
Convenors: Achim Dobermann, University of Nebraska-Lincoln; Paul Fixen, Potash & Phosphate Institute
Presiding: Fernando Garcia, PPI/PPIC Latin America-Southern Cone

31-1 1918a Iron Management Practices for Groundnut-Maize Cropping Sequence in Calculative Vertisol. Farid Hellal, Univ of Cairo, Hanumant Channal*, Univ of Agricultural Science and G.S. Dasog, Dept of Soil Science and Agricultural Chemistry, Univ of Agricultural Sciences

31-2 1629b Importance of Micronutrients in Crop Production: A Review of the Changing Scene. Richard Bell* and Bernie Dell, Murdoch Univ

31-3 1630a Fertilizer Price Impact on Frequency of Profitable Responses. Thomas Bruulsema*, Potash & Phosphate Institute

31-4 1630b Agrochemical Aspects of Long-term Systematic Fertilization in the Agroecosystems of Siberia. Gennady P. Gamzikov* and Olga Gamzikova, Novosibirsk State Agrarian Univ

31-5 1631a Simulation and Analysis of Soil Water and Nitrogen Behaviors under Maize-Wheat Cropping System in Huang-Huai-Hai Plain of China. Yuan-fang Huang*1, Ruta Gao2 and Baoguo Li1, (1)China Agricultural Univ, (2)Agricultural Univ of Hebei

31-6 1631b Plant-Need Based Real Time Nitrogen Management in Rice Grown by Small Farmers in Asia. Bijay Singh1, Yadvinder Singh1, Mehharan Singh1, G.P.S. Sodhi1, J.K. Ladha2 and Vethiyaa Balasubramanian2, (1)Department of Soils, Punjab Agricultural University, (2)International Rice Research Institute, (3)International Rice Research Institute (IRRI)

31-7 1632a Nutrient Efficient Plants in Improving Crop Yields in the Twenty First Century. N. K. Fageria*, National Rice and Bean Research Center of brapa, Brazil and USDA-ARS Beltsville, MD and V. C. Baligar, USDA-ARS


31-10 1729b Isotopic and Spectroscopic Investigations toward Understanding Differential Behavior of Fluid and Granular Micronutrient Fertilizers in Soils. Ganga Hettiarachchi*, Univ of Adelaide, Enzo Lombi, Land and Water, CSIRO, Michael McLaughlin, CSIRO Land and Water and David Chittleborough, Soil and Land Systems, School of Earth and Environmental Sciences

31-11 1730a Slow-Release N Fertilizer to Control Soil Nitrous Oxide Losses Due to Spatial and Climatic Differences in Soil Water Content and Drainage. Sara Merchán Paniagua*, Peter P. Motavalli, Kelly A. Nelson, Stephen H. Anderson and John E. Sadler, Univ of Missouri-Columbia

31-12 1730b Long-term Assessment of N Use and Loss in Irrigated Organic, Low-Input and Conventional Cropping Systems. William Horwath*, Zhanghong Kabir, Kathleen Reed, Steve Kaffka, Gene Miyao, Kent Brittian and Jeff Mitchell, Department of Land, Air and Water Resources

31-13 1731a Nitrogen, Phosphorus and Sulphur Fertility of Hybrid Canola Cultivars. Rigas Karamanou1, Don Flaten2 and Tee Boon Goh2, (1)Western Co-operative Fertilizers Limited, (2)Dept of Soil Science, Univ of Manitoba

31-14 1731b N and P Cycling in Crop-Native Shrub Agroecosystems of the African Sahel. Ekwe Dossa*1, Richard Dick2, Mamadou Khouma2, Modou Sene3, Aminata Badiane4 and Ibrihima Diedhiou1, (1)Oregon State Univ, (2)Ohio State Univ, (3)ISRA, (4)USAID

SESSION NO. 32
Convention Center, Exhibit Hall A, Theater 1, Second Floor

4.0A Bridging Soil Science, Environmental Policy and Communications—Theater
Authors Present 8:00 AM–10:00 AM
Convenors: Charles Rice, Dept. of Agronomy, KSU; J. T. Sims, Dept. Plt. & Soil Sciences
Presiding: Peter J. Kleinman, USDA-ARS, Bldg. 3702

32-1 1855a Development of a Soil Health Policy Framework for Victoria, Australia. Michael C. Crawford*1, Mark Allaway2 and Melva Ryan3, (1)Primary Industries Research Victoria (PIRVic), Department of Primary Industries, (2)Agriculture Industry Policy, Department of Primary Industries

32-2 1855b Soil Science: Subterranean Support for Sustainability. Richard Arnold*, USDA-NRCS (retired)
SESSION NO. 35
Convention Center, Exhibit Hall A, Theater 3, Second Floor

2.0B Innovative Technologies in Rhizosphere Research——Theater
Authors Present 10:15 AM–12:15 PM

Convenor: David Crowley, University of California-Riverside
Presiding: Philippe Hinsinger, INRA–ENSA.M–UMR Rhizosphère & Symbiose

35-1  554a  Glucose Uptake by Maize Roots and Its Transformation in the Rhizosphere. Yakov Kuzyakov*, Univ of Hohenheim and David L. Jones, Univ of Bangor

35-3 555b Scaling Environmental Processes in Heterogeneous Arid Soils (SEPHAS); A New Research Facility in Nevada USA. Michael H. Young*, Desert Research Institute, Zhongbo Yu, Univ of Nevada Las Vegas and Scott Tyler, Univ of Nevada-Reno

35-4 654a Dynamics of Soil Nutrients in the Rooting Zone with Reference to the Mechanisms of Nutrient Supply in Soil. Junta Yanai†, Takashi Kosaki‡ and Hidekazu Yamada, (1)Kyoto Prefectural Univ, (2)Kyoto Univ

35-5 654b Influence of Yushania Nitatayamensis on the Chemical Composition of Soil. Mei-Hwei Tseng, Chin-Lin Hsieh, W.-R. Lai and Yueh-Hsiung Kuo, (1)Taipei Municipal University of Education, Department of Science Education, (2)National Taiwan University Department of Chemistry

35-6 655a Implication of Fe Deficiency and Phytosiderophores in Cu Mobilization in the Rhizosphere of Durum Wheat Cultivated in Vineyard Soils. Aurelia Michaud* and Philippe Hinsinger, UMR 1222 Rhizosphere & Symbiose INRA-ENSAM

35-7 655b Assimilate Partitioning Effects 13C Fractionation of Recently Assimilated Carbon in Maize. Martin Werth* and Yakov Kuzyakov, Univ of Hohenheim, Institute of Soil Science and Land Evaluation

35-8 753a Rhizosphere Effect under Oats and Maize Plants. Ilya V. Yevdkovimov*, Reiner Ruser*, Franz Buegger*, Marc Marx* and Jean Charles Munch*, (1)Institute of Physicochemical and Biological Problems in Soil Science, RAS, (2)GSF–National Research Center for Environment and Health, Institute of Soil Ecology

35-9 753b Effect of Heterosis on Rhizodeposition in Zea Mays L. Tanja Mimmo*, Luciano Cavani and Maria Angela Cané, Department of Agroenvironmental Sciences and Technologies, Alma Mater Studiorum – University of Bologna


35-11 754b Localized Sampling of Root Exudates and Rhizosphere Soil Solution by Use of Sorption Media. Susan Haase*, Ellen Kandelner†, Yakov Kuzyakov, Angelika Kania, Iris Edelkott†, Petra Marschner‡, Volker Rümheld* and Günter Neumann‡, (1)Hohenheim University, (2)Hohenheim University, (3)The University of Adelaide

35-12 755a Rhizosheath in Cynodon dactylon Growing in a Volcanic Sandy Soil. Fernando De León-González†, Claudia Hidalgo-Moreno‡ and Eduardo Celada-Torne†, (1)Universidad Autónoma Metropolitana-Xochimilco, (2)Colegio de Postgraduados

35-13 755b Effects of Intercropping and Organic Phosphate Application on Plant Growth, P Uptake and Microbial Community in Rhizosphere of P-Ifficient Wheat. Dongmei Wang*, Petra Marschner‡ and Zakaria Solaiman, (1)School of Soil and Water Conservation, Beijing Forestry Univ, (2)School of Earth and Environment Sciences, The Univ of Adelaide

SESSION NO. 36
Convention Center, Room 108AB, First Floor

2.2A Soil Organic Matter: Stabilization and Carbon Sequestration—Oral

36-1 10:15 AM C Sequestration in Croplands of Soils: Trends, Potential, and Research Needs. Pan Guan*‡, Institute of Resources, Ecosystem and Environment of Agriculture

36-2 10:45 AM Does Cell Wall Composition and Architecture Play a Key Role in Understanding and Predicting Soil Residue Decomposition? Isabelle Bertrand†, Brigitte Chabbert*, Gaylord E. Machinet† and Sylvie Recous†, (1)INRA Agronomie, (2)INRA UMR FARE

36-3 11:05 AM Use of Pyrolysis Molecular Beam Mass Spectrometry (py-MBMS) to Fingerprint Lipids in Agricultural Soils. Richard Jeannotte*, Kimberly A. Magrini*, Mary R. Roth† and Ruth Welti‡, (1)Kansas State University, (2)National Renewable Energy Laboratory

36-4 11:25 AM Biogeochemical Factors Controlling the Release of Soil Organic Matter: Lessons To Be Learned from Column Experiments. Kai Uwe Totsche†, Ingrid Kögel-Knabner* and Philipp Jaeschke‡, (1)Universität Jena, (2)Lehrstuhl für Bodenkunde TU Muenchen


SESSION NO. 37
Convention Center, Room 113AB, First Floor

3.2B Dryland Conservation Technologies: Innovations for Enhancing Productivity and Sustainability—Oral

Convenors: Cynthia Grant, Agriculture & AgriFood Canada; John Havlin, NCSU-Dept. of Soil Science

Presiding: Alan Schlegel, Southwest Res. Ext. Center

37-1 10:15 AM Dryland Agriculture Challenges and Opportunities. B.A. Stewart*, West Texas A&M University

37-2 10:45 AM Managing Precipitation Use in Dryland Systems to Enhance Productivity and Sustainability. Gary A. Peterson*, Dwayne Westfall† and Lajpat Ahuja‡,
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<th>Session No. 38</th>
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<tr>
<td><strong>4.5A History of Soil Science in Developing Countries</strong> —Oral</td>
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<td><strong>Convenors:</strong> Daniel Yaalon, Hebrew University, Givat Ram Campus; Anthony Young, University of East Anglia</td>
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<td><strong>Presiding:</strong> Eric Brevik, Dept. of Physics, Astron., Geosci.</td>
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<td><strong>Session Date:</strong> 37-3 11:05 AM</td>
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<tr>
<td><strong>Drought Mitigation through Micro-Level Conservation Practices by Smallholder Farmers in Zambia.</strong> David Kaumba Samazaka* and Simon Njiru, Golden Valley Agricultural Research Trust</td>
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<td><strong>Session Date:</strong> 37-4 11:25 AM</td>
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<td><strong>Dryland Conservation Technologies for the Restoration of the Productive Capacity and the Conservation of Crust Prone Soils in the Sahel.</strong> A. Mando*, IFDC and Robert B. Zougmoré, Institut de Recherche pour le Développement (INERA)</td>
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<td><strong>Session Date:</strong> 37-5 11:45 AM</td>
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<td><strong>Enhancing Nitrogen Use Efficiency in Dryland Cropping Systems on the Northern Great Plains.</strong> Cynthia Grant*, Agriculture &amp; AgriFood Canada and Alan Schlegel, Southwest Research Extension Center, Kansas State University</td>
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| Session No. 39 |
| **Convocation Center, Exhibit Hall A, Theater 1, Second Floor** |
| **AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Theater** |
| **Authors Present 10:15 AM—12:15 PM** |
| **Convenors:** Delvin Fanning, Univ. of Maryland, HJ Patterson; Robert Fitzpatrick, CSIRO, Land and Water Presiding: Leigh Sullivan, Southern Cross University |
| **Session Date:** 39-1 2904a |
| **Geochemical Dynamics of Sedimentary Iron in Waterways from Acid-Sulfate Soil Landscapes.** Edward Burton*, Richard T. Bush and Leigh A. Sullivan, Southern Cross University |
| **Session Date:** 39-2 2904b |
| **Characterization of Acidity and its Management in Wetland Ecosystem of Tropics.** Usha Pankajam Bhaskaran* and Thomas Varghese, Kerala Agricultural Univ, College of Agriculture |
| **Session Date:** 39-3 2905a |
| **Oxidation Pathways of Monosulfidic Black Ooze.** Diane M. Fyfe*, Leigh A. Sullivan, Richard T. Bush and Nicholas J. Ward, Centre for Acid Sulfate Soil Research |
| **Session Date:** 39-4 2905b |
| **Controlled Drainage and Lime Filter Drains as means To Combat Drainage-Induced Adverse Environmental Impacts of Acid Sulphate Soils in Finland.** Ilona Bärlund1, Sirkka Tattari2, Mats Åström2, Markku J. Yli-Halla3 and Heikki Harmanen4, (1)Finnish Environment Institute, (2)Department of Biology and Environmental Science, Kalmar University, (3)Department of Applied Chemistry and Microbiology, University of Helsinki, (4)Semajoki Polytechnic, School of Agriculture and Forestry |
| **Session Date:** 39-5 2906a |
| **Ecotoxicological Assessment of Acid Sulfate Soils Using Daphnia Carinata.** Chuxia Lin*, South China Agricultural Univ |
| **Session Date:** 39-6 2906b |
| **Pyrite Formation in Amir-Kalaye Marsh in the North of Iran.** Hossein Torabi-Golsefidi*, Faculty of Agriculture, Shahed University |
| **Session Date:** 39-7 2907a |
| **Constraints of Acid Sulfate Soils Converted from Rice to Shrimp Culture in Coastal Areas of Ca Mau Province, Vietnam.** Guong Vo Thi*, Quang Tri Le and Truong Giang Thai, Can Tho University |
| **Session Date:** 39-8 2907b |
| **Investigation of Sulfidic Sediments in a Coastal Lake Impacted by Urban Development.** Bernard Powell*, Leigh Sullivan2, Richard T. Bush* and Edward Burton*, (1)Department of Natural Resources, (2)Southern Cross University |
| **Session Date:** 39-9 2908a |
| **Modeling, Measurement of Acidity Transport from Drained Acid Sulfate Soils.** Freeman J. Cook*, David W. Rassam1, Ted A. Gardner2 and Geoffrey D. Carlin1, (1)CSIRO Land and Water, (2)Queensland Department of Natural Resources and Mines, (3)CSIRO Sustainable Ecosystems |
| **Session Date:** 39-10 2908b |
| **Application of Compost from Sugarcane Filter Cake to Alleviate Al Toxicity and to Improve Sugarcane Production on Acid Sulfate Soils.** Vien Minh Duong*, Thi Guong V o Thi*, Quang Thi Kim Phuong Nguyen, Cantho University |
| **Session Date:** 39-11 2909a |
| **Session Date:** 39-12 2909b |
| **Session Date:** 39-13 3003a |
| **Micromorphology and Chemical Composition of Naturally Occurring Jarosite in Coastal Flood-


39-19 3006a The Reduction Rates of Fe and SO$_4^{2-}$ in Some Acid Sulphate Soils in Southern Vietnam. Tran Kim Tinh*, Department of Soil Science, Agronomy Faculty, Can Tho University, S. Ingvar Nilsson, Department of Soil Sciences, Swedish University of Agricultural Sciences and Ingrid Öborn, Dept. of Soil Sciences

39-20 3006b Pollution of Some Toxic Metals (Al, As, Cd, Cu, Fe, Mn, Ni, Pb, Zn) in canal water leached out from Acid Sulphate Soils in the Mekong Delta, Vietnam in Relation To Available Concentration of These Metals in Soils. My Hoa Nguyen*, Tri Cuong Huyah1 and Kim Tinh Tran2, (1)Cantho University, Vietnam, (2)Cantho University


39-23 3008a The Importance of Understanding Possible Chemical Interactions in the Routine Testing Used to Assess the Acid Producing Potential and the Acid Neutralization Potential of Soils. Joan Elizabeth Thomas#1, Roger St C. Smart2, Andrea Gerson2, Paul Weber1, Russell Schumann1, George Levay2, Stuart Miller3 and Warwick Stewart4, (1)Jefferson Lab, (2)University of South Australia, (3)Solid Energy NZ Ltd., (4)Levy & Co. Environmental Services, (5)Environmental Geochemistry International Pty. Ltd.

39-24 3008b Challenging the Conceptual Model used for Acid Sulfate Soil Mapping on the East Coast of Australia. Don T. Malcolm#1, Shane M. Pointon#1 and Colin Ahern#, (1)Queensland Department of Natural Resources and Mines, (2)Queensland Department of Natural Resources

SESSION NO. 40

Convention Center, Room 109AB, First Floor

CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Oral

Convenors: John Kimble, USDA-NRCS-NCSS; Chien-Lu Ping, University of Alaska Fairbanks; James Bockheim, University of Wisconsin

Presiding: Sergey Goryachkin, Russian Academy Science


40-2 10:45 AM The State Factors of Soil Formation in Arctic Tundra. Chien-Lu Ping*1, Gary Michaelson2, F. Stuart Chapin2, John Kimble1, Walter Orcel1, Yuri Shur3, Charles Tarnocai2 and Donald A. Walker2, (1)University of Alaska Fairbanks, Palmer Research Center, (2)Institute of Biology, University of Alaska Fairbanks, (3)USDA-NRCS-NCSS retired, (4)San Diego State University, (5)University of Alaska Fairbanks, (6)Agriculture and Agri-Food Canada

40-3 11:05 AM The Circumpolar Active Layer Monitoring (CALM) Network. Frederick E. Nelson*1, Nikolay I. Shiklomanov1, K.M. Hinkel2, Jerry Brown3 and Galina Mazhitova4, (1)University of Delaware, (2)University of Cincinnati, (3)International Permafrost Association, (4)Komi Science Center, Russian Academy of Sciences

40-4 11:25 AM Soils of the Spitsbergen (Svalbard). Marek Drewnik* Sr. and Stefan Skiba, Jagiellonian University


SESSION NO. 41

Convention Center, Room 108AB, First Floor

1.2B Soil System Behavior in Time—Oral

Convenor: Oliver Chadwick, Dept. of Geography

Presiding: Peter Schad, Technical University


41-2 1:45 PM History of Plowing Over Ten Thousand Years. Rattan Lal*, Carbon Management and Sequestration Center, OARDC/FAES, School of Natural Resources, Ohio State University, Jon D. Hanson, USDA-ARS, Northern Great Plains Research Lab
and Donald C. Reicosky, USDA-ARS North Central Soil Cons. Res. Lab.

41-3 2:05 PM Coupled Pedogenic and Anthropogenic Influences on a Clayey Luvial/Alfisol in Southwestern Finland. Markku J. Yli-Halla, Delbert Mokma, Larry P. Wilding and L. R. Drees. (1)Department of Applied Chemistry and Microbiology, University of Helsinki, (2)Department of Crop and Soil Sciences, Michigan State University, (3)Department of Soil and Crop Sciences, Texas A&M University

41-4 2:25 PM Soil nutrient Depletion by Prehistoric Agriculture in Hawaii. Tony Hartshorn, Oliver Chadwick, Peter M. Vitousek, and Patrick V. Kirch. (1)University of California Santa Barbara, (2)Stanford University, (3)University of California

41-5 2:45 PM Modeling the Effect of Shifting Agriculture on Soil Dynamics in Southern Cameroon. Martin Yemefack. Institute of Agricultural Research for Development (IRAD), David G. Rossiter, International Institute for Geo-Information Science and Earth Observation (ITC), and Victor G. Jetten. Department of Physical Geography, Faculty of Geosciences, University of Utrecht

SESSION NO. 42

Convention Center, Exhibit Hall A, Theater 1, Second Floor

1.4A Impact of National Soil Classification on Soil Science and Society—Theater

Authors Present 1:15 PM–3:15 PM

Convenors: Robert Ahrens, USDA/NRCS, Federal Bldg. Rm. 152; Craig Dittrzer, National Soil Survey Center

Presiding: Mabel Pazos, Republica de Italia 780

42-2 529a The Fractal Mind of Pedologists (Soil Taxonomist and Soil Surveyors). Juan José Ibanez, CIDE, Ruffino Pérez, ETSI Topografía, Geodesia y Cartografía (Universidad Politécnica de Madrid) and Robert Ahrens, National Soil Survey Center, NRCS-USDA

42-1 630a Use of a GIS Model to Predict Dysic or Eutric Reaction Class. Deborah A. Surabian, USDA–NRCS

42-3 530a Global Soil Regions. Paul Reich, Hari Eswaran and Friedrich Beinroth. (1)USDA Natural Resources Conservation Service, (2)University of Puerto Rico

42-4 530b Classifying Soils at the Ultimate Stage of Weathering. Eswaran Padmanabhan, ECYRES Technologies, Ahmed Mermet, Department of Soil Science, University of Saskatchewan and Hari Eswaran, USDA/NRCS Soil Survey Division

42-5 531a Humid Pampa—Argentina: Consequences of the Lack of a National Soil Classification System. Mabel Susana Pazos and Nuria Roca, Facultad de Agronomía—UNCdba


42-7 532a Proposed Modification of the Definition of Molllic Epipedon Based on Experience from Soils Developed in Cold-Temperate Climates. Jan Eriks-son and Holger Kirchmann, Swedish University of Agricultural Sciences, Department of Soil Sciences

42-8 532b Modification at Subgroup Level of Paleustults: A Case of Some Thai Soils. Somchai Anusontporn-perm, Stephen Nortcliff and Irb Kheouruenromme. (1)Department of Soil Science, Faculty of Agriculture, Kasetsart University, (2)Dep. of Soil Science, The University of Reading

42-9 533a Position in the Soil Classification and Genesis of Automic Soils in Silty Loams in Forest-Tundra of Eastern Europe. Alexander V. Pastukkhov, Valentine D. Tonkonogov and Ilya Zaboyeva. (1)Institute of Biology Komi Science Centre UrD RAS, (2)Dokutschayev Soil Institute, Russian Agricultural Academy

42-10 533b Characterization of Histosol—Proposal to the Brazilian Soil Classification System. Marcos Ger-vasio Pereira, Gustavo Souza Valladares Jr., Lúcia Helena C. Anjos Jr., Adrierson Gilvani Ebel-ing Jr. and Vinícius de Melo Benites Sr. (1)UFRRJ, (2)Embrapa Monitoramento por Satélite, (3)UFRRJ Soils Depto, (4)EMBRAPA Solos

42-11 630b Classification of Taiga Soils Developed in Lithologically Discontinuous Deposits. Dmitry Kaverin, Institute of Biology

42-12 631a International Committee on Soil Moisture and Temperature Regimes (ICommoTR): A Review. Wayne H. Hudnall, Department of Plant and Soil Science

42-13 631b Study of the Soil Temperature in Mountainous Areas of Latitudes near the Tropic of Cancer (Can-ary Islands, Spain). Concepción Jiménez, Marisa Tejedor, Marianela Rodríguez Paz and Jonay Neris, Universidad de La Laguna

42-14 632a Soil Characteristics Determining the Soil Water Retention of Soil from Pumiceous Origin From Puebla-Tlaxcala Valley, Mexico. Miguel A. Se-gura-Castruita, Ma. del Carmen Gutiérrez-Cas-torena, Carlos A. Ortíz-Solorio, José E. Frías-Ramírez and Patricio Sánchez G. (1)Instituto tecnológico Agropecuario de Torreón, (2)Colegio de Postgraduados


42-19 730b Soil and Land Information Systems (SLIS): A Case Study in Bangladesh. M. Jashimuddin and M. Mezbahuddin, Chittagong University

42-20 731b Application of Logistic-Regression and Classification Trees to Prediction of Soil Classes at a Regional Scale. Inakwu Ominy A. Odeh and Nathan Odgers, The University of Sydney
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**SESSION NO. 43**

Convention Center, Room 113AB, First Floor

**2.3A Microbial Habitat: Evolution, Structure and Distribution in Soils—Oral**

Convenors: Donald Gabriels, Ghent University; Gupta Vadakattu, CSIRO

Presiding: Richard Dick, Ohio State University

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<td>43-1 1:15 PM</td>
<td>The Spatial Distribution of Microorganisms and their Activities in Soil Structure. Claire Chenu*, INAPG–UMR Biogeochimie et Ecologie des Milieux Continentaux (Bioemco), Laure Vieuclé-Gonod, INAPG, UMR EGC and Naiose Nunan, CNRS–UMR Biogéochimie et Ecologie des Milieux Continentaux (Bioemco)</td>
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<td>43-2 1:45 PM</td>
<td>Environmental Science with Scanning Transmission X-Ray Microscopy. Adam P. Hitchcock*, McMaster University</td>
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<td>43-3 2:05 PM</td>
<td>Interactions between Soil Microstructures and Biota Control on Ecosystem Functioning. Johan Six* and Angela Kong, Department of Plant Sciences, University of California-Davis</td>
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<td>43-4 2:25 PM</td>
<td>NanoSIMS—A New Analytical Tool for Integrating the Physical, Chemical and Biological Interface in Soil. Anke Herrmann*1, Peta Clode2, Naiose Nunan2, Daniel V. Murphy3, Elizabeth A. Stockdale4, Pauline F. Grierson5 and Anthony G. O’Donnell6, (1)School of Biology &amp; Psychology, (2)Centre for Microscopy &amp; Microanalysis, (3)Laboratoire de Biogéochimie et Ecologie des Milieux Continentaux, (4)School of Earth and Geographical Sciences, (5)Faculty of Science, University of Melbourne-Davis</td>
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<td>43-5 2:45 PM</td>
<td>The Combination of DNA Analytical Methods and Micropedology to Investigate Microorganisms in Undisturbed Soil Samples. Thilo Eickhorst* and Rolf Tippkötter, University of Bremen, Institute of Soil Science</td>
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**SESSION NO. 44**

Convention Center, Exhibit Hall A, Theater 2, Second Floor

**2.4A Poorly Ordered Nanoparticulate materials (PONM) in Soils—Theater**

Authors Present 1:15 PM–3:15 PM

Convenor: Balwant Singh, University of Sydney

Presiding: Jerry Bigham, 420A Kottman Hall Sch Natl Res

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<tr>
<td>44-1 958a</td>
<td>Matrix Organization of Soils and Mechanisms of its Stability. Tatiana A. Zubkova* and Lev O. Karpachevsky, Moscow State University, Faculty of Soil Science</td>
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**SESSION NO. 45**

Convention Center, Exhibit Hall A, Theater 3, Second Floor

**3.0B Emerging Topics in Soil Use and Management—Theater**

Authors Present 1:15 PM–3:15 PM

Convenor: John Havlin, NCSU-Dept. of Soil Science

Presiding: Wolfgang Burghardt, Universität–GH Essen

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<th>Time</th>
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<tr>
<td>45-1 1230a</td>
<td>Innovation in Lysimeter Techniques. Ralph Meissner*1, Holger Rupp1, Juliane Seeger1 and Manfred Seyfarth2, (1)UFZ Centre for Environmental Research Leipzig-Halle, Department of Soil Science, Lysimeter Station, (2)UGT Environmental Measuring Techniques Ltd.</td>
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<tr>
<td>45-2 1230b</td>
<td>Accuracy of Soil Water Balance Parameters Measured by Large Weighing Lysimeters. Holger Rupp*1, Ralph Meissner1, Juliane Seeger1 and Manfred Seyfarth2, (1)UFZ Centre for Environmental Research Leipzig-Halle, Department of Soil Science, Lysimeter Station, (2)UGT Environmental Measuring Techniques Ltd.</td>
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<tr>
<td>45-3 1231a</td>
<td>Water Balancing Precision Weighable Lysimeters. Georg Von Unold*, UMS and Hans Fank III, Joanneum Research</td>
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<tr>
<td>45-4 1231b</td>
<td>Comparison of Gravitation Lysimeter and Passive-Wick Fluxmeter on Two Sites in Germany.</td>
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Wolfgang Berger*, Ralph Meissner*, Holger Rupp*, Juliane Seeger* and Ina Scheuering* (1) Bavarian Agency for Environment, (2) UFZ Centre for Environmental Research Leipzig-Halle, Department of Soil Science, Lysimeter Station


45-6 1232b Lysimeter Experiments to Estimate Parameters for Recultivation of former Lignite Mining Areas with Sewage Sludge Composts. Sabine Bernsdorf*, Sebastian J. Tauchnitz*, Ralph Meissner* and Holger Rupp*, (1) Martin-Luther-University Halle-Wittenberg, Institute of Agricultural Engineering and Land Use Management, (2) UFZ Centre for Environmental Research Leipzig-Halle, Department of Soil Science, Lysimeter Station

45-7 1233a Rehabilitation of Uranium Mining Sites of WISMUT: Lysimeter Measurement. Manfred Seyfarth*, Uwe Hoepfner* and Gert Neuber*, (1) UGT Environmental Measuring Techniques Ltd., (2) WISMUT GmbH, Ronneburg Operation Office, Abt. T 1.2 Engineering


45-10 1330b Temperature, Moisture, and Bulk Density under Two Sugarcane Harvesting Systems. Antonio Carlos Machado Vasconcellos*, Ailo Antonio Casagrande*, Marcos Guimarães de Andrade Landell* and Hélio de Prado*, (1) Centro de Cana IAC, (2) Faculdade de Ciências Agrárias e Veterinárias/UNESP


45-12 1331b Phosphorus Speciation in Organic P Sources: Implications for Water Quality. Amy Shober*, J.T. Sims* and Dean L. Hesterberg*, (1) University of Delaware, (2) North Carolina State University


45-14 1332b Impacts of Soil Use for Wastewater Renovation. Walter E. Grube*, Pennsylvania Department of Environmental Protection

45-15 1333a Measuring and Modeling Water, Nitrate and Ammonium Transport through a Volcanic Soil on a Coral Atoll with Passive-Capillary Fluxmeters. Marijn Van der Velde*, Steve R. Green*, Glendon W. Gee*, Marnik Vanclooster* and Brent E. Clothier*, (1) University of Louvain (Louvain-la-Neuve), (2) HortResearch, (3) Battelle, (4) University of Louvain

45-16 1333b HELP-D: Enhancement and Validation of Hydrologic Evaluation of Landfill Performance
SESSION NO. 46
Convention Center, Room 114, First Floor

4.2A Soil Care and Quality Soil Management—Oral
Convener: Michael Singer, Dept. LAW, 3308 Plt & Env Sci Bldg
Presiding: David Dent, ISRIC-World Soil Information

46-1 1:15 PM The Development of EU Soil Protection Policy. Michael Hamelii, European Commission

46-2 1:45 PM Soils, Biodiversity and the Millennium Ecosystem Assessment. Dania Wall*, Colorado State University

46-3 2:05 PM Fallow Species to Restore Degraded Land in Indonesia. Lin Purwati Handayani*, Priyono Prawito and Zainal Muktamar, University of Bengkulu

46-4 2:25 PM Effect of Long-term Addition of Organic Input of Fallow Species to Restore Degraded Land in In-... (rest of the content is cut off)

SESSION NO. 47
Convention Center, Room 109AB, First Floor

SCE Evaluating Management Impacts on Forest Soils—Oral
Convener: Chris Johnson, Dept. of Civil Eng.
Presiding: Zhihong Xu, Griffith University

47-1 1:15 PM Some Chemical and Spectroscopic Approaches to Evaluating Management Impacts on Forest Soil Organic Matter. Caroline M. Preston*, Pacific Forestry Centre

47-2 1:45 PM Precision Forestry in the 21st Century: Linking Climate, Geology, Topography, Soils, and Ecosystem Development to Develop Site Specific Estimates of Forest Productivity for Pine and Eucalyptus in North and South America. Thomas Fox*, Virginia Polytechnic Institute and State University, Rafael Rubilar, Universidad de Concepcion, H. Lee Allen, North Carolina State University, Cristian Montes, Bioforest S.A., John Urrego, Smurfitt Carton de Colombia and Francisco Flores, International Paper Company

47-3 2:05 PM Methodological Standards to Detect Forest Carbon Stocks and Stock Changes at Landscape Scales. Rainer Baritz*, Dietmar Zirlewagen*, Eric Van Ranst1, Mats Olsson2, Robert Jandl3, Pere Rovira4, Juan Romany4, Christian Wirth4, Maria Elandsson5, Zoltan Somogyi6, Carly Green6*, Mike Starr7 and Pekka Tamminen11, (1)Federal Institute for Geosciences and Natural Resources, (2)INTETRA, (3)Ghent University, (4)SLU, (5)BFW, (6)University of Barcelona, (7)MPI BGC, (8)Góth University, (9)JRC, (10)University College Dublin, (11)METLA

47-4 2:25 PM 13C Differentiation between Dissolved and Solid Organic Carbon in Soils as Induced by Substitution of a Native Deciduous Forest by a Coniferous Forest. Philippe Amiotte Suchet*, Jean Lewe... (rest of the content is cut off)
 SESSION NO. 51

51-4  871b Ecotoxicological Assessment of Heavy-Metal Contaminated Soils by Soil Enzymes and Luminescent Bacteria. (1)Centre for Environmental Research UFZ, (2)Institute of Soil Science and Plant Nutrition, Martin Luther University, (3)Martin-Luther-University Halle Wittenberg, (4)Martin-Luther-University Halle-Wittenberg

51-5  970a Unearthing the Connection between Arsenic Mobility and Reductive Iron Transformations. Katherine J. Tufano* and Scott Fendorf, Stanford University

51-6  970b Metal Contamination of Floodplain Soils in the Tisza River (Hungary) Basin. Donny C. Adriano*1, Zoltan Gyori1, Zsolt Proksch2, Tamás Németh3, Steve Harper4 and L.T. West5, (1)Savannah River Ecology Laboratory, University of Georgia, (2)University of Debrecen, (3)Debrecen University, (4)Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, (5)University of Georgia

51-7  971a Distribution of Ni in Soils of the Sudbury Smelting Region, Ontario, Canada. Matthew Ojalammi and Graeme A. Spiers*, MIRARCO, Laurentian University

51-8  971b Arsenic Biogeochemistry in Soils from Gold Mining Areas, in Brazil, under Anaerobic Incubation. Jáime W. V. Mello*1, Jonathan L. Talbott2, John Scott3, William Roy4 and Joseph W. Stucki5, (1)Universidade Federal de Víncos, (2)University of Illinois at Urbana-Champaign, (3)University of Illinois at Urbana-Champaign


51-10  1070b Prediction of Arsenate and Selenite Adsorption by Soils Using the Constant Capacitance Model. Sabine Goldberg1, USDA-ARS, George E. Brown Jr., Salinity Laboratory, Scott M. Lesch, University of California, Riverside and Donald L. Suarez, USDA-ARS, George E. Brown Jr., Salinity Laboratory

51-11  1071a The Influence of Soil Ni Speciation on the Phytoremediation Potential of Soils Surrounding an Historic Ni Refinery in Port Colborne, Ontario Canada. David Mcnear*1, R. L. Chaney2 and Donald L. Sparks3, (1)University of Delaware, (2)USDA-ARS-ANRI

51-12  1071b Mineralogy and Arsenic Bonding in Arsenic Contaminated Rice-paddy Soils of Bangladesh. G. Norman White1, Richard H. Loepert2*, L. R. Drees3, B. Biswas4 and G.M. Panaullah5, (1)Texas A&M University, (2)Texas A & M University, (3)Department of Soil and Crop Sciences, Texas A&M University, (4)CIMMYT Office in Bangladesh

 SESSION NO. 52

Convention Center, Room 114, First Floor

2.5B Interactions between Clays and Organic Matter and Their Impact on Sorption and Availability of Organic Compounds in Soil Environments—Oral

Convenor: Arthur Schwab, Dept.of Agronomy, Purdue Univ.
Presiding: Baoshan Xing, Department of Plant, Soil, and Insect Sciences, University of Massachusetts


52-2  4:00 PM Mineral-Organic Substance Interactions: Impacts on Mineral Formation, Humification, and Organic Carbon Storage. P.M. Huang*, Department of Soil Science, University of Saskatchewan

52-3  4:20 PM Coverage of Soil Mineral Surfaces by Organic Matter as Detected by Gas Sorption. Rota Wagai, Kyoto University and Lawrence M. Mayer*, University of Maine

52-4  4:40 PM Sorption of Organic Contaminants by Humin. James A. Rice* and Gabriela Chilom, South Dakota State University

52-5  5:00 PM Molecular-Level Studies of Organo-Clay Complexes and their Role in the Sorption of Polycyclic Aromatic Hydrocarbons. Myrna J. Simpson1, Xiaojuan Feng2, Andre Simpson3, Seunghun Kang4 and Baoshan Xing5, (1)Dept. of Physical and Environmental Sciences, University of Toronto, Scarborough College, (2)Department of Plant, Soil and Insect Sciences, University of Massachusetts at Amherst

 SESSION NO. 53

Convention Center, Room 108AB, First Floor

3.4B Combating Global Soil & Land Degradation II. Agroecosystems: Reclamation Strategies—Oral

Convenor: Alvin Smucker, Dept. of Crop & Soil Sci., MSU

53-1  3:30 PM Amelioration Strategies for Combating Global Soil and Land Degradation by Agroecosystems. Alvin Smucker*, Michigan State University and Rainer Horn, Institute of Plant Nutrition and Soil Science, CAU Kiel

53-2  4:00 PM Analyzing of Variability for Soil Moisture Content in the Space and Time. Célia R. Grego and Sidney Vieira*, Instituto Agronômico

53-3  4:20 PM Rehabilitating Hardsetting Subsoils in a Reconstructed MINED Landscape. Katharine L. Brown*, Christoph Hinz and Robert Gilkes, School of Earth and Geographical Sciences The University of Western Australia

53-4  4:40 PM Impacts of Applying an Organic Emulsion on Soil Hydrology and Dust Emissions from an Arid Soil. Michael H. Young*, Todd Caldwell, Darren Meadows, Vic Etyemezian, George Nikolic, David Shafer, Eric McDonald, Julie Miller and John Goreham, Desert Research Institute

53-5  5:00 PM A Soil-Based Framework for Integrating and Applying Knowledge of Land Degradation Processes to Assessment, Monitoring and Management. Jeffrey E. Herrick*, Brandon T. Bestelmeyer1, Joel R. Brown2 and Arlene J. Tuge1, (1)USDA-ARS-Jornada Experimental Range, (2)USDA-NRCS
SESSION NO. 54
Convention Center, Exhibit Hall A, Theater 2, Second Floor

4.1B Role of Organic Matter for Soil Properties and Consequences for Environmental Functions—Theater
Authors Present 3:30 PM–5:30 PM

Convenors: Stephen Norccliff, Univ. of Reading–Soil Science Dep; Charles Rice, Dept. of Agronomy, KSU
Presiding: Claire Chenu, INAPG, UMR Bioemco

54-1 1760a Dynamic of carbon in farming practices long-term experiments on a ferric Acrisol in Burkina Faso (West Africa). Edmond Hien*1, Francis Ganry*2, Robert Oliver*2 and Christian Feller1, (1)CNRST, (2)CIRAD, (3)IRD, UR SeqBio

54-2 1760b Organic matter pools and microbial functional diversity in soil quality assessment of differently managed agricultural systems. Maria T. Dell’A-bate*, Letizia Pompili and Anna Benedetti, CRA Istituto Sperimentale Nutrizione Piante

54-3 1761a Soil Biological and Physical Properties in Silage Corn Systems With and Without Tillage and Fall Seeded Cover Crops. Carol D. Franks1, Yuri K. Plowden*2, Paul R. Salon*3 and Curtis J. Dell*3, (1)USDA-NRCS, (2)Natural Resources Conservation Service, (3)USDA Agricultural Research Service

54-4 1761b Soil organic matter dynamics in a tropical garden land system. Santhy Ponnumwanny* and Selvi Du-raisamy, TamilNadu Agricultural University,

54-5 1860a Short term effects of organic amendments on soil properties and growth of irrigated cotton grown in a self-mulching Vertisol. Subhadip Ghosh*1, Peter V. Lockwood1, Nilantha Hulugalle2 and Heiko Daniel1, (1)Agronomy and Soil Science, (2)Australian Cotton Research Institute

54-6 1861a Soluble and mineralizable carbon of organic amendments influence aggregation in a high clay sodic soil. Gary J. Clark*, Nathan Dodgshun, Caixian Tang and Peter Sale, La Trobe University

54-7 1861b Carbon storage and greenhouse gas emissions as influenced by tillage and N fertilizer. Denis A. Angers*1, Philippe Rochette*, Vincent Poirier*, Francis Larouche1, Martin H. Chantigny1 and Noura Ziadi1, (1)Agriculture and Agri-Food Canada, (2)Agriculture & Agri-Food Canada


54-9 1960b Cover Crop System Effects on Carbon/Nitrogen Sequestration and The Physical Properties of Coastal Plain Soils under Conservation Tillage. Robert K. Hubbard*1, Timothy Strickland1, Sharad Phatak2 and Johannes M. Scholberg*3, (1)SE Watershed Research Laboratory, USDA-ARS, (2)University of Georgia, (3)University of Florida

Thursday, 13 July 2006

SESSION NO. 55
Convention Center, Room 108AB, First Floor

1.3A New Frontiers in Soil Genesis—Oral
Convenor: Janis L. Boettinger, Utah State University
Presiding: Ahmet Mermut, Department of Soil Science, University of Saskatchewan

55-1 8:00 AM Quantifying the Rates of Soil Genesis by Geochemical Mass Balance. Kyungsoo Yoo*, Department of Plant and Soil Sciences, University of Delaware

55-2 8:30 AM Carbon Storage in Estuarine Soils of Downeast Maine. Laurie J. Osber*, University of Maine and Jennifer Jespersen, Forest Bell Environmental

55-3 8:50 AM Matter Fluxes in and From Soil Landscapes—Structure and Sensitive Areas. Michael Sommer*, Leibniz-Centre for Agricultural Landscape Research (ZALF) e. V. Müncheberg; Institute of Soil Landscape Research


55-5 9:30 AM The Use of Major Soil Databases to Reveal Relationships Between Soil Forming Factors and Global Soil Distribution. Jonathan M. Gray*, NSW Department of Natural Resources, Geoff S. Humphreys, Dept of Physical Geography and Jozef Deckers, Catholic Univ of Leuven

SESSION NO. 56
Convention Center, Exhibit Hall A, Theater 2, Second Floor

1.5A Diffuse Reflectance Spectroscopy, Soil Sensing, Remote Sensing and Image Analysis—Theater
Authors Present 8:00 AM–10:00 AM

Convenor: Sabine Grunwald, Soil & Water Sci. Dept. Univ. FL
Presiding: Endre Dobos, University of Miskolc

56-1 637a Electronic Soil Analyzer. Manav Yadav*, Ansal Institute of Technology

56-2 637b Application of Singular-Spectrum Analysis to Study Dynamics of Soil Salinisation in the Canadian Prairies. Igor V. Florinsky*1, Robert G. Edlers2, Michelle M. Fitzgerald1, Don Swidinsky2, (1)Institute of Mathematical Problems of Biology, Russian Academy of Sciences, (2)Land Resource Unit, Agriculture and Agri-Food Canada, (3)Ministry of Agriculture, British Columbia

56-3 638a Assessment of Soil Salinity Using Remote Sensing Data and Image Analysis. Maria V. Gabchenko*, Dokuchaev Soil Science Institute

56-4 638b Mapping Soil Properties Using ECa-Directed Sampling. Dennis Corwin*, USDA-ARS, George E. Brown Jr. Salinity Laboratory and Scott M. Lesch, University of California, Riverside
Using Optical Remote Sensors to Estimate Grain Protein Content in Rice Canopy. Yi Hyun Kim*, Suk Young Hong, Sang Kyu Rim, Jee Min Lee and Han Kang Kwak, National Institute of Agricultural Science and Technology, RDA

Comparison of High-Intensity Soil and EMI Classification of the Owens Dry Lake Playa Surfacemapping and Classification based upon Remotely Sensed Data. Tharwat K. Ghabour* Sr., Soils & Water Use Dept., National Research Centre


Ground Monitoring Network of Soil Agrophysical Properties. Wojciech Skierucha*, Ryszard Walczak and Andrzej Wilczeck, Institute of Agrophysics

On-the-go Near Infrared Spectroscopic Assessment of Georgia Soils. Colin D. Christy*, Veris Technologies and David E. Kissel, Agricultural and Environmental Services Laboratories–University of Georgia

Measurement of pH, pH Buffering Capacity, and Other Soil Properties with NIR Reflectance Spectroscopy. David E. Kissel*, Agricultural and Environmental Services Laboratories–Univ of Georgia, Colin D. Christy, Veris Technologies, S. Shaaban, Agricultural and Environmental Services Labs, Paul F. Vendrell, Univ of Georgia, Ag and Environmental Services Labs and Miguel L. Cabrera, Univ of Georgia

Radiometric Estimation of Soil Properties Using Multiple Image Sensors in Rice Paddy and Dryland Fields. Suk Young Hong 1, Sang Kyu Rim 1, Kenneth A. Sudduuth 2, Newell Kitchen 2, Yi Hyun Kim 1, Jee Min Lee 1 and Han Kang Kwak 1, (1)National Institute of Agricultural Science and Technology, RDA, (2)USDA-NRCS

Estimating Soil Evaporation with Reflectance and Radiometric Temperature Measurements. Dong Wang* and Jindong Wu, Univ. of Minnesota-Twin Cities Campus

Development of a Multi-Sensor Platform for Proximal Soil Sensing. James A. Taylor* 1, Alex. McBratney*, Raphael Viscarra Roscel, Budiman Minasny 2, Henry Taylor 1, Brett Whelan 1 and Michael Short 1, (1)Australian Centre for Precision Agriculture, Univ of Sydney, (2)Australian Centre for Precision Agriculture, Univ of Sydney, (3)Australian Centre for Precision Agriculture

Application of Visible-Near-Infrared Diffuse (DRS) and Bi-directional Reflectance Spectroscopy (BRS) to Characterize Volcanic Soil Properties. Vincenzo Michele Sellitto 1, Vidal Barro 2, Giuseppe Palumbo 1 and Claudio Colombo 2, (1)Dip. SAVA Molise Univ, (2)Universidad de Córdoba

A Comparison of High-Intensity Soil and EMI Surveys in Northern Illinois, USA. James Doolittle 1, Roger D. Windhorn 2, Daniel L. Withers 2 and Robert L. Mcelree 2, (1)USDA-NRCS-NSCC, (2)USDA-NRCS
**SESSION No. 58**
Convention Center, Room 108AB, First Floor

4.0B Soil Related Discords and Conflicts—Oral

Presiding: Mireille Dosso, CNEARC

58-1 8:00 AM  **Education, Public Awareness and Conflict of Interests**, Pamela A. Hazleton*, University of Technology, Sydney


58-3 9:10 AM  **Carbon Sequestration and Sustainable Farming in West African Savannas: Synergy or Antagonism?**, Grégoire Frescher1, Raphael Manlay2, Luc Abbadiet3, Bruno Barbier4, Christian Feller5, Maya Leroy2, Georges Serrantiet6 and Jean-Luc Chotte7, (1)IRD UR 179 SeqBio, (2)Institute of Forestry, Agricultural and Environmental Engineering (ENGREF), (3)Biogeochecmistry and Ecology of Continental Environment Laboratory UMR 7618, (4)French Agricultural Research Centre for International Development (CIRAD), (5)IRD, UR SeqBio, (6)Institute for Research and Development (IRD, ex-ORSTOM), (7)Institute for Research and Development (IRD, ex-ORSTOM), UR 179 SeqBio

**SESSION No. 59**
 Convention Center, Room 114, First Floor

4.1A Organic Farming—Advantages and Disadvantages for Soils, Water Quality and Sustainability—Oral

Convenor: Laurie Drinkwater, Cornell University

Presiding: Holger Kirchmann, Swedish Univ. of Agric. Sci.

59-1 8:00 AM  **Plant Nutrients in Organic Farming**, Keith Goulding*, Rothamsted Research, Elizabeth A. Stockdale, School of Agriculture, Food and Rural Development and Christine A. Watson, Scottish Agricultural College

59-2 8:30 AM  **Nutrient Use Efficiencies and Leaching in Organic and Conventional Cropping Systems in Sweden**, Lars P. Bergström* and Holger Kirchmann, Dept of Soil Science, Swedish Univ of Agricultural Sciences

59-3 8:50 AM  **Are Nutrient Dynamics and Use Efficiency in Organic Cropping Systems Particular?**, Emmanuel Frossard1, Astrid Oberson1, Christine Bossard1, Simone Nanzer1, Hans Ulrich Tagmann1, David Dubois2, Paul Mieder3 and Daniel Tessier4, (1)Group of Plant Nutrition ETH, (2)Agroscope Reckenholz, (3)FiBL, (4)INRA

59-4 9:10 AM  **The Contribution of Organic Agriculture to Sustainable Land Management in a Temperate Climate**, Robert M. Rees*, Christine A. Watson1, Bruce C. Ball1, John A. Baddeley2, Robin L. Walker1, Kairsty F.E. Topp1 and Claus D. Mayer2, (1)Scottish Agricultural College (SAC), (2)SAC, (3)BIOSIS

59-5 9:30 AM  **Soil and Nutrient Erosion Risk in Organic and Conventional Cropping Systems**, V. Steven Green*, Michel A. Cavigelli1, Thanh H. Dao2 and Dennis C. Flanagan4, (1)USDA-ARS-SASL, (2)USDA-ARS, (3)USDA-ARS-NSERL

**SESSION No. 60**
 Convention Center, Exhibit Hall A, Theater 3, Second Floor

4.1PB Soil, Wine and other Quality Crops—Theater

Authors Present 8:00 AM–10:00 AM

Convenor: Jessica Davis, Dept Soil & Crop Sci, CO State Univ

Presiding: Eduardo Costantini, ISSDS

60-1 1666a  **Effect of Foliar Application of Different Sources of Zn Application on the Changes in Zn Content, Phosphate**, Kamal Raj1, Neeraj Kumar1, Shailendra Singh1 and Ashok Singh1, (1)Phosphate Institute of Canada-India Programme, Tamil Nadu Agricultural University, (2)Potash and Phosphate Institute of Canada-India Programme


60-4 1766a  **Viticultural Practices For very Acidic Soils**, daniel robersts*, integrated winemaking

60-5 1766b  **Facilitated Transport of Diuron and Glyphosate in High Copper Vineyard Soils**, Sylvie Doussset*1, Jean-Baptiste Dessogne*2, Astrid Jacobson3, Philippe Baveye1 and Francis Andreux1, (1)Université de Bourgogne–CST–Géosol, (2)Université de Reims, (3)Cornell Univ

60-6 1767a  **Nitrogen Fixing Ability of 13 Enotypes of Mucuna Pruriens**, Shivananda T. N. Shivananda T N*, Indian Institute of Horticultural Research

60-7 1767b  **Maximization of Potato Yield in Nilgiri Hills of Western Ghats of India**, Malarvizhi Palaniappa pillai*1, Sharmila Banu Santhu Mohamed*1 and T. Nagendra Rao1, (1)Professor, Dept. of SS&AC, Tamil Nadu Agricultural University, (2)Potash and Phosphate Institute of Canada-India Programme

60-8 1866a  **Effect of Foliar Application of Different Sources of Zn Application on the Changes in Zn Content, Uptake and Yield of Rice (Oryza sativa L.)**, Tanmoy Karak* and Dilip Das, Bidhan Chandra Krishi Viswavidyalaya

60-9 1866b  **Spatial Vineyard Variability on Soil, Grape Yield, and Juice Quality in a Field in the D.O.Ca. Rioja (Spain)**, Ana Aizpurua*, Olatz Unamunzaga and Ander Castellón, NEIKER Instituto Vasco de Investigación y Desarrollo Agrario
SESSION NO. 61

Convention Center, Room 113AB, First Floor

RB Developments in the World Reference Base (WRB),
Soil Taxonomy (ST) and Other National Soil Classification
Systems for Soil Resources—Oral

Convenor: Robert Ahrens, USDA/NRCS, Federal Bldg., Rm. 152

Presiding: Erika Micheli, Szent Istvan University

61-1 8:00 AM WRB: Wittingly Reaching Babel ?, Otto Spaargaren3, ISRIC—World Soil Information


61-3 8:50 AM Harmonizing the Diagnostic Horizons, Properties, and Materials used in the World Reference Base and Soil Taxonomy. Robert J. Engel1, Erika Micheli2, Paul McDaniel1 and Craig A. Ditzler1, (1)USDA NSSC, (2)Szent Istvan Univ, Soil Science and Agrochemistry Dept, (3)Univ of Idaho

61-4 9:10 AM Technosols as a Proposed Soil Group for the WRB (World Reference of Soil Resources). Andreas Lehmann*, Hohenheim University (310)

61-5 9:30 AM Algebra of the WRB (Formalization of the Concept). Vyacheslav A. Rojkov*, V.V. Dokuchaev Soil Science Institute

SESSION NO. 62

Convention Center, Room 109AB, First Floor

1.4A Impact of National Soil Classification on Soil Science and Society—Oral

Convenors: Craig Ditzler, National Soil Survey Center; Robert Ahrens, USDA/NRCS, Federal Bldg., Rm. 152

Presiding: Mabel Pazos, Facultad de Agronomía–UNCPBA

62-1 10:15 AM The Magical Numbers of the USDA Soil Taxonomy: Towards an Outline of a Theory of Natural Resource Taxonomies. Juan Jose Ibáñez1, Richard Arnold2 and Juan Sanchez-Diaz1, (1)CIDEX, (2)USDA-NRCS (retired)

62-2 10:45 AM On the Evolution of Definitions of Diagnostic Soil Horizons and Soil Unit Names. Freddy O. Nachtergaele*, Food and Agriculture Organization of the United Nations (FAO)

62-3 11:05 AM Cross-Reference System for Interpreting Genetic Soil Classification of China to Soil Taxonomy. Xuezheng Shi*, Institute of Soil Science, Chinese Academy of Sciences

62-4 11:25 AM A Proposal to Differentiate Steady State and Dynamic Soil Properties in Soil Taxonomy. Neil E. Smeck*, The Ohio State University and K. R. Olson, University of Illinois, Department of Natural Resources and Environmental Sciences

62-5 11:45 AM Computer-Based Translation Tool Between WRB and the German Soil Classification System. Peter Schade1, Gabriele Broll2, Reinhold Jahn1, Rainer Baritz2, Gert Adler3 and Dieter Kuhn3, (1)Lehrstuhl für Bodenkunde (Soil Science), Department of Ecology, Technische Universität München, (2)University
### SESSION NO. 64

**Convention Center, Room 108AB, First Floor**

#### 2.1A Soil Structuring as a Dynamic Process and Particles Transfer—Oral

**Convenor: Thomas Baumgartl, School of Physical Sciences—Earth**

**Presiding: Marcello Pagliai, Instituto Sperimentale per lo Studio e la Difesa del Suolo**

- **64-1 10:15 AM** Stress Strain Effects on Coupled Mechanical and Hydraulic Processes. Rainer Horn¹, Stephan Peth and Xinhua Peng, Institute of Soil Science and Plant Nutrition

- **64-2 10:45 AM** Modelling Bulk Density According to Structure Development: Toward an Indicator of Microstructure Development in Ferralsols. Ary Bruand², Luiz Carlos Balbino², Nathalie Volland-Tuduri¹, Isabelle Cousin², Adriana Reatto-Braga³, Maria Inês Lopes de Oliveira², Eder De Souza Martins³, Michel Brossard³ and Jean-Robert DISNAR⁴, (1)Université d’Orléans, (2)EMBRAPA Arroz e Feijão, (3)INRA, (4)EMBRAPA Cerrados, (5)IRD, (6)CNRS

- **64-3 11:05 AM** Soil Wettability Relationships with Soil Organic Carbon and Aggregate Stability. Anna Eynard⁵, Tom E. Schumacher, Robert A. Kohl and Douglas D. Malo, South Dakota State Univ

- **64-4 11:25 AM** Predicting Short-term Aggregate Stability Dynamics After the Addition of Maize Straw. The Role of Hydrophobicity. Diego J. Cosentino⁶, Claire Chen¹, Paul Hallert³, Daniel Tessier¹ and Jean-Charles Michel¹, (1)INRA, (2)UMR Biogéochimie des Milieux Continentaux, (3)Scottish Crop Research Institute

- **64-5 11:45 AM** Quantifying Physical Aspects of Soil Quality Associated with Organic Agricultural Practices. Apostolos Papadopoulos⁷, Nigel R.A. Bird⁸, Whitmore Andy⁹ and Sacha J. Mooney¹⁰, (1)The Univ of Nottingham, (2) Rothamsted Research

### SESSION NO. 66

**Convention Center, Exhibit Hall A, Theater 2, Second Floor**

#### 2.5B Interactions between Clays and Organic Matter and Their Impact on Sorption and Availability of Organic Compounds in Soil Environments—Theater

**Authors Present 10:15 AM—12:15 PM**

**Convenor: Arthur Schwab, Dept. of Agronomy, Purdue Univ.**

**Presiding: Baoshan Xing, Dep. of Plant, Soil & Insect Sci.**

- **65-1 1176a** Availability of Clay Surfaces in Soil for Adsorption of Organic Contaminants and Pesticides. Stephen A. Boyd², Simone Charles, Hui Li and Brian Teppen, Michigan State Univ


- **65-3 1177a** N K-Edge XANES and Pyrolysis-Field Ionization Mass Spectrometry—Clues to Disclose the Chemistry of “Known” Organic Nitrogen in Organic-Mineral Soil Clay Particles. Peter Leinweber⁶, Univ of Rostock, Fran L. Walley, Dept. of Soil Science, Univ of Saskatchewan, Alexander Jokic, Department of Soil Science, Univ Saskatchewan and Tom Regier, Canadian Light Source Inc.


- **65-5 1178b** Impact of Dissolved Organic Matter (DOM) on Atrazine Sorption by Montmorillonite. Jianming Xu⁷¹, Ling Wanting¹ and Yanzheng Gao², (1)Institute of Soil and Water Resources and Environmental Science, Zhejiang Univ, (2)College of Resource and Environmental Sciences, Nanjing Agricultural Univ

### SESSION NO. 69

**Convention Center, Exhibit Hall A, Theater 1, Second Floor**

#### 3.1A Land Use Planning: Environmental, Economic and Social Trade-offs—Theater

**Authors Present 10:15 AM—12:15 PM**

**Convenors: Alain Ruellan, INRA; Lamourdia Thiombiano, FAO Regional Office for Africa**

**Presiding: Ricardo Ralisch, Universidad Estadual de Londrina**


- **66-2 1241b** Soil Degradation Evaluation and Land Use Planning in Romania. Andrei Canarache⁶, Research Institute for Soil Science and Agrochemistry

- **66-3 1242a** Soil Quality Evaluation for Green-Food Production Suitability in Beijing Plain Area. SUN Danfeng⁹, College of Resources and Environmental sciences, China Agricultural Univ and Li Hong, Instit

The Effects of Winter Cover Crops and No-Tillage. Ademir Calegari*1, Ricardo Ralisch 2 and Maria de Fátima Guimarães2, (1)Iapar, (2)UEL

Developing Sustainable Land Use Options in Matters of Heavy Metal Inputs into Agricultural Soils. Wolfgang Reiher*, Rolf-Alexander Düring and Stefan Gülth, Institute of Landscape Ecology and Resources Management, Univ of Giessen


Can Plants Deliver Food, Fibre and Solutions for Anthropogenic Soil Phosphate Problems ?. Mike J. Hedley*, Institute of Natural Resources and Stephen Trolove, Crop and Food Research

Microbial Cycling of Phosphorus in Grassland Soils under Long-Term Fertiliser Management. Anthony O’Donnell#, S.R. Colvan1, John Keith Syers* and R. Husband2, (1)Institute for Research on Environment and Sustainability, (2)Mae Fah Luang Univ

Phosphate Fertilizers: Addressing the Challenges for Production, Use and Management in Developed and Developing Country Agriculture. Lawrence Hammond*, Norman Chien and Upendra Singh, IFDC

Agricultural Phosphorus and the Environment: Challenges to Science, Practice and Policy. Andrew Sharpley* and Peter Kleinman, USDA Agricultural Research Service


Study of Soil Erosion in the Small Loess Agricultural Catchment In the Light of 137Cs Measurements. Grzegorz Jacek Poreba* and Andrzej Bluszcz, Dept of Radioisotope, Institute of Physics, Silesian Univ of Technology

Major Causes of Land Degradation and Desertification in Jordan. Sa’eb Khresat*, Jordan Univ of Science and Technology

Is “Summer Fallowing” Beneficial to Sustainable Grain Production in Central Asia?. Takashi Kosaki*, Shinya Funakawa2, Elmira Saljnikov3, Kanat K. Akshalov4 and Yusuke Takata2, (1)Graduate School of Global Environmental Studies, Kyoto Univ, (2)Graduate School of Agriculture, Kyoto Univ, (3)Institute of Soil Science, (4)Barayeb Kazakh Research and Production Center of Grain Farming

Lessons Learned from a Thematic Network Dealing with Land Degradation Assessment and Soil Conservation Management in the Mediterranean Region. Pandi Zdruli*, Giuliana Trisorio Liuzzi2 and Cosimo Lacirignola1, (1)CIHEAM-Mediterranean Agronomic Institute of Bari, (2)University of Bari, Faculty of Agriculture

Achieving the Millennium Development Goals In Africa. Pedro Sanchez*, Cheryl Palm, Jeffrey Sachs and Denning Glenn, Tropical Agriculture Program, The Earth Institute at Columbia Univ

Competitive Funding of Soil Science Research from USDA-CSREES: Priorities, trends, and future directions. Nancy Cavallaro*, USDA-CSREES
SESSION NO. 70
Convention Center, Exhibit Hall A, Theater 3, Second Floor

1.0PW Synthesis, Modeling, and Applications of Disciplinary Soil Science Knowledge for Soil-Water-Plant-Environment Systems—Theater II
Authors Present 1:15 PM–3:15 PM
Convenors: Liwang Ma, USDA-ARS, Great Plains Sys. Res.; Gerrit Hoogenboom, University of Georgia; Peter Carberry, CSIRO

70-1 228a Using the WISE Database to Parameterize Soil Inputs for Crop Simulation Models, Gerrit Hoogenboom*, Univ of Georgia, Arjan J. Gijsman, Centro Internacional de Agricultura Tropical (CIAT) and Philip K. Thornton, International Livestock Research Institute (ILRI)

70-2 229b Calibrating the ROOTMAP Model for Calcarosol and Vertosol soils of south-eastern Australia. Sally J. Officer #1, Vanessa M. Dunabin #2, Roger D. Armstrong #1 and Robert M. Norton #2, (1) Primary Industries Research Victoria, (2) University of Tasmania, (3) University of Melbourne

70-3 328a Water and Energy Balance of Drip Irrigated Cotton: Measurements and Simulations. Robert J. Lascano #1, Bobbie McMichael #2, Dennis Gitz #2 and Jill Booher #1, (1) Texas A&M Univ. Res. and Ext. Center, (2) USDA-ARS

70-4 328b Nitrogen Management Under Maize in Humid Regions: The Case for the Dynamic Approach. Harold M. Van Es #1, Beverly Kay #1, Jean Sogbédji #1, Jeffrey Melkonian #2, R.S. Dharmakeerthi #2, Humaia Daffar #2 and Ivy Tan #2, (1) Cornell University, (2) University of Guelph

70-6 429a Opposite Approaches to Manage Water Balance of Farming Systems for Improved Sustainability in Southeast Australia and North China Plain?. Enli Wang #1, Qiang Yu #1 and Chris J. Smith #1, (1)CSIRO Land and Water, (2) Institute of Geographical Sciences and Natural Resources Research

70-5 329b Predicting Changes in Soil Organic Carbon in Different Land Uses for England and Wales Under Current and Future Climatic Conditions Using CENTURY. Ruben Sakraban #1 and John Hollis, National Soil Resources Institute, Cranfield University

SESSION NO. 71
Convention Center, Room 108AB, First Floor

1.3B Essence Diagnostic and Time-Scales of Natural and Human-Induced Pedogenic Processes—Oral
Convenors: Angel Faz Cano, Univ. Politecnica, Paseo Alfonso XIII; John Galbraith, Dept. of Crop & Soil Env. Sci.
Presiding: Gan-Lin Zhang, Institute of Soil Science, Chinese Academy of Sciences

71-1 1:15 PM Soil Development in the Hawaiian Islands. Oliver Chadwick #1, Univ of California

71-2 1:45 PM Morphological, Microscopic and Isotopic Studies of Carbonate Pedofeatures: Current Problems of Interpretation and Application In Biogeosciences. Irina V. Kovda #1, Institute of Geography, Lawrence P. Wilding, Dept of Soil and Crop Sci-ences, Texas A&M Univ and Claudia I. Mora, Dept. Of Earth And Planetary Sciences

71-3 2:05 PM Development of Clay Minerals in Terrestrial Soils for the Mediterranean Portugal Related to Type of Rock and Age of Soil Formation. Karl Stahr #1, Mehdi Zarei #1, Reinhold Jahn #2 and Daniela Sauer #1, (1) Institute of Soil Science and Land Evaluation, Univ of Hohenheim, (2) Institute of Soil Science and Plant Nutrition, Martin Luther Univ


71-5 2:45 PM Effect of 1200 Years of Agricultural History on Top-Soil Horizon Formation and Related Soil Organic Carbon Storage in Hegerdows Networks Landscape. Stéphane Follain #1, Christian Walter #2, Dominique Marguerie #2, Philippe Bonté #3, Blaudine Lemercier #3, Gilles Dutin #4 and Irène Lefèvre #4, (1) ISA-LILLE, (2) UMR SAS INRA Agrocampus Rennes, (3) UMR 6566 CNRS-Univ. Rennes 1, (4) UMR 1572 CEA-CNRS, (5) UMR SAS Agrocampus-Rennes/INRA

SESSION NO. 72
Convention Center, Room 109AB, First Floor

1.6B Amazonian Dark Earth Soils (Terra Preta and Terra Preta Nova): A Tribute to Wim Sombroek—Oral
Convenor: William I. Woods, University of Kansas
Presiding: Antoinette Winklerprins, Michigan State University

72-1 1:15 PM Bio-char Black Carbon) Stability and Stabilization in Soil. Johannes Lehmann #1, Cornell Univ and Saran Sohi, Rothamsted Research

72-2 1:45 PM Compositions of the Humic Acids in Amazonian Anthropogenic Dark Earth Soils. Etelvino H. Novotny #1, Michael H. Hayes #1, Eduardo R. De Azevedo #1, Beata E. Madari #2, Tony J. F. Cunha #2 and Tito J. Bonangamba #1, (1) Univ of Limerick, (2) Univ of Limerick, (3) IFSAC-USP, (4) Embrapa Arroz e Feijão, (5) Embrapa Semi-Árido

72-3 2:05 PM The Rescue of an Old Indigenous Practice in the Tropics—Using Charcoal to Improve Soil Quality. Wenceslau G. Teixeira #1, Gilvan C. Martins #2, Murilo R. Arruda #2 and Christoph Steiner #1, (1) Embrapa Amazônia Ocidental, (2) Institute of Soil Science, Univ of Bayreuth

72-4 2:25 PM Microbial Activity as Soil Quality Indicator in Annual and Perennial Plantations Treated with Charcoal, Mineral- or Organic Fertilizer in a Highly Weathered Amazonian Upland Soil. Christoph Steiner #1, 1 Institute of Soil Science, Univ of Bayreuth, Wolfgang Zech, 1 Institute of Soil Science, Univ of Bayreuth and Wenceslau G. Teixeira, Embrapa Amazonia Ocidental

72-5 2:45 PM New Dark Earth Experiment in the Tailandia City–Pará-Brazil: the Dream of Wim Sombroek.
SESSION NO. 73
Convention Center, Exhibit Hall A, Theater 2, Second Floor

2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Theater I
Authors Present 1:15 PM–3:15 PM

Convenor: Joseph Pignatello, Connecticut Agricultural Experiment

Presiding: Martin Gerzabek, University of Natural Resources and Applied Life Sciences

73-1 945a Surface Complexes Modeled With AB Initio Calculations. James D. Kubicki*, The Pennsylvania State University

73-2 945b EXAFS Study on the Binding of Iron in Organic Materials – Evidence for Dimeric Iron(III) Complexes. Joris W.J. Van Schaik*1, Ingmar Persson2, Dan Berggren Kleja1 and Jon Petter Gustafsson2, (1)Swedish University of Agricultural Sciences (SLU), (2)KTH (Royal Inst. of Technology)

73-3 1044a Colloid Mobilization and Arsenic(III) Transport in Soils: Effect of Ionic Strength. Hua Zhang*, Department of Agronomy & Environmental Management, LSU Agcenter and H. M. Selim, Department of Agronomy and Environmental Management, LSU Agcenter

73-4 1045a Factors Affecting the Desorption of Arsenate by Phosphate From Soil Components and Soils. A. Violante*, G Krishnamurti, M Pucci and M. Pigna, Università di Napoli-ITALY

73-5 1045b Iron (Hydro)oxide Transformation and Release of Arsenic From Ferrihydrite and Tropical Soils During Sulfate Reduction. Benjamin Kocar*, Yoko Masue, Katharine Tufano, Samantha Ying, Matthew Polizzotto, Thomas Borch and Scott Fendorf, Dept. of Geological and Environmental Sciences, Stanford University

73-6 1144a Adsorption-Desorption Characteristics of Copper, Lead, and Cadmium at Contaminated Levels in Variable Charge Soils. Zhenli He*1, Shen Yu2, Jinyan Yang3, Xiaoe Yang4, Haiping Xu4 and Peter J. Stoffella3, (1)University of Florida, Institute of Food and Agricultural Sciences, Indian River Research and Education Center, (2)Rutgers University, (3)University of Florida, (4)Zhejiang University, (5)University of Florida, Institute of Food and Agricultural Sciences, Indian River Research and Education Center

73-7 1144b Molybdenum Binding Mechanisms in Acid Soils. Jon Petter Gustafsson*, KTH (Royal Inst. of Technology) and Ingmar Persson, Swedish University of Agricultural Sciences (SLU)

73-8 1145a Competition Between Glyphosate and Phosphate for Adsorption Sites on Soil Minerals. Anne Louise Gimsing* and Ole K. Borggaard, Royal Veterinary & Agricultural University

73-9 1145b Development of Equilibrium-Based Adsorption Modeling: Merging of Data with Theory. Cristian P. Schülthess*, University of Connecticut

SESSION NO. 74
Convention Center, Room 113AB, First Floor

2.4B Soil Mineralogy and Geophysics: Environmental and Soils Management and Mineral Exploration—Oral

Convenor: Carolyn Olson, USDA-NRCS

Presiding: Robert Fitzpatrick, CSIRO, Land and Water

74-1 1:15 PM Soil Suitability Maps for Ground-Penetrating Radar. James Doolittle*1, Fred Minzenmayer2, Sharon Waltman2, Ellis Benham1, Wes Tuttle1 and Steve Peaslee1, (1)USDA-NRCS-NSSSC, (2)USDA-NRCS-NGDC


74-3 2:05 PM Experience in Using the Remote Sensing Materials to Monitor the Long-Term Dynamics of Salinization in Irrigated Soils of the Golodnaya Steppe, Uzbekistan. Dimitry I. Rukhovich* and Ekaterina V. Vilkhevskaia, V.V. Dokuchaev Soil Science Institute

74-4 2:25 PM Trace Element Distribution in the Soils of Peshawar-Pakistan Using GIS. Samina Siddiqui*, Univ of Peshawar-Pakistan

74-5 2:45 PM Mapping Cation Exchange Capacity and Understanding Mineralogical Differences at the Field Scale in the Lower Namoi Valley of Australia. John Triantafilis*1, Kevin Lau1 and Sam Buchanan2, (1)The Univ of New South Wales, (2)The Univ of New South Wales

SESSION NO. 75
Convention Center, Exhibit Hall A, Theater 1, Second Floor

3.2B Dryland Conservation Technologies: Innovations for Enhancing Productivity and Sustainability—Theater
Authors Present 1:15 PM–3:15 PM

Convenors: Cynthia Grant, Agriculture & AgriFood Canada; John Havlin, NCSU-Dept. of Soil Science

Presiding: Alan Schlegel, Southwest Res. Ext. Center

75-1 1357a Tillage and Fertilizer Effects in Sole Maize Cropping in a Degraded Nigerian Alfisol. Vincent O. Adurumigba-Modupe*, Institute Of Agricultural Research And Training, Obafeimi Awolowo Univ and Omololu J. Idowu, Department of Crop & Soil Sciences

75-2 1357b Evaluation of Kostiakov, Horton and Philip’s Infiltration Equations as Affected by Tillage and Rotation Systems in a Clay-Loam Soil of Northwest Iran. Mohammad A. Hajabbasi*, Isfahan University of Technology
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**SESSION NO. 76**

**Convenors:** Achim Doberman, University of Nebraska-Lincoln; Paul Fixen, Potash & Phosphate Institute

**Presiding:** Fernando Garcia, PPI/PPIC Latin America-Southern Cone

**3.3B Nutrient Use Efficiency and Global Agriculture—Oral**

**Convention Center, Room 114, First Floor**

**76-1** 1:15 PM **Nutrient Management for Global Food Security and Environmental Protection.** Kenneth G. Cassman*, Univ. of Nebraska Dept of Agronomy and Horticulture

**76-2** 1:45 PM **Innovations for Improving Productivity and Nutrient Use Efficiency—Maize Systems of North America.** Daniel Walters*, Achim Dobermann1, Tony Vyn2 and Sylvie Brouter1, (1)Department of Agronomy and Horticulture, University of Nebraska-Lincoln, (2)Purdue University, (3)Purdue University

**76-3** 2:05 PM **Innovations for Improving Productivity and Nutrient Use Efficiency in Cereal Systems of Asia.** Christian Witt*, SE Asia Program, PPI/PPIC and IPI, Roland Buyses, International Rice Research Institute (IRRI), Achim Dobermann, Dept of Agronomy and Horticulture, Univ of Nebraska-Lincoln, Ji-Yun Jin, Potash & Phosphate Institute/Potash & Phosphate Institute of Canada, Beijing Office and J.K. Ładha, International Rice Research Institute

**76-4** 2:25 PM **Innovations For Increasing Productivity Through Improved Nutrient Use in Africa.** Marco C.S. Wopereis*, Kenneth E. Giller2, Arno Maatman3, Bernard Vanlauwe4, Abdoulaye Mando1 and André Bationo4, (1)Cirad, (2)Production Systems, Department of Plant Sciences, Wageningen University, (3)IFDC, (4)Tropical Soil Biology and Fertility Institute of CIAT

**76-5** 2:45 PM **Innovations for Improving Productivity and Nutrient Use Efficiency: No-Till Grain Cropping Systems of South America.** Cristian Diaz-Zorita*, CONICET-FAUBA and Nitrargi Argentina, Telmo Amado, Soil Department, Alejandro Morón, Instituto Nacional de Investigación Agropecuaria and Fernando Garcia, PPI-PPIC Southern Cone
**SESSION NO. 77**

Conventional Center, Room 109AB, First Floor

1.1B Site Disturbance: The Role of Soil Morphology in its Assessment—Oral

Convenor: Brenda Buck, Dept Geosciences, UNLV

77-1 3:30 PM Fully Recovered: Can past Site Disturbance Be Determined from Soil Features?, Geoff S. Humphreys*, Dept of Physical Geography

77-2 4:00 PM The Effect of Past Waste Disposal on Urban Soils in Long Established Scottish Towns, Kirsty A. Golding* and Donald Davidson, Univ of Stirling

77-3 4:20 PM Urban Soils of Floodplains in the City of Moscow, Sergey Shoba#1, Tatiana Prokofieva2 and Olga Kruglova2, (1)Moscow State Univ., Soil Science Dept., (2)Moscow State Univ, Soil Science Dept.

77-4 4:40 PM Luminescence and Carbon Dating of Fimic Horizons and Drift-sand Deposits in Cultivated Sandy Landscapes (SE Netherlands), J. M. Van Mourik*, Univ of Amsterdam

77-5 5:00 PM Chemical Signatures of Land Use History, Daniel Markewitz*, The Univ of Georgia and Daniel D. Richter Jr., Duke Univ

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**SESSION NO. 78**

Conventional Center, Exhibit Hall A, Theater 1, Second Floor

1.3B Essence Diagnostic and Time-Scales of Natural and Human-Induced Pedogenic Processes—Theater

Authors Present 3:30 PM–5:30 PM

Convenors: Angel Faz Cano, Univ. Politecnica, Paseo Alfonso XIII; John Galbraith, Dept. of Crop & Soil Env. Sci.

Presiding: Gan-Lin Zhang, Chinese Academy of Soil Science

78-1 159a Changes of Variability, Probability Distributions and Statistical Entropy of Soil Properties under Anthropogenic Formation, Irina V. Mikheeva*, Institute of Soil Science and Agrochemistry of Siberian Branch of Russian Academy of Sciences

78-2 159b Short-term Soil Formation in an Abandoned Sand Borrow Pit, Georgia, USA, Eric C. Brevik*, Valdosta State University

78-3 160a Anthropogenic calcified paddy soils in subtropical China, Zi-Tong Gong* and Gun-Lin Zhang, Institute of Soil Science, Chinese Academy of Sciences

78-4 160b Anthropogenic Soil Changes of Different Time Scales: A Pedological Approach, Gun-Lin Zhang* and Zi-Tong Gong, Institute of Soil Science, Chinese Academy of Sciences

78-5 161a Holocene Soil and Landscape Dynamics Reconstructed by Sediment Analysis in the French Alps, Brice Mourier*, Jérome Poulenard1, Aurélie Genries2, Christopher Carcailliet2, Pierre Fairev3 and David Williamson3, (1)University of Savoie (CARTET Laboratory), (2)Centre de Bio-Archéologie et d’Ecologie, (3)Centre Européen de Recherche et d’Enseignement des Géosciences de l’Environnement

78-6 161b Modeling of Sea-Level Rise and Deforestation in Submerging Coastal Ultisols. Ahmed Hussein*, Private Soil/Wetland Consultant

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**SESSION NO. 79**

Conventional Center, Room 114, First Floor

2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Oral

Convenor: Joseph Pignatello, Connecticut Agricultural Experiment

Presiding: Martin H. Gerzabek, Institute for Soil Research, University of Natural Resources and Applied Life Sciences

79-1 3:30 PM Understanding the chemistry of crystalline poly-methylenic carbon in soils as sinks for hydrophobic contaminants., Patrick G. Hatcher* and Ashish Deshmukh, The Ohio State University

79-2 4:00 PM Sorption Equilibrium of 190 Organic Vapors in Soil Organic Matter as a Function of Temperature and Humidity: Experiments and Modelling, Christian Niederer*, Kai-Uwe Goss and René P. Schwarzenbach, Swiss Federal Institute of Technology ETH

79-3 4:20 PM Fate of prions in soil : Insight to the interaction of prion proteins with soil surfaces and consequences for their dissemination in the environment, H. Quiriquampos*1, S. Noinville2, P. Rigou3, E.N. Vasina4, M. Revault2, J. Abadie1, C. Le Guernevé1, Y. Quenet1, H. Rezaei2, P. Déjardin4, S. Staunton1 and J. Grosclaude1, (1)INRA-ENSAM, (2)CNRS-Université Paris 6, (3)INRA, (4)CNRS-ENSCM-Université Montpellier 2
SESSION NO. 80
Convention Center, Exhibit Hall A, Theater 3, Second Floor

2.3P New Strategies for Management of Plant Pathogenic Soil Microorganisms—Natural Soil Suppression or Genetically Modified Plants—Theater
Authors Present: 3:30 PM–5:30 PM
Convenors: K. Inubushi, Chiba University; Brian McSpadden Gardner, The Ohio State University-OARDC
Presiding: Stephen Neate, North Dakota State University

80-1 858a Biological Amendments and Crop Rotations for Managing Soil Microbial Communities and Soilborne Diseases of Potato. Robert P. Larkin*, USDA-ARS, New England Plant, Soil, and Water Lab
80-2 859a Frontiers of Plant Pathogenic Soil Microbiology in Japan—Toward Biological Control of Soilborne Diseases -. Mitsuro Hyakumachi1, Mayumi Kubota1 and Kazuyuki Inubushi2*. (1)Faculty of Applied Biological Sciences, Gifu University, (2)Chiba University
80-3 860a Rhizoctonia Control through Management of Disease Suppressive Activity in Soils. David K. Roget, CSIRO Sustainable Ecosystems and Gupta V.S.R. Vadakkut*, CSIRO Entomology
80-4 860b Identifying Microorganisms Involved in Suppressing the Plant-Parasitic Nematode Heteroder a schachtii: Finding the Needles in the Haystack. James Bormen*, Ole Becker, Rabiu Olatunwo and Bei Yin, University of California

SESSION NO. 81
Convention Center, Room 108AB, First Floor

3.2C Water Use Challenges for the Future—Oral
Convenor: Gerd Wessolek, Institut fur Okologie
Presiding: Donald Suarez, US Salinity Lab., USDA-ARS

81-1 3:30 PM Utilization of Brackish Saline Water in North Africa. Gilani Mhmed Abdelgawad*, ACSAD

81-4 4:40 PM Can Broccoli Tolerate Higher Concentrations of Boron under Saline Conditions?. Stephen Gratton*, Catherine Greive, Timothy E. Smith, André Lauchli*, James A. Poss and Donald Suarez2*, (1)University of California, Davis, (2)US Salinity Laboratory

81-5 5:00 PM Improving Water and Nitrogen Use Efficiency in Potato Production in Sandy Soil Using Surfactant. Birl Lowery*, Phillip E. Speeth and Keith A. Kelling, Department of Soil Science, University of Wisconsin-Madison

SESSION NO. 82
Convention Center, Room 113AB, First Floor

4.1B Role of Organic Matter for Soil Properties and Consequences for Environmental Functions—Oral
Convenors: Stephen Nortcliff, Univ. of Reading—Soil Science Dep; Charles Rice, Dept. of Agronomy, KSU
Presiding: Claire Chenu, INAPG, UMR Bioemco

82-1 3:30 PM Selecting and Using SOM Fractions to Assess Soil Function. Michelle Wander*, University of Illinois
82-2 4:00 PM Depth Distribution of Soil Organic Matter and its Consequences on Soil Properties and Crop Productivity. Alan Franzluebbers*, USDA-ARS
82-4 4:40 PM Land-use change and soil fertility: a New Zealand perspective. Leo M. Condron*, Lincoln University
82-5 5:00 PM Managing soil macrofauna for better soil structure and enhanced water and nutrient use efficiencies in agro-ecosystems. Lijbert Brussaard*, Wageningen University and Research Centre, Dept. Soil Quality, Mirjam Pulleman, CIMMYT, Abdoulaye Mando, IFDC, Elissé Ouedraogo, Albert Schweitzer Centre for Ecology (CEAS) and Johan W. Six, Department of Plant Sciences

SESSION NO. 83
Convention Center, Exhibit Hall A, Theater 2, Second Floor

LD Soil Degradation: Processes, Control, and Politics —Theater
Authors Present: 3:30 PM–5:30 PM
Convenors: Horrihanar Eswaran, USDA-NRCS; Rattan Lal, School of Nat. Res., OH State Univ.
Presiding: Bal Singh, Dep.- Plant and Environmental Sci.

83-1 3103a Spectral Classification of Soil Degradation in Tropical Watersheds: Case Study in Kenya and Rwanda. Athanas Mukuralinda1, Thine Ómuto2,
SESSION NO. 83

Friday, 14 July 2006

SESSION NO. 84

Convention Center, Room 113AB, First Floor

1.0WB Wetlands: Science and Management—Oral
Convener: Michael Vepraskas, Dept. of Soil Science,
PO Box 7619
Presiding: K. Ramesh Reddy, Univ. of Florida, Soil and Water Science Dept.

84-1  8:00 AM Interactions of Soils and Hydrology in Wetland Management. Richard Lowrance1,2, George Velidis1 and Randy Williams1, (1)USDA-ARS, (2)University of Georgia

84-2  8:35 AM Understanding Soil Processes: The Next Frontier of Wetland Restoration. Curtis Richardson1, Ariana Sutton-Grier1 and Greg Bruland2, (1)Duke University Nicholas School of the Environment, (2)University of Florida Soil Science Department

84-3  9:10 AM Coupled Biogeochemical Cycles in Wetlands. K. Ramesh Reddy1 and Patrick W Inglett, Univ. of Florida, Soil and Water Science Dept.

SESSION NO. 85

Convention Center, Exhibit Hall A, Theater 3, Second Floor

1.3A New Frontiers in Soil Genesis—Theater
Authors Present 8:00 AM–10:00 AM
Convener: Janis Boettinger, Utah State University
Presiding: Ahmet Mermut, Department of Soil Science

85-1  353a Digital Soil Mapping: Successes, Challenges, and Future Perspectives: The SoLIM Experience. A.-Xing Zhu1, State Key Laboratory of Resources and Environmental Information Systems,Institute of Geographical Sciences and Natural Resources, James E. Burt, University of Wisconsin-Madison, Jon Hempel, USDA-NRCS-National Geospatial Development Center and Kenneth Lubich, NRCS

85-2  353b Modelling Soil Profile Evolution Considering Physical and Chemical Weathering, and Incorporating Bioturbation Processes. Budiman Minasny1,2, Sebastien Salvador-Blanes2 and Alex McBratney1, (1)The University of Sydney, (2)Laboratoire GeEAC

85-3  354a Modeling of Past and Now a Say Pedogenesis: Distinction between Long and Short Time Scale. Anatja Samouelian1, Sophie Cornu and Guy Richard, Unité de recherche en science du sol, INRA Orléans

85-4  354b Drainage Ditch Phosphorus: Vertical, Lateral, and Temporal Dynamics. Robert Vaughan1,2, Brian Needelman1, Peter Kleinman3, Martin Rabenhorst1 and Arthur L. Allen4, (1)University of Maryland, (2)University of Maryland, College Park, (3)USDA Agricultural Research Service, (4)University of Maryland Eastern Shore

85-5  355a DTM as a Tool for Correction of Alluvial Soils Denudation Rate on Biotabular Scale Maps. Vit Penizek, Lubos Boruvka and Josef Kozak1, Czech University of Agriculture in Prague

85-6  355b Secondary Mineral Formation in Cool, Dry Andisols of the Eastern Snake River Plain, USA.
Karen Castenson*1, Paul McDaniell1 and David Hoover2, (1)University of Idaho, (2)Natural Resources Conservation Service

85-7 356a Properties of Red Oxisols on Basalt in Thailand. Saowanuch Tawornpruek*1, Irb Kheoruenromme1, Anchalee Sudhiprakam2 and Robert J. Gilkes3, (1)Department of Soil Science, Faculty of Agriculture, Kasetsart University, (2)Agriculture Faculty, Soil Science Department, Kasetsart University, (3)School of Earth and Geographical Sciences, The University of Western Australia

85-8 356b Characteristics, Pedogenesis and Classification of Podzolic Soils in Tai-Ping Mountain of Taiwan. Sen-Po Wu and Zueng-Sang Chen*, Department of Agricultural Chemistry, National Taiwan University

85-9 454a Pedogenesis of the Serpentinitic Soils along a Toposequence in Eastern Taiwan. Zeng-Yei Hseu*, Department of Environmental Science and Engineering, National Pingtung University of Science and Technology

85-10 454b Soil Chronosequences in the Veneto Plain. I. Vincis1, A. Garla1, P. Mozzi2 and F. Ragazzi1, (1)ARPAV – Environmental Protection Regional Agency, (2)University of Padua


85-12 455b Quantifying the Biogeochemical Function of the Subaqueous Soils in the Environment. Thomas J. Saunders* and Mary Collins, University of Florida

85-13 456a Soil Organic Matter Sequestration as a Function of Land Use and Soil Genesis. Michael Kaiser*, Michael Sommer and Ruth Ellerbrock, Leibniz-Institute for Agricultural Landscape Research (ZALF) e. V. Müncheberg; Institute of Soil Landscape Research

85-14 456b Spatial Variation of Chemical Properties as Affected by Soil Erosion on Hillslopes and Terraces of Hilly Areas of Sichuan, China. Shijun Ni1, Jianhui Zhang2, Xianghao Zhong3 and Shuzhen Liu3, (1)Chengdu University of Technology, (2)Institute of Mountain Hazards & Environment, Chinese Academy of Sciences, (3)Institute of Mountain Hazards and Environment, Chinese Academy of Sciences


SESSION NO. 86

Convention Center, Room 109AB, First Floor

2.0W Emerging Methods to Examine Metal Speciation and Bioavailability in Soils—Oral

Convenors: Kathleen Smith, US Geological Survey; James Ranville, Colorado School of Mines

Presiding: Ladonna Choate, U.S. Geological Survey

86-1 8:00 AM Predicting Toxicity of Metals in Soil – The Terrestrial Biotic Ligand Model (TBLM). Herbert Allen*1, Sagar Thakali2, Alexander Ponomovsky2, Dominic Di Toro3, Corrine Rooney3, Fangjie Zhao3 and Steve McGrath3, (1)Department of Civil and Environmental Engineering, (2)University of Delaware, (3)Rothamsted Research

86-2 8:35 AM Heavy Metal Bioavailability Detection in Soils and Sediments by the BIOMET-Biosensor. Ludo Diels* and Karolien Vanbroekhoven, Flemish Institute for Technological Research

86-3 9:10 AM Developing New Strategies and Methods to Investigate the Relationship between Soils and Human Health. Martin A. Schoonen*, Sanford Simon, Corey Cohn and Elizabeth Roemer, Stony Brook University

SESSION NO. 87

Convention Center, Room 114, First Floor

3.0W Sustainable Soils and Life on Land—Oral

Convenor: Eldridge Moores, University of California


87-1 8:00 AM A Paradigm for Soil Resilience. Jennifer W. Harden*, U.S. Geological Survey

87-2 8:35 AM Sustaining Soils for the Future: The Impacts of Humans and Climate on Soil Erodibility and What to Do about It. Jayne Belnap*, USGS

87-3 9:10 AM Geology, Agriculture and Sustainability. Ward Chesworth*, Department of Land Resource Science

SESSION NO. 88

Convention Center, Room 108AB, First Floor

4.0W Soils and Human Health—Oral


Presiding: Eiliv Steinnes, Norwegian University of Science and Technology

88-1 8:00 AM Science for Health and Well Being. Dov Jaron*, Drexel University


88-3 9:10 AM Soils and Geomedicine. Eiliv Steinnes*, Department of Chemistry, Norwegian University of Science and Technology
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<tr>
<td>4.1PA Soils and Natural Hazards (Knowledge, Assessment and Mitigation)—Theater</td>
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<tr>
<td>Authors Present 8:00 AM–10:00 AM</td>
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<td>Convenor: John Menzies, Earth Sciences</td>
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<td>Presiding: Pascal Boivin, IRD</td>
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<td><strong>89-1</strong> 1764a Scaling the Aggregate Breakdown Dynamics under Water-Saturated Conditions to Evaluate Landslide Hazard in NW Alps Pedo-Environments. Ermanno Zanini1, Angelo Caimi, Elisa Oberto and Michele Freppaz, DIVAPRA Chimica Agraria, University of Turin</td>
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<td><strong>89-2</strong> 1764b The Effects of Tree’s Root Density on Shear Strength of Soil by using Large Scale Shear Tests. Reza Shahalipour*, ZPA</td>
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<td><strong>89-3</strong> 1765a Ephemeral Gully Development and Head-Cut Migration Induced by Subsurface Flow. G.V. Wilson*, R.F. Cullum, M.J.M. Romkens and A. Simon, USDA-ARS National Sedimentation Laboratory</td>
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<td><strong>89-4</strong> 1765b Heavy Metals Toxicity in Soils and Crops in Low-Lying Land of Hooghly River Basin in India. S. K. Patra* and S. S. Das, Bidhan Chandra Krishi Viswavidyalayal</td>
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<td><strong>89-5</strong> 1864a Calcaric Regosols Ability of Nitrous Oxide Release and Sink—Model Experiment. Jan Gliniński*, Teresa Wodarczyk, Magorzata Brzezinska and Paweł Szarlip, Institute of Agrophysics PAS</td>
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<td><strong>89-6</strong> 1864b Heavy Metal Contamination after Solid Waste Disposal on a Tropical Reclaimed Soil in Engenhado Caldas (MG), Brazil. Meubles Borges Júnior1, Virginia H. B. Lima2; Miriam A. Albuquerqué2 and Guillerme K. Donagemma2; (1)UNEC, (2)Centro Universitário Caratinga, (3)EMBRAPA</td>
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<td><strong>89-7</strong> 1865a Effects of Imidazolinone Herbicides on Microbial Activities in the Humid Tropical Soils. Olarewaju S. Bello*; Ezekiel A. Akinrinde2 and Marjan G. Solomon1; (1)Department of Soil Science,University of Calabar, (2)Department of Agronomy,University of Ibadan</td>
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<td><strong>89-8</strong> 1865b Nitrate Leaching and Deep-Soil Distribution in Japanese Andisols following 10-Year Applications of Pig Compost or Synthetic Fertilizer. Morihiro Maeda* and Takeshi Ota, National Agricultural Research Center</td>
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<td><strong>89-9</strong> 1964a Reducing Cadmium Phytoex tractability by Coal Bottom Ash. Chang Oh Hong, Pil Joo Kim*, Hong Hee Chang and Chan Yu, Division of applied Life Science, Gyeongsang University</td>
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<td><strong>89-10</strong> 1964b Risk of Zinc and Lead Transfer in a Roadside Soil. Beatrice Bechet1, Laboratoire Central des Ponts et Chaussées–Centre de Nantes and Khalil Hanna, Laboratoire de chimie physique et microbiologie pour l’environnement</td>
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<td><strong>89-11</strong> 1965a Multi-Field Assessment of Riparian Buffer Effectiveness in Mitigating Soil Phosphorus Losses. C. Ryan Bond*1, Rory Maguire2, John Havlin1 and David A. Crouse1; (1)North Carolina State University, (2)North Carolina State University, Department of Soil Science</td>
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<td><strong>89-12</strong> 1965b Land Use and Degradation in Po-yang Lake Region, China. Hai-sheng Cai* and De-hui Zhu, College of Information and Electrical Engineering, China Agricultural University</td>
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<td>Convention Center, Exhibit Hall A, Theater 2, Second Floor</td>
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<tr>
<td>RB Developments in the World Reference Base (WRB), Soil Taxonomy (ST) and Other National Soil Classification Systems for Soil Resources—Theater</td>
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<td>Authors Present 8:00 AM–10:00 AM</td>
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<td>Convenor: Robert Ahrens, USDA/NRCS,Federal Bldg., Rm. 152</td>
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<td>Presiding: Erika Micheli, Szent Istvan University</td>
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<td><strong>90-1</strong> 3110a Critical Evaluation of Diagnostic Criteria for Gleyic Properties in the World Reference Base. Cornelius W. Van Huysssteen*, University of the Free State</td>
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<td><strong>90-2</strong> 3111a Rendzinas: a Soil Group with Primitive Original Attributes?. Jorge E. Gama Castro*, Instituto de Geología, Universidad Nacional Autónoma de México</td>
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<td><strong>90-3</strong> 3111b Formation, Properties and Distribution of Singular Deep-Ploughed Soils of Central Europe and Recommendations for WRB. Luise Giani*, Institute of Biology and Environmental Science and Hans-Peter Blume, University of Kiel</td>
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<td><strong>90-4</strong> 3112a Global Distribution of World Reference Base Soils in Relation to Key Soil Forming Factors. Jonathan M. Gray*, NSW Department of Natural Resources, Geoff S. Humphreys, Department of Physical Geography and Jozef Deckers, Catholic University of Leuven</td>
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<td><strong>90-5</strong> 3112b Classification of Podzols in 1998 and 2006 Editions of World Reference Base Soil Classification Systems from the Polish Point of View. Renata Bednarek, Przemysław Charzyński* and Aleksandra Kwikatkowska, Nicolaus Copernicus University, Institute of Geography</td>
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<td><strong>90-6</strong> 3210a WRB and Large Scale Soil Inventory – Possibilities and Limitations. Aldis Karklins*, Latvia University of Agriculture</td>
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<td><strong>90-7</strong> 3210b Topsoil Characterization and Classifications: New Developments and Chances for Links to WRB. Gabriele Broll1*, Hans-Joerg Brauckmann1, Mark Ovresch1, Claudia Erber2, Gerhard Milbert3, Denis Bazé4 and Freddy Nachtergaele4; (1)Universität of Vechta, (2)SEPA Scottish Environmental Protection Agency, (3)Geological Survey of Northrhine-Westphalia, (4)INRA, (5)FAO</td>
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<td><strong>90-8</strong> 3211a Classification of Anthropogenic Soils in WRB. Alan Kosse*, Bureau of Indian Affairs</td>
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<td><strong>90-9</strong> 3211b Grouping and Naming Soils in the South African Classification. Martin V. Fey*, Department of Soil Science, University of Stellenbosch</td>
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<td><strong>90-10</strong> 3212a The Application of Wrb Classification and Correlation System to Regional Soil Mapping: Flexibility and Constraints in the 1:250,000 Italian Soil Map Experience. Rosario Napoli* and Edoardo A.C. Costantini, CRA Experimental Institute for Soil Study and Conservation</td>
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<td><strong>90-11</strong> 3212b The Introduction of the Stagnosol Group in WRB: Classification of Soils with Stagnic Properties in Vestfold County, Norway. Age Nyborg*, Eivind Solbakken, Ragnar Sperstad and Kjetil Fadnes, Norwegian Inst.-Land Inventory</td>
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SESSION NO. 91
Convention Center, Exhibit Hall A, Theater 1, Second Floor

1.0PA Multiscale Mapping of Soil Properties for Environmental Studies, Agriculture, and Decision-Making—Theater

Authors Present 10:15 AM–12:15 PM

Convenors: Claudia Oleshko, Universidad Nacional Autónoma de México (UNAM); Kevin McInnes, Texas A&M University

Presiding: Ana Tarquis, Ciudad Universitaria

91-1  117a Chemical and Physical Degradation of Natural Soils in Northwestern Europe: Results of Large-Scale Regional Studies. Galina Kashulina¹, Clemens Reimann², Reijo Salminen³, Victor Chekushin⁴ and Igor Bogatyrev⁴, (1)Polar Alpine Botanical Garden Institute KSC RAS, (2)Geological Survey of Norway, (3)Geological Survey of Finland, (4)State Company Mineral

91-2  117b Georeferenced System of Soil Quality Indicators for the Eastern Plains of Colombia. Yolanda Rubiano⁴, Centro Internacional de Agricultura Tropical CIAT

91-3  118a Geostatistical Modeling of Soil Environmental parameters. Nguyen Chi Quang⁴, National Economic University

91-4  118b The Dusty Trail to Digital Soil Survey in California. David W. Howell⁵ and David W. Smith, USDA Natural Resources Conservation Service

91-5  119a Standardized Variograms from Aerial Photographs for Kriging Soil Data. Ruth Kerry⁵, Department of Geography, Brigham Young University and Margaret A. Oliver, Department of Soil Science, Reading University

91-6  119b Copper Distribution in Agricultural Topsoils in the Northeast of Spain: Multivariate Geostatistical Methods to Identify Spatial Variations. Jose Antonio Rodriguez martin Sr.¹, Jose Manuel Grau Corbi Sr.¹ and Manuel Lopez Arias Sr.², (1)CIFOR INIA, (2)INIA

91-7  218a An AHP Approach to Determining the Weights of Environmental Factors in Knowledge-Based Automatic Soil Mapping. Xun Shi⁶, Geography Department, Dartmouth College

91-8  219a A Neural Network Model to Map Spatial Variability of Field Capacity. Marcos Bacis Ceddia², Carlos Alberto Alves Varella¹, Sidney Vieira² and Francisco de Assis de Carvalho Pinto³, (1)UFRRJ, (2)Instituto Agronômico, (3)UFV

91-9  219b Spatial and Temporal Monitoring of Water Flow Using 2d Electrical Resistivity Tomography in a Cultivated Soil: A Decimeter Scale Study. Didier Michot⁷, UMR «Soil, Agronomie, Spatialisation», Agrocampus–INRA

91-10  318b Assessment of Soil and Water Resources in the South Nile Valley, Egypt, Using Multi Sensors and Multi-Date Space Imagery, Abd-Alaa Gad Abda-Alia Gad⁸, National Authority for Remote Sensing and Space Sciences (NARSS) and Rafa Ramadan Ali, Soils and Water Use Department, National Research Centre, Cairo, Egypt.

SESSION NO. 92
Convention Center, Room 113AB, First Floor

1.1C Soil Micromorphology, Archæometry, and Archaeology—Oral

Convenor: Alexander Tsatskin, University of Haifa

Presiding: Selim Kapur, University of Cukurova

92-1  10:15 AM The Micromorphological Record of Daily Life and Exceptional Situations in Archaeological Sequences: Tell Dj‘adé (Syria), Song Terus Cave (Java, Indonesia) and Moche (Peru). Marie-Agnes Courty*, CNRS

92-2  10:45 AM Microorganization in Soils: It’s Relevance to Soil Science and Other Disciplines. Joselito M. Aracena*, Univ. N. British Columbia and Selim Kapur, Univ. of Cukurova

92-3  11:05 AM Cs-137 and Salt Mineralogy in the Black Butte Soil Series, Virgin River Floodplain, NV, USA. Janice L. Morton⁹, Brenda Buck¹ and Douglas Merkl², (1)University of Nevada, Las Vegas, (2)USDA NCRA

92-4  11:25 AM Micromorphology Used in Search of Understanding Production Technologies of Historical Turkish Ceramics. Ahmet Ruhi Mermut⁵, University of Saskatchewan

92-5  11:45 AM Implications of Soils in Archaeological Contexts along the Mediterranean Coast, Israel for Paleoenvironments and Basic Pedology. Alexander Tsatskin⁵, Zinman Institute of Archaeology University of Haifa

SESSION NO. 93
Convention Center, Exhibit Hall A, Theater 3, Second Floor

2.0W Emerging Methods to Examine Metal Speciation and Bioavailability in Soils—Theater

Authors Present 10:15 AM–12:15 PM

Convenors: James Ranville, Colorado School of Mines; Kathleen Smith, US Geological Survey

Presiding: Ladonna Choate, U.S. Geological Survey

93-1  562a Accumulation of Metals at the Soil-Root Interface: A Thermal Study. Tanja Mimmo*, Claudio Marzadori, Daniela Montecchio and Carlo Gessa, Department of Agroenvironmental Sciences and Technologies, Alma Mater Studiorum – University of Bologna

93-2  563a Measurement of Indigenous Levels of Cation Activities in Soil Solutions by Donnan Membrane Equilibrium and Atomic Absorption Analysis. Philip Helmeke⁷, Jordan Lampert¹, Abdul Kadir Salam² and Yan Li¹, (1)University of Wisconsin, (2)University of Lampung

93-3  563b Fourier Transform Infrared and Raman Spectroscopy of Ca-Pectates. Tanja Mimmo⁸, Santiago Sanchez-Cortes², Claudio Marzadori¹ and Carlo Gessa¹, (1)Department of Agroenvironmental Sciences and Technologies, Alma Mater Studiorum – University of Bologna, (2)Instituto de Estructura de la Materia, CSIC

93-4  564a Sulfate Adsorption at the Fe-(hydr)oxide-H2O Interface: Comparing Results from Hybrid MO/DFT Cluster and Periodic ab initio DFT Cal-
Session No. 93

93-5  564b  Bioassimilation of Nickel and Zinc in Wheat as Affected by Organic Matter. Muhammad A. Aziz*, A. Ghafoor, H.R. Ahmad and S.I. Hussain, Institute of Soil and Environmental Sciences

93-6  663b  Traditional Gold Mining in Apolobamba (Bolivia): Soil Pollution and Risk Assessment. M. Angeles Muñoz García1, Angel Faz Cano1, José Alberto Acosta1, Silvia Martínez Martínez2, R. Millán3 and R. Vera3, (1)Universidad Politécnica de Cartagena, (2)Centro de Investigaciones Energeticas Medioambientales y Tecnológicas

93-7  663a  Fractionation of Ni and U in Sediment Porewaters. Brian P. Jackson*, Dartmouth College, James F. Ranville, Colorado School of Mines and Paul Bertsch, University of Georgia

93-8  663b  The Use of Non-Invasive Time-Domain Induced Polarization for Diagnosis of Soil Metal Contamination. Rebekah T. Brosky-Dorsev*, Jim Cull and Antonio Patti, Monash University


93-11 763a  Evaluating the Effects of Water Chemistry Variation on an Enzyme Bioassay, MetPlate, Used to Screen for Metals Contamination in Mining Impacted Soils and Waters. Eric Blumenstein1*, James F. Ranville1, Ladonna Choate2, Philippe Ross1 and Thomas Wildeman1, (1)Colorado School of Mines, (2)U.S. Geological Survey

93-12 763b  Distribution of Pb Isotopes in Different Soil Phases Using Tessier et al.'s Sequential Extraction Scheme. Eric T. Tangumonkem* and William Manton, Geosciences Department University of Texas at Dallas

Session No. 94

Convention Center, Room 109AB, First Floor

2.3B Molecular Approaches to Microbial Ecology in Soils—Oral

Convenor: Vadakattu Gupta, CSIRO—Land and Water

Presiding: James M. Tiedje, Center for Microbial Ecology

94-1 10:15 AM  Development and Application of Functional Gene Arrays for Understanding Spatial Variation in Soil MicrobialCommunities. Jizhong Zhou*, Institute For Environmental Genomics and Department of Botany and Microbiology, University of Oklahoma

94-2 10:45 AM  Elucidation of Soil Microbial Community Ecology Using Molecular Approaches. Cindy Nakatsu*, Purdue University

94-3 11:05 AM  Stable Isotope Probing with 15N2 as a Tool to Uncover the Functional Significance of Non-Cultivated Diazotrophs in Soil. Daniel H. Buckley*, Varisa Haungyutitham, Shi-Fang Hsu and Tyrrell Nelson, Cornell University

94-4 11:25 AM  Characterization of 1-Aminocyclopropane-1-Carboxylate Deaminase Containing Methylobacterium spp. Isolated from Rhizosphere Soils of Field-Grown Rice and Regulation of Ethylene Levels in Canola. Munysam Madhityan1, Selvaraj Poonguzhal1, Jeoungyun Ryu1, Woojong Yim2, Myoungsu Park2 and Tongmin Sa*, (1)Chungbuk National University, (2)Semyung University

94-5 11:45 AM  Comparative Microbial Diversity in Agroecosystems and Forested Ecosystems of the Southeastern USA. David Coleman1*, William Whitman1, Rima Upchurch1, Greg Dyzynski1, Karen Everett1 and Chih-Yu Chiu1, (1)University of GA-Institute of Ecology, (2)Research Center for Biodiversity

Session No. 95

Convention Center, Exhibit Hall A, Theater 2, Second Floor

3.1B Translating Soil Science into Agricultural & Environmental Policy—Theater

Authors Present 10:15 AM–12:15 PM


Presiding: Mateugue Diack, Université Gaston Berger

95-1 1444a  Soil Science in Tropical and Temperate Regions—Differences and Similarities. Alfred Hartemink*, ISRIC—World Soil Information


95-3 1445b  Soil Quality Assessment of Rice Production Systems in South of Brazil. A.C. Rodrigues de Lima1*, W.B. Hoogmoed1 and Lijbert Brussaard2, (1)Wageningen University, (2)Wageningen University and Research Centre, Dept. Soil Quality


95-5 1447a  Impact of Land Use on an Organic Soil of the Everglades Agricultural Area. Ming Chen1*, Samira Daroub1, Jose L. Pantoja1, Orlando Diaz2, Timothy A. Lang1 and Viviana Nadal1, (1)Everglades Res. & Educ. Center, University of Florida, (2)Soil and Water Science Department and Everglades Research and Education Center, University of Florida, (3)Zamorano University, Agricultural Sci. and Production Dept.

95-6 1447b  Optimal Organic Matter Management for the Multi-Stakeholders in the Sahel of West Africa. Hiroshi Shino1*, Keichi Hayashi1, Kenta Ruzaki1, Soh Sugihara1, Ueru Tanaka3 and Takashi Kosaki3, (1)Graduate School of Agriculture, Kyoto University, (2)Japan International Research Center for Agricultural Sciences, (3)Graduate School of Global Environmental Studies, Kyoto University
SESSION NO. 96
Convention Center, Room 111AB, First Floor

3.3C Improved Management of Alkaline Soils for Dryland Agriculture—Oral

Convenors: Dwayne Westfall, CO St. Univ.-Dept. Soil & Crop; John Ryan, ICARDA

Presiding: John Angus, CSIRO Plant Industry, GPO Box 1438


96-2 10:45 AM Soil Salinity and Associated Nutrient Constraints in Indian Subcontinent. Abdul Rashid*, National Agricultural Research Center

96-3 11:05 AM Crop-Based Management Opportunities for Sodium- and Boron-Affected Soils. Manzoor Qadir*, International Center for Agricultural Research in the Dry Areas (ICARDA), Andrew Noble, International Water Management Institute (IWMI), Sui-Kwong Yau, American Univ. of Beirut-FAFS and Ghulam Murtaza, Institute of Soil and Environmental Sciences, Punjab Agricultural University

96-4 11:25 AM How Do Roots Cope with Sodic Hostile Subsoils?. Laurence T.P. Jassogne#1, Rob Davidson2, Ann McNeill2 and David Chittleborough2, (1)University of Western Australia, (2)University of Adelaide

96-5 11:45 AM Reclamation of Salt Affected Soils by Growing Salt Tolerant Plants and Using Nuclear Techniques Management. Seyed Jalal Rastegari#1 and Mojgan Farhangisabeh, Nuclear Research Center for Agriculture and Medicine

SESSION NO. 98
Convention Center, Room 114, First Floor

SU Soils in Urban Ecosystems: Characteristics and Functioning—Oral

Convenors: Joyce Scheyer, USDA-NRCS National Soil Survey Center; Gan-Lin Zhang, Chinese Academy of Soil Science

Presiding: Jean-Louis Morel, ENSAIA-INRA-INPL


98-2 10:45 AM Early Pedogenic Evolution of a Constructed Soil. Geoffroy Séré#1, Christophe Schwartz1, Stéphanie Ouvrard1, Jean-Christophe Renat2 and Jean Louis Morel1, (1)INPL(ENSIA)/INRA, Laboratoire Sols et Environnement, (2)TVD-Groupe PE
**SESSION NO. 99**

Concentration Center, Exhibit Hall A, Theater 1, Second Floor

**1.2B Soil System Behavior in Time—Theater**

Authors Present: 1:15 PM–3:15 PM

Presiding: Peter Schad, Technische Universität München

**99-1 350a Stable Isotope Geochemistry Used in Recent Pedological Studies: Carbon Cycle in Soils of Bo-Real Regions.** Ahmad Landi*, University of Saskatchewan

**99-2 351b Quantifying the Rate of Re-Crystallization of Carbonate in a Loess Soil by Artificial 14C La- belling.** Konstantin Pustovoity*+, University of Hohenheim, Institute of soil Science and Land Evaluation, Ekaterina Shevtzova, University of Hohenheim/Institute of Soil Science and Land Evaluation and Yakov Kuzyakov, University of Hohenheim/Institute of Soil Science and Land Evaluation


**99-4 450a Evolution of Virgin Solonetzic Soils Complexes in the Past 50 Years.** Nikolai B. Khitrov*, Nina M. Novikova* and Natalia A. Volkova*, (1)V. V. Dokuchaev Soil Science Institute, (2)Water Problems Institute

**99-5 450b Effects of Long-term Application of Potassium Chloride Fertilizer on the Accumulation of Chloride in the Soil Profile, Water Relations, Fibre Quality and Yield of Cotton in an Arid Environment.** Muhammad Iqbal Makhdu* and Gher Asfra*, Muhammad Ashraf*, Humayun Pervez* and Muhammad Islam Gill*, (1)Central Cotton Research Institute Multan, Pakistan, (2)Department of Botany, University of Agriculture, (3)Department of Chemistry, Bahaud-din Zakariya University

**99-6 451a Country-Scale Changes in Salinity/Sodicity/Alka-linity of Hungarian Soils as Shown by the National Soil Monitoring Network.** Tibor Tóth* and Péter Marth*, (1)Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, (2)Central Service for Plant Protection and Soil Conservation

**99-7 451b High Sulfur Inputs in Northern California Vineyards: Short-term Fates and Long-term Implica-

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**SESSION NO. 100**

Convention Center, Room 108AB, First Floor

**1.5B Soil Sampling in Space and Time—Oral**

Presiding: Gerard B.M. Heuvelink, Wageningen University and Research Centre

**100-1 1:15 PM Sampling in Space and Time for Natural Resource Monitoring.** Dick J. Brus*, Jaap J. de Gruit- jer and Martin Knoters, Wageningen University and Research Centre

**100-2 1:45 PM Latin Hypercube Sampling for Assessing the Quality of Legacy Soil Data and Optimizing Soil Sampling.** Alex McBratney*, Florence Carre* and Budiman Minasny*, (1)The University of Sydney, (2)European Commission Joint Research Centre Institute for Environment and Sustainability

**100-3 2:05 PM Soil Water Content Sampling in Space and Time: A Comparison of Methods.** Steven R. Evet* and Brice Ruthardt*, Naem Mazahri*, Nedal Katbe-hbader*, Terry Howell* and James Ayars*, (1)USDA-ARS, (2)USDA-ARS, (3)USDA-ARS, Water Management Research Laboratory

**100-4 2:25 PM Spatial and Temporal Variability of Soil Moisture Content.** Sidney R. Vieira*, Célia R. Grego* and Walter Zebechuk*, (1)Instituto Agronômico, (2)E. Cereal & Oilseed Research Centre

**100-5 2:45 PM Sampling Design Assessment for Agrosystem Monitoring Based on Virtual Landscape Modeling.** Luc Sorel*, Christian Walter* and Anil Kumar Singh*, (1)The University of Sydney
SESSION NO. 101
Convention Center, Room 111AB, First Floor

2.1B Soil Hydrology, Structure, and Micromorphic Properties (Soil Porous System)—Oral

Convenor: Fabio Terribile, Università di Napoli Federico II
Presiding: Miroslav Kutílek, Soil and Tillage Research

101-1 1:15 PM Methodological Issues in Combining Pores Microscopy and Hydraulic Functions in Soils. Angelo Basile1,2, Giacomo Mele1, Roberto De Mancellis1 and Fabio Terribile2, (1)CNR ISAFOM, (2)Dispera Univ di Napoli Federico II

101-2 1:45 PM Pore Space Analysis of Soil Aggregates Investigated by Microtomography Using Synchrotron Radiation. Stephan Peth1, Rainer Horn1, A.J.M Smucker2, Felix Beckmann3, Tilman Donath3 and J. Fischer4, (1)Institute of Plant Nutrition and Soil Science, CAU Kiel, (2)Department of Crop and Soil Sciences, Michigan State University, (3)GKSS-Research Centre, (4)Hannover Medical School

101-3 2:05 PM Finite Element Analysis of Fluid Transfer in Soil Using CT. Thomas R. Elliot1, Richard J. Heck1, Dan Reynolds2 and Bahram Gharabaghi3, (1)University of Guelph, (2)Agriculture & Agri-Food Canada

101-4 2:25 PM The Characterization of Soil Pore System for Water Movement Prediction. Nadia Vignozzi, Sergio Pellegrini and Marcello Pagliai*, (1)USDA-ARS and (2)Agricultural University of Naples, Italy

101-5 2:45 PM Impact of Soil Micromorphology on Stability of Soil Structure and Soil Hydraulic Properties. Radka Kodesová*, Czech University of Agriculture in Prague, Anna Zigová, Academy of Sciences of the Czech Republic, Marcela Rohosková, Czech Univ of Agriculture in Prague, Vit Kodes, Czech Hydrometeorological Institute and Miroslav Kutílek, Prague

SESSION NO. 102
Convention Center, Room 109AB, First Floor

2.3B Molecular Approaches to Microbial Ecology in Soils—Theater

Authors Present 1:15 PM–3:15 PM

Convenor: Vadakattu V. Gupta, CSIRO—Land and Water
Presiding: James Tiedje, Dept. Crop & Soil Sciences

102-1 1152a A Novel PLFA-13C Method for Tracking C into Microbial Communities during In Situ Decomposition of Forest Litter. J. Moore Kucera, USDA-ARS and Richard Dick*, Ohio State Univ

102-2 955a Microbial Diversity in a Constructed Wetland Treating Acid Coal Mine Drainage. Warren Dick*, The Ohio State Univ-OARDC, Olli Tuovinen, The Ohio State Univ and Duongruitai Niconrat, National Science and Technology Development Agency

102-3 1146a Soil Fauna and Decomposition: A Global Litter Experiment. Diana Wall*, Colorado State Univ

102-4 1153a Microbial Community Dynamics under Organic Farming System in Korea Using Phospholipid Fatty Acid Analysis. Yun-Jeong Lee1, Jae-Hong Rho1, Sung-Beom Lee1, Hang-Yeon Weon1 and Hyo-Jin Lim2, (1)National Institute of Agricultural Science and Technology, (2) Hankyong National Univ


SESSION NO. 103
Convention Center, Room 114, First Floor

3.1B Translating Soil Science into Agricultural & Environmental Policy—Oral

Presiding: Mateugue Diack, Université Gaston Berger

103-1 1:15 PM Translating Soil Science into Agricultural and Environmental Policy. Johannes Bouma*, Wageningen University and Research Center

103-2 1:45 PM Evaluating Soil Quality for an Environmentally Friendly Agriculture in Korea. Won Kyo Jung*, Jung Hui Yoon, Sun Kwun Kim and Han Kang Kwak, National Institute of Agricultural Science and Technology

103-3 2:05 PM The Creeping Disaster of Land Degradation in Africa. Paul L.G. Vlek* and Lulseged T. Desta, Center for Development Research

103-4 2:25 PM Developing Management Strategies to Sustain Soil Fertility in West Africa. Mateugue Diack*, Université Gaston Berger

103-5 2:45 PM Soil Quality Assessment: A Potential Policy Tool to Move beyond T. Douglas L. Karlen*, Susan S. Andrews*, Ted M. Zobeck1 and Brian J. Wiendhold1, (1)USDA-Agricultural Research Service (ARS), (2)USDA-Natural Resources Conservation Service (NRCS), ENTSC, (3)USDA-ARS
SESSION NO. 104

Convention Center, Exhibit Hall A, Theater 2, Second Floor

3.3P Plant Responses and Adaptation to Ionic Stresses
—Theater

Authors Present: 1:15 PM–3:15 PM

Convenors: Leon Kochian, USDA-ARS; Yoko Yamamoto, Okayama University

Presiding: Hideaki Matsumoto, Okayama University

104-1 1634a Response of Paddy to Identified Soil Fertility Constraints in Coastal Agro Eco System of Karnataka, India. GiS Dasog, P.L. Patil, Dhanya Mathews, Harikrishna B.L., K.M. Anegundi and Tejaswini N.B., University of Agricultural Sciences

104-2 1633b Development and Validation of a Hydroponic Screening Method to Identify Acid Soil Adapted Genotypes of the Tropical Forage Grass Brachiaria. Peter Wenzl, Alba Chaves, Maria Buitrago, Gloria Patino, John Miles and Idupulapati Rao, CIAT

104-3 1634a Identification of Aluminum Resistant Common Bean Genotypes Using a Hydroponic Screening Method. German Manrique, Idupulapati Rao and Stephen Beebe, CIAT

104-4 1634b Analysis of Al Tolerant Inducible Protein in Signalgrass (Brachiaria decumbens) Root Using Two-Dimensional Gel Electrophoresis and LC/MS/MS System. Yoshikuni Masaoka*, Shoushi Kumada, Kae Hayakawa, Tomohiro Araki and Akira Saito, Faculty of Science, Ege University

104-5 1635a Aneriorative Effect of Excreted Organic Acids from Plant Roots on Aluminum Toxicity in Acid Soils. Hideaki Matsumoto*, Hong Shen, Zheng Ming Yang, Hiroki Osawa, Takayuki Sasaki and Yoko Yamamoto, (1)Research Institute for Bioresources, Okayama University, (2)College of Natural Resources and Environment, South China Agricultural University, (3)Agricultural Division Council of Jilin University, (4)Graduate School of Agricultural and Life Science, University of Tokyo

104-6 1635b Detection of Salt Tolerance Using Chlorophyll Fluorescence Photometer. Sei Joon Park, Ju Young Lee, Sang Eun Lee, Sung Yong Yoo, Myoung Yong Shim*, Seung Gil Yun and Taewan Kim, (1)Institute of Ecological Phytochemistry, Hankyong National University, (2)Division of Plant Nutrition, National Institute of Agricultural Science and Technology, RDA, (3)Department of Plant Resources Science, Hankyong National University

104-7 1732a Zinc- Boron Interaction Effects on Yield, Yield Components and Chemical Composition of Wheat. S. M. Hosseini*, Eghlid Agricultural Research Station, Fars Province

104-8 1732b Metal Binding Properties of Root Exudates from Maize and Wheat. Deo Pal*, V. Siva Prasad Ganjala and Brahjesh Aggarwal, Indian Agricultural Research Institute

104-9 1733a General Status of Soil Acidity in South China and Plant Adaptation to Acidic Soil. Ren Fang Shen* and Rong Fu Chen, State Key Laboratory of Soil and Sustainable Agriculture, Institute of Soil Science, Chinese Academy of Sciences

104-10 1733b Functional Analysis of Adaptation of Plants to Strongly Acidic Soil. Hiroaki Kashima*, Hitomi Mase, Fumie Shimachi, Akira Noguchi, Satohiko Sasaki and Isao Hasegawa, (1)College of Biore-source Sciences, Nihon University, (2)Dept. of Agriculture, Junior College, Nihon University

 SESSION NO. 105

Convention Center, Room 113AB, First Floor

4.28 Biologically Intensive Agriculture: an Approach to Combating Hunger for the Poor—Oral

Convenors: John Ryan, ICARDA; Cheryl Palm, Columbia University

Presiding: John Doran, USDA-ARS, 116 Keim Hall

105-1 1:15 PM Biologically Intensive Agriculture: Moving towards a Sustainable Future for All. John W. Doran*, University of Nebraska and USDA-ARS cooperator, Cheryl Palm, Tropical Agriculture Program, The Earth Institute at Columbia University, Frederick Kirschenmann, Leopold Center for Sustainable Agriculture and Ken Cassman, University of Nebraska

105-2 1:45 PM Opportunities and Constraints for Addressing Human Mineral Micronutrient Malnutrition

**Potential of Biologically Intensive Agriculture for Feeding People in Kenya: A Case Study of Manor House Agricultural Centre Activities.** Emmanuel Chiwo Omondi* Sr.2, Gatua W. Mbugwa1, John Jeavons1, Baldas Murambakanai1, Rhoda Nyambori1, Margaret Wamalwa1, Elijah Mulegwa1, Sandra Mardigan1 and John Okomba1, (1)Manor House Agricultural Center, (2)University of Wyoming, (3)Ecology Action, (4)Kilifi Self Help Project

**Productivity, Promotion, and the System of Rice Intensification (SRI): A Case for Caution in the Process of Agricultural Innovation.** Andrew J. McDonald*, Peter Hobbs and Susan Riha, Cornell University

**“CIESA Project, a Biointensive Model for Food Security in Argentina”.** Juan Fernando Pia*, CIESA (Research and Teaching Centre of Sustainable Agriculture), Mark Jordan, CIESA and Conradog Tognetti, CEDHA & ARS

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**SESSION NO. 106**

Convention Center, Exhibit Hall A, Theater 3, Second Floor

CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Theater

Authors Present 1:15 PM–3:15 PM

**Convenors:** James Bockheim, University of Wisconsin; John Kimble, USDA-NRCS-NCSS; Chien-Lu Ping, University of Alaska Fairbanks

**Presiding:** Sergey Goryachkin, Russian Academy Science

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**106-1 2913b** Soil Organic Carbon in the Northern Circumpolar Permafrost Regions, Charles Tarnocai*, Agriculture and Agri-Food Canada

**106-2 2914a** Cryosols of the Lena Delta: An Example for the Necessity of International Correlation between the Existing Classifications, Eva-Maria Pfeiffer*, University of Hamburg, Institute of Soil Science and Lars Kutzbach, University of Greifswald

**106-3 2914b** Below-Ground Carbon Pools and Permafrost Instability in the East-European Russian Arctic. Galina Mazhitova*, Komi Science Center, Russian Academy of Sciences, Peter Kuhry, University of Stockholm, Naum G. Oberman, MIREKO Company and Vladimir Romanovsky, Geophysical Institute, University of Alaska, Fairbanks


**106-5 2915b** Carbon and Nitrogen Dynamics and Microbial Community Structure During Climate Change Scenarios in Arctic Soils, Maren Oelbermann*, Michael English2 and Sherry L. Schiff1, (1)University of Waterloo, (2)Wilfrid Laurier University

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**SESSION NO. 107**

Convention Center, Exhibit Hall A, Theater 2, Second Floor

1.1A Hydropedology: Fundamental Issues and Practical Applications—Theater II

Authors Present 3:30 PM–5:30 PM

**Presiding:** Hangsheng Lin, Penn State Univ.

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**107-1 340a** Correlation of Redoximorphic Features to Hydrology. David L. Lindbo*, Erik D. Severson2, Gerren Lanier1 and Michael Vepraskas1, (1)Soil Science Dept, North Carolina State Univ, (2)NRCS

**107-2 340b** Hydropedology Applied to Imperfectly Drained Landscapes in Closed Basins. Jim Richardson* and David Hammer, NRCS-USDA

**107-3 341a** Soil-Hydrology Interpretations Developed from Soil Surveys Based on Soil Morphology. Doug Wysocki*, Jim Richardson, David Hammer and Steve Peasley, NRCS-USDA

**107-4 341b** Concepts of Pedology, Geomorphology and Hydrology for Flat Landscapes. Philip J. Schoeneberger*, Jim Richardson2, Douglas Wysocki3 and Wesley L. Miller2, (1)USDA-NRCS, (2)NRCS-USDA, (3)Natural Resource Conservation Service

**107-5 342a** Hydropedological Map of the Republic of Croatia. Zeljko Vidacek*, Matko Bogunovic2, Stjepan Husnjak3, Mario Sraka3 and Aleksandra Bensa3, (1)Soil Science Dept of Agricultural Faculty Univ of Zagreb, (2)Soil Science Dept Agricultural Faculty Univ of Zagreb, (3)Soil Science Dept of Agricultural Faculty Univ of Zagreb

SESSION NO. 110
Convention Center, Exhibit Hall A, Theater 3, Second Floor

2.2B Adsorption Processes in Soils—Basis for Ecological Soil Functions—Theater II
Authors Present 3:30 PM–5:30 PM

Convenor: Joseph Pignatello, Connecticut Agricultural Experiment

Presiding: Martin Gerzabek, University of Natural Resources and Applied Life Sciences

110-1 845a Soil Minerals – Computer Simulations of Sorption Properties. Daniel Tunega1, Dept for Environmental Research, Georg Huberhauer, Dept of Environmental Research, Hans Lischka, Inst for Theoretical Chemistry, Univ of Vienna and Martin H. Gerzabek, Inst for Soil Research, Univ of Natural Resources and Applied Life Sciences

110-2 845b Applicability of Pfeifer-Avnir fractal Method to Study Vapor Sorption of Organic Compounds on Soils. Artem A. Mishchenko1, Vladimir A. Breus, Sergey A. Neckludov and Irina P. Breus, Kazan State Univ

110-3 101a The Forces, in Nanoscale, Involved in Adhesion of Soil Particles. Fabio de L. Leite, Institute of Physics of São Carlos, University of São Paulo (USP), Paulo Sergio de P. Herrmann1, Embrapa Agricultural Instrumentation and Ervino C. Ziemath, Physics Department, IGCE

110-4 846a Microstructural Porosity, Capillary Forces, and Long Term Retention in Soil Particles. Yukiko O. Aochi and Walter Farmer1, Univ. of CA Riverside

110-5 846b Sorption-Desorption Behavior of Atrazine in Soils Irrigated with Reclaimed Wastewater. Benny Chefez1, Hebrew Univ of Jerusalem and Yaron Drori, Hebrew Univ of Jerusalem

110-6 847a Sorption of Triazines and Trichloroethene to Hemoionic Smectites. Vaneet Aggarwal1, Hui Li1, David A. Laird2, Stephen A. Boyd1, Cliff T. Johnston1 and Brian J. Teppen1, (1)Michigan State Univ, (2)USDA-ARS, (3)Purdue Univ

110-7 847b Sorption of a Hydrophilic Pesticide: Effects of Soil Water Content and Matric Potential. Tyson E. Ochsner1, Brandon M. Stephens1, William C. Koskinen1 and Rai Kookana1, (1)USDA-ARS, (2)Dep. of Soil, Water, and Climate, Univ of Minnesota, (3)CSIRO Land and Water

110-8 946a Effects of Kerogen Carbons on Extraction, Sorption Equilibrium and Kinetics of PAHs in Soils and Sediments. Yong Ran*, Guangzhou Inst of Geochemistry, Ke Sun, Guangzhou Inst of Geochemistry, Baoshan Xing, Dept of Plant, Soil, and Insect Sciences, Univ of Massachusetts and Peter Grathwohl, Center of Applied Geosciences, Univ of Tübingen

110-9 946b Ionic Strength-Induced Formation of Smectite Quasicrystals Enhances Nitroaromatic Compound Sorption. Hui Li1, Brian Teppen1, David Laird1, Cliff Johnston1 and Stephen A. Boyd1, (1)Michigan State Univ, (2)USDA-ARS, (3)Purdue Univ

SESSION NO. 111
Convention Center, Room 114, First Floor

3.1A Land Use Planning: Environmental, Economic and Social Trade-offs—Oral

Convenors: Lamourdia Thiombiano, FAO Regional Office for Africa; Alain Ruellan, INRA

Presiding: Ricardo Ralisch, Universidade Estadual de Londrina

111-1 3:30 PM Supporting Decision Making at the Regional Scale: An Approach to Put Soil Information in a Stakeholder Context. Martijn Somneveld1, Jetse Stoornvogel1, Alejandra Mora-Vallejo1 and Lieven Claessens1, (1)Wageningen Univ and Research Center, (2)Wageningen Univ and Research Center

111-2 4:00 PM Further Experiences with Conservation Agriculture in Africa. Ademir Calegari, IAPAR and John Ashburner1, FAO Regional Office for Africa

111-3 4:20 PM Using GIS Tools to Identify Valuable Soils, Viable Farms and Vulnerable Areas. Caroline M. Alves*, USDA/NRCS

111-4 4:40 PM Land Agroecological Evaluation for Designing the Agronomy Systems. Valeriy L. Kiryushin*, Russian State Agricultural Univ–MTAA, Soil Science Dept

111-5 5:00 PM Socio-Economic and Environmental Impact Assessment of Participatory Watershed Management in Drylands of India. Jagir Singh Samra1, Indian Council of Agricultural Research

SESSION NO. 112
Convention Center, Room 108AB, First Floor

3.5D Combating Global Soil & Land Degradation IV. Salinization, Sodicification and Other Forms of Degradation in Agricultural and Native Ecosystems—Oral

Convenors: Hong Di, Department of Soil Science; James Oster, Univ of California-Riverside

Presiding: Tibor Toth, MTA

112-1 3:30 PM Uses and Abuses of Soil and Water Resources: An Historical Review. Daniel Hillel*, Goddard Institute, Columbia Univ

112-2 4:00 PM Water and Soil Salinity Management and Soil Redistribution in Irrigation Systems. Bernard Vincent1, Serge Marlet1, Alain Vidal1, Sami Bouarfa1, Jingwei Wu1, Jingzong Yang1, Mamadou K. N’Diaye2, Marcel Kuper2 and Daniel Zimmer2, (1)Cemagref, (2)CIRAD, (3)Cemagref, (4)Wuhan Univ, (5)IER, (6)World Water Council


112-4 4:40 PM Impact of Irrigation Water Quality on Infiltration in a Combined Irrigation-Rain System. Donald L. Suarez*, USDA-ARS, U.S. Salinity Laboratory, Scott M. Lesch, Univ of California, Riverside and James Wood, USDA-ARS U. S. Salinity Laboratory
Measurement of Fluxes in the Rootzone: Tools and their Uses. Brent Clothier* 1, Steve Green 1, Marijn Van der Velde 2, Glendon W. Gee 3, Carlo van den Dijssel 1, Siva Sivakumaran 1 and Markus Deurer 1, (1) HortResearch, (2) Univ of Louvain (Louvain-la-Neuve), (3) Battelle

**SESSION NO. 113**
Convention Center, Room 113AB, First Floor

4.4A Case Histories of the Relationships Among Soils and Societies—Oral

Convenor: David Kissel, Soil, Plt & Water Lab., Univ. of GA
Presiding: Pam Hazelton, University of Technology


113-2 3:55 PM Ancient and Recent Challenges in the Utilization of Soil and Water Resources in Egypt. Salah A. Tahoun*, Soil Science Dept, Univ of El-Zagazig


113-4 4:35 PM Some Theoretical Questions of a History of a Soil Cover and Civilization. Lev O. Karpachevsky*, Tatiana A. Zubkova 2 and Yunus N. Ashinov 2, (1) Moscow State Univ, Faculty of Soil Science, (2) Moscow State Univ, Faculty of Soil Science

113-5 4:55 PM Soil Science Knowledge and General Public: How to Bridge the Gap?. Maria da G. de V. X. Ferreira*, Univ Católica de Pernambuco and Carmem S. M. Masutti, Fundação Univ Federal do Vale do São Francisco

**SESSION NO. 114**
Convention Center, Exhibit Hall A, Second Floor

1.0B Soil Change in Anthropocene—Poster

Convenor: Victor Targulian, Inst. of Geography, Russian Academy of Sciences

114-1 109b Estimation of Lead and Cadmium Mobility in the Winter Wheat System. Rimma Turekeldieva* Jr, Taraz State Univ named by H. Dulati

114-2 110a Anthropogenically Transformed Grounds in the Conditions of Industrial Dumps Recultivation. Farida E. Kozybaeva*, Inst of Soil Science

114-3 110b Stability of Ecological and Biological Properties of Soils to Chemical Pollution. Anna A. Popovich*, Alena V. Evreinova, Diana K. Aznaurjan and Sergei I. Kolesnikov, Rostov State Univ

114-4 111a Change of Ecological and Biological Properties of Chernozem Ordinary at Pollution by Technogenic Products of Nonmetallic Nature. Sergei I. Kolesnikov* and Anna A. Popovich, Rostov State Univ


**SESSION NO. 115**
Convention Center, Exhibit Hall A, Second Floor

1.0PA Multiscale Mapping of Soil Properties for Environmental Studies, Agriculture, and Decision-Making—Poster


115-1 209a Plant Available Water Modified by Landscape. Sally D. Logsdon*, NSTL


115-3 210a Effect of Microbial Inhibitors on Nitrous Oxide Flux from Paddy Field. Aditi Srivastava, G.B.Pant Univ of Agriculture and Technology and Venkatesh Bharadwaj*, Dept of Agrometeorology, College of Agriculture, G.B. Pant Univ of Agriculture and Technology

115-4 210b Predicting Depth to Subsurface Soil Features Using Differential GPS and GIS Techniques. R. L. Livingston*, W. D. Daniels and D.C. McMillen, USDA-Natural Resources Conservation Service


115-6 211b Stochastic Simulations of Spatial Variability in Soil Properties Based on Multifractal Characteristics. Alexandra N Kravchenko*, Michigan State Univ
115-7 212a Nitrous Oxide Emission from an Irrigated Pasture – Spatial Variability and Method Comparison. Debra A. Turner*, The Univ of Melbourne

115-8 212b Pedological Sampling Adds Value to a Study to Evaluate the Status of Nitrogen, Phosphorus, and Potassium in the Agricultural Soils of the Lower Fraser Valley of British Columbia, Canada. Elizabeth A. Kenney1, Grant Kowalenko1, Orlando W. Schmidt2 and Geoff Hughes-Games2. (1)Agriculture & Agri-Food Canada, (2)British Columbia Ministry of Agriculture and Lands

115-9 213a Soil Patterns in Bangladesh. Syed Elahi*, Dhaka Univ, M. S. Hussain, Dhaka University, Hari Eswaran, USDA/NRCS Soil Survey Division and M. M. Hoque, Soil Resources Development Institute

115-10 213b Soil Mapping Unit Discrimination by Using Remote Sensing in Varamin Area of Iran. Fereydoon Sarmadian* and Kamran Moravej, Soil Science Dept Faculty of Soil and Water, Univ of Tehran

115-11 214a Predicting Soil Moisture in the Field from Amplitude Temperature. Abdul Wahab A. R. Al-kayss1, Abdullah Najim Al-Ani1 and Ali Abbas Al-Ka-raghouli1, (1)Ministry of Agriculture, (2)Solar Energy Research Center

115-12 214b Total Heavy Metal Spatial Patterns in Calcareous and Saline Soils of Khuzestan Alluvial Plain, Southwest of Iran. Amir H. Charkhabi* Sr., Soil Conservation and Watershed Management Research Institute of Iran

115-13 215a Geographic Mapping and Analysis Using GIS of Study Areas in Bahariya Oasis, Egypt. Mohamed Abbas Rashied, Soils & Water Use Dept, National Research Centre (NRC), Khaled Mohamed Darwish*, Soils & Water Use Depy, National Research Centre (NRC), and Reinhard Zöltiu-Moëller, Institut für Geographie und Geologie

115-14 215b Field-scale Spatial Relations Between Surface Topography, Electrical Conductivity, and Superficial Aquifer Ion Concentrations. Francis Casey and Nathan E. Derby, North Dakota State Univ


115-16 216b Mechanism of Nickel Accumulation by Ricinus communis Plant Species. Malarkodi Maruthan* and Krishnasamy Ramasamy, Tamil Nadu Agricultural Univ


115-19 309a A Comparison of Model-Predicted Evapotranspiration by the SWAT Model With Real and Modeled Meterology. Julie Earls*, Univ of South Florida–St. Petersburg, Geospatial Analytics Lab and Barbara Dixon, Univ of South Florida–St. Petersburg, Dept. of Environmental Science & Policy & Geography

115-20 309b Regional-Scale Spatial Patterns of Soil C, N, and Water Properties from Detailed Soil Surveys Combined with Soil Characterization Data for Sites in Western Oregon, USA. Jeffrey S. Kern*4, Mark Johnson1, Robert B. McKane2 and Jana E. Compton2. (1)Dynamic Corp for US EPA, (2)U.S. EPA-Natl. Health & Envl.Effects

115-21 310a Modeling P Dynamics and Crop Responses in Contrasting Soils of the Tropics. Robert J. Delve*, TSBF-CIAT Zimbabwe and Merv Probert, CSIRO Sustainable Ecosystems

115-22 310b Scale- and Location-Dependent Correlations of Soil Strength and Wheat Biomass. M.J. Pringle and R. Murray Lark*, Environmetrics Group, Bioinformatics and Biomathematics Division, Rothamsted Research


115-24 311b A New Perspective to Diffuse Reflectance Spectroscopy: A Wavelet Approach. Yufeng Ge1, Cristina Morgan2 and J. Alex Thomson1, (1)Texas A&M Univ, Dept of Biological and Agricultural Engineering, (2)Texas A&M Univ, Dept of Soil & Crop Sciences

115-25 312a Soil Information for Germany: The 2006 Position. Wolf Eckelmann*, Federal Institute for Geosciences and Natural Resources (BGR)

115-26 312b Distribution of Soils in the Landscape of the Distrito Federal, Brazil. Marilusa P. C. Lacerda* and Inara O. Barbosa, Univ of Brasilia

115-27 313a Increasing Accuracy of the Hungarian National 1:25,000 Scale Spatial Soil Information System. László Pásztor* and József Szabó, Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences


115-29 314a Spatial Variability of Arsenic in Water, Soil and Rice in a Contaminated Area of Bangladesh. Zia Uddin Ahmed4, John M. Duxbury1, Stephen De-Gloria1 and Golam M. Panaullah2, (1)Cornell Univ, (2)CIMMYT Bangladesh

115-30 314b Household Level Influence on Spatial Variability of Soil Properties in Western Kenya. Jane J. Kap-kiyai1, Stephen D. Degloria1, John M. Duxbury1, Alice N. Peil1, Bernard Vanlauwe2 and David M. Mbogua1, (1)Cornell Univ, Crop and Soil Sciences Dept, (2)Tropical Soil Biology and Fertility Institute of CIAT, (3)World Agroforestry Centre

115-31 315a Runoff Potential Risk Map Based on CN Method in Korea. Suk Young Hong*, Chang Ho Jung, Yi Hyun Kim, Yeong Sang Jung* and Han Kang Kwak*, (1)National Institute of Agricultural Science and Technology, RDA, (2)Kangwon National Univ

115-32 315b Clay Mineralogical Composition Map of Paddy Soils in Miyagi Prefecture, Northeastern Japan. Oki Sano*1, Toyoki Ito1, Tadashi Ando1, Masami Nanzuyo1, Genya Saito1, Kimmio Saito1 and Masahiko
Integrating Soil Survey, Research, and Outreach

115-44 412a The Use of Soil Mapping with the Aim of Improving Farming Practices in a Region of Crete, Greece. Evangelia Vavoulidou1,2, Elisabetha Avermids1, Pericles Papadopoulos2, Athanasios Charoulis2, Theodoros Karyotis2 and Roustim Soulis1, (1)Soil Science Institute of Athens, NAGREF, (2)Inst.of Soil Mapping and Classification, (3)Agricultural University of Athens, Dep.of Nat. Resources Devel. and Agr. Engineering


115-47 413b Gradient Distribution of Four Invader Plants in Relation to Soil and Other Factors in California (Ne Spain), E. Sobrino1, Mario Sanz Elorza2, Elias D. Dana Sanchez1, Jose Miguel Soriano Perez1 and Alberto Gonzalez Moreno2, (1)Departamento de Producción vegetal: Botánica y Protección Vegetal, Univ. Politécnica de Madrid, (2)Ministerio de Hacienda, (3)Universidad de Almeria, (4)INA

115-48 414a Seronet- a Robust Algorithm to Fit Neural Network Models for Pedotransfer Functions. Carlos Alberto Alves Varella* and Marcos Bacis Ceddia, UFRJ

115-49 414b Effect of Organic and Inorganic Sources of Nutrients on Availability and Uptake of Major and Secondary Nutrients in Eastern Dry Zone of Karnataka, India. Veerabhadriah and Chamegowda Badrinath*, UAS,GKVKBangalore-560065

115-50 415a Development of the Geographic Information System on Soils of European Russia for Modeling Carbon Dynamics in Agricultural Lands. Polina V. Koroleva* and Dimitry I. Rukhovich, V.V. Dokuchaev Soil Science Institute

115-51 415b Estimating Carbon Stocks at the Field-Management Scale. Michael L. Thompson1, Teresita Chuang-Ona1, Jessica Hutchison2 and Ya-Fang Wu1, (1)Iowa State University, (2)Cameron University, (3)University of Connecticut


115-53 416b Artificial Neural Network to Map Spatial Variability of Field Capacity. Marcos Bacis Ceddia**, Carlos Alberto Alves Varella1, Sidney Vieira2 and Francisco de Assis de Carvalho Pinto1, (1)UFRJ, (2)Instituto Agronômico, (3)UV

115-54 417a Spatial Distribution of Nutrients and Status of Fertility in Arable Greek Soils. Theodore Karyotis1, Th Mitisimpos2, M Tziovulekas2 and A Drosos2, (1)National Agriculture; Research Foundation, (2)National Agricultural Research Foundation, (3)Institute for Soil Mapping and Classification


115-36 318a A Soil Landscape Modeling Framework for Soil Survey Updates: A Case Study in Southeastern Ohio. Brian Slater* and Sakhi Kumar Subburayalu, School of Natural Resources


115-39 410a Electromagnetic Mapping of Salinity and Boron for Site-specific Seeding Management in Cotton Fields. Florence Cassel S.*, California State Univ at Fresno

115-40 410b Integrating Soil Survey, Research, and Outreach in California’s National Parks. Dylan Beaudette1, Anthony O’Green1, Kenneth Oster2, Valerie Bullard1, Susan Southard1, David W. Smith1 and Pete Biggamm2, (1)Land, Air & Water Resources, Univ of California, (2)Land, Air & Water Resources, Univ of California, (3)USDA-NRCS, (4)USDA Natural Resources Conservation Service, (5)NPS

115-41 411a High-resolution Soil Survey Using SoilLM Based on 1-foot DEM. James E. Burt*, University of Wisconsin-Madison, Qiqiang Zhu, Department of Geography, University of Wisconsin-Madison, Duane Simonson, USDA-Natural Resources Conservation Service, Tom Hunt, University of Wisconsin-Platteville Pioneer Farm and A.-Xing Zhu, State Key Laboratory of Resources and Environmental Information System, Institute of Geographical Sciences and Natural Resources

116-4 121b Spatial Variation of Available Soil Phosphorus in Microplot Rainfall Simulation Studies. Murray R. Hart* and Peter S. Cornish, Univ of Western Sydney


SESSION NO. 116
Convention Center, Exhibit Hall A, Second Floor

1.0PW Synthesis, Modeling, and Applications of Disciplinary Soil Science Knowledge for Soil-Water-Plant-Environment Systems—Poster

Convenor: Lajpat Ahuja, USDA-ARS, Great Plains Systems Research Unit


116-3 121a Using Soil Survey to Evaluate the Impact of Agricultural Land on Natural Water Resources. Moustafa A. Elrashidi* and Dewayne Mays, USDA/NRCS, National Soil Survey Center

116-4 121b The Analytical Solutions of Three Dimensional Heat Equation for Thermal Pulse Method. Gang Liu* Sr., China Agricultural Univ

116-5 122a Monte Carlo Calculation of a Properly Paraffin Cube for Moisture Measurement Near the Soil Surface by Neutron Probe. Ali Asghar Mowlavi, Physics Dept, School of Sciences, Tarbiat Moallem Univ of Sabzevar and Mohammad Hadi Hadizadeh Yazdi*, Ohio Univ

116-6 123a Study of Migration of Polluting Substances in Soil on the Basis of Mathematical Modeling. F. Mikailsoy*, Univ of Selcuk and A.I. Mamedov, USDA-ARS, National Soil Erosion Research Laboratory


116-10 125b Numerical Approach Using Binary Transport Theory in Soil Water Evaporation. Yukari Imoto*1,2, Yu Amemiya1, Sunhoon Lee1 and Isao Machida2, (1)Graduate School of Science and Technology, Chiba Univ, (2)Japanese Institute of Landscape Architecture, (3)National Institute of Advance Industrial Science and Technology

116-11 126a Simultaneous Measurement of Water Flux Density Vector and Thermal Properties of a Soil. Akira ENDO*, National Institute of Industrial Safety, Construction Safety Research Division and Michihiro Hara, Iwate Univ, Faculty of Agriculture

116-12 126b Water Uptake: a Moving Boundary Model. Jorge L. Blengino1, Juan C. Reginato1,2 and Domingo A. Tarzia2, (1)Univ Nacional de Rio Cuarto, (2)Univ Austral


116-14 127b An Inverse Method to Estimate the Source-Sink Term of Convection-Dispersion Equation. Jianchu Shi1, Qiang Zuo1,2 and Renduo Zhang2, (1)China Agricultural Univ, (2)Univ of Wyoming

116-15 220a Application of System Simulation Modeling in Pest Management. Subhash Chander, Unit of Simulation & Informatics, Indian Agricultural Research Institute, New Delhi, India and L. R. Ahuja*, USDA-ARS-GPSR

116-16 220b Sensibility of Soil Moisture to Soil Thermal Diffusivity in a Typical Semi-Arid Narrow Soil. Alain M.B. Passerat de Silans* Sr., Lovania M. Werlang and Mauricio C. Goldfarb, Univ federal da Paraíba–Brazil

116-17 221a Crop Growth Models. Nozar Ghaherezan*, Univ of Tehran

116-18 221b Combining Simultaneous Heat and Water (SHAW) with Photosynthesis Model to Simulate Water and CO2 Fluxes Over Wheat Canopy. Qiang Yu*, Institute of Geographical Sciences and Natural Resources Research and Gerald Flerchinger, USDA-ARS Northwest Watershed Research Center


116-20 222b The Determination of In-Situ Soil Thermal Diffusivity: The Case of a Narrow Semi-Arid Soil. Alain M.B. Passerat de Silans* Sr., Lovania M. Werlang and Mauricio C. Goldfarb, Univ federal da Paraíba–Brazil


116-22 223b Soil Change in Southeastern USA Ultisols. Joey N. Shaw1*, Iyasu Fesha1, D. Wayne Reeves3, C. Wesley Wood1, Yucheng Feng1 and M. Lee Norfleet5, (1)Auburn Univ, (2)Ministry of Ag Res & Human
Res, (4)Dept of Agronomy and Soils, (5)USDA NRCS RIAD

116-23 224a Modeling Crop Yield with Combined Multi-Scale Soil Data and Remote Sensing Observations. Xianzeng Niu1, Eric W. Warner and Gary W. Petersen, Penn State Univ

116-24 224b Regional Estimation of Nitrate Leaching and Ground Water Pollution with the Land Resources Information System SLISYS-Neckar. Thomas Gaiser* and Heike Weippert, Univ of Hohenheim

116-25 225a Postagrogenic Transformation and Changes in the Water Balance of Loamy Soils under Spruce Plantation and Fallow in the Southern Taiga Zone. Sergei F. Khokhlov*, V.V. Dokuchaev Soil Science Institute

116-26 225b Back to the Tortuosity and Corelation Function of Mualem (1976). Yechekzel Mualem* and Arkadi Berezkin, Hebrew Univ of Jerusalem, Faculty of Agriculture, Food and Environmental Sciences


116-28 226b The Canadian Agri-Environmental Indicators for Nitrogen: Residual Soil Nitrogen and the Risk of Water Contamination by Nitrates-N, Craig F. Drury81*, Jingyi Yang1, Reinder DeJong1, Xueming Yang1, Ted Huffman1 and D. Keith Reid2, (1)Agriculture & Agri-Food Canada, (2)OMAF

116-29 227b Electro-tropism in “Soil-Plant” System. Anatoly Pozdnyakov, Moscow State Univ, Larisa Pozdnyakova*, RiceTec, Inc. and Gennady Fedotov, Moscow State Univ of Forest

116-30 319b Monitoring Tillage Effects on Soil Water Dynamics Using Automated Time-Domain Reflectometry, Robert C. Schwartz*, R. Louis Baumhardt and Steven R. Evert, USDA-ARS


116-32 320b Spatial and Temporal Variance of Biomass Development. Ole Wendoth1*, Dennis Egli1, K. Christian Kersebaum2 and Donald R. Nielsen1, (1)Univ of Kentucky, (2)Institute for Ecosystem Modelling, (3)Univ of California, Dept LAWR Hydrologic Science

116-33 321a Web-Based Meteorological/Soil Profile Data Dissemination and Visualization. Teferi Tsegaye81*, Mezemir Wagaw1, Marius Schamschula1, Wubisbet Tadesse1, Robert Metz1, Tommy Coleman1 and Garry L. Schaefer21, (1)Alabama A&M Univ, (2)USDA-NRCS

116-34 321b Adapting Agricultural Practices in the Western Interior of South Africa to Optimize Water Harvesting for Crop Production. Josias Eduard Hoffman1, Stellenbosch Univ

116-35 322a The Relationships Between the Organically-Bound Iron in the River Water and the Environmental Factors of Watershed. Masahiko Saigusa1, Daisuke Kunii21, Genya Sat01 and Toyoaki Ito1, (1)Tohoku University, (2)Tohoku University


116-37 323a Temporal Effects of N Source and Timing of N Fertilization on 15N of Chinese Cabbages and Soil. Seok-In Yun1, Hee-Myong Ro1, Eui-Yong Yun1 and Woo-Jung Choi2, (1)Dept of Applied Biology and Chemistry, School of Agricultural Biotechnology, Seoul National Univ, (2)Dept of Biosystems and Agricultural Engineering, Institute of Agricultural Science and Technology, Chonnam National Univ

116-38 323b Nitrogen Rates Affected Biomass Production and N Uptake of Chinese Cabbages under Elevated Atmospheric CO2 and Temperature. Seok-In Yun1, Hee-Myong Ro1, Woo-Jung Choi2, Jong-Seo Choi3 and Young-Jun Nam11, (1)Dept of Applied Biology and Chemistry, School of Agricultural Biotechnology, Seoul National Univ, (2)Dept of Biosystems and Agricultural Engineering, Institute of Agricultural Science and Technology, Chonnam National Univ

116-39 324a Assessing the Impact of Spatial Variability of Soil and Vegetation on Catchment Water Balance – A Case Study in Simmons Creek Catchment. Enli Wang1, Hamish Cresswell and Mark Glover, CSIRO Land and Water

116-40 324b Temporal Effects of Soil Moisture Tension and Salinity on Carbon Isotope Composition During Carbon Assimilation in Lettuce and Young Radish. Hee-Myong Ro1, Young-Dae Choi2, Seok-In Yun1, Jong-Seo Choi31 and Jae-Min Kim1, (1)Dept of Applied Biology and Chemistry, School of Agricultural Biotechnology, Seoul National Univ, (2)Yeongnam Agricultural Research Institute, NICS, RDA

116-41 325a An Empirical Test of Nitrogen Saturation in the Understory of the Catskill Mountains of New York. Anthony S. Eallonardo Jr.1, Donald J. Leopold1, Gregory Lawrence2 and Laura A. Heath1, (1)State Univ of New York College of Environmental Science and Forestry, (2)U.S. Geological Survey

116-42 325b Natural Abundances of Crop and Soil N Can Evaluate the Contribution of N Source to Crop N. Hee-Myong Ro1 and Seok-In Yun, Dept of Applied Biology and Chemistry, School of Agricultural Biotechnology, Seoul National Univ

116-43 326a Active Learning: International Agriculture Using the Internet as a Teaching Tool in Brazil. Rosa GUEDES*, Philadelphia Univ

116-44 326b Linking Dynamic and Chemical Representations of Soil Carbon: Carbohydrates as a Case Study. Delphine Derrien81*, Christine Marol2 and Jerome Balesdent1, (1)Laboratoire Sol et Environnement, INPL-ENSAIA, (2)Laboratoire d'Ecologie Microbienne de la Rhizosphere, UMR 6191

116-45 327a Soil Climate Regimes of West Virginia. T.M. Prescott1, James Thompson2, John Sencindiver2, John C. Drohan1, Brenda Buck1 and Douglas Merkler2, (1)USDA-NRCS, MLRA 13 Region, (2)West Virginia Univ, (3)USDA-NRCS–MLRA Region 13, (4)USDA-NRCS–NGDC

116-46 327b Gypsumile or Extremophile? A Case Study Examining the Relationship between Gypsum Soils and the Rare Species that Occur on Them. Patrick Drohan1*, Brenda Buck1 and Douglas Merkler2, (1)Univ of Nevada, Las Vegas, (2)USDA NRCS

116-47 419a Effective Soil Hydraulic Properties at the Landscape Scale and beyond. Jianting Zhu1*, Binayak Mohanty* and Narendra Das2, (1)Univ of Nevada, Las Vegas, (2)Desert Research Institute, (2)Texas A&M Univ

116-48 419b An Inexpensive and Simple Method to Demonstrate Water Infiltration and Water-Holding Capacity in the Field and Classroom. Susan E. Samson-Liebig1, Kristine A. Nichols2 and Mark A. Liebig2, (1)USDA-NRCS, (2)USDA-ARS
116-49 420a Integration of the Explicit Root Growth Model SIMROOT with a Canopy Crop Growth Model. Raoul Jaramillo and Jonathan P. Lynch*, Pennsylvania State Univ

116-50 420b Phosphorus Losses in a Ditch-Drained Farming System in the Delmarva Peninsula. Arthur L. Allen*1, Peter Kleinman2, Andrew Sharpley2, Peter Vadas2 and Brian Needelman3, (1)Univ of Maryland Eastern Shore, (2)USDA Agricultural Research Service, (3)Univ of Maryland

116-51 421a Using the Riparian Ecosystem Management Model to Determine when Vegetated Filter Strips Are Sources or Sinks for Phosphorus. Jennifer K. Gilbert*1, J. Thomas Sims1 and R. R. Lowrance2, (1)Univ of Delaware, (2)USDA-ARS S.E. Watershed Res. Lab.

116-52 421b An Improved Agricultural System Model for Space-Time Simulation of Agricultural Landscape Variability. James C. Ascoff II1, L. Ma1, Timothy Green1, Gerald Flrchinger2, Gregory S. McMaster1, Japet Ahuja1 and Bruce Vandenberg1, (1)USDA-ARS-NPA, Great Plains Systems Research Unit, (2)USDA-ARS Northwest Watershed Res. Center

116-53 422a Using Dynamic Crop Simulation Models and Statistical County Yield Estimates to Determine the Spatial and Temporal Variability of Peanut Yield. Axel Garcia y Garcia2, Larry C. Guerra, Joel Paz and Gerrit Hoogenboom, The Univ of Georgia

116-54 422b Simulating the Soil Organic Carbon Dynamic for Different Crop Rotations in Southwest Burkina Faso. Cecilia M. Tojo Soler*, The Univ of Georgia, Vincent Bado, Inera, McNair Bostick, Univ of Florida, Gerrit Hoogenboom, Univ of Georgia and James Jones, University of Florida


116-56 423b A Spatially Referenced Agricultural Decision Support Tool (ADST) for Irrigated Wheat and Maize. Deli Chen*, Yong Li, Robert White and Robert Edis, The Univ of Melbourne

116-57 424a Defining and Measuring Soil Quality and Health in Intensively Managed Turfgrass Systems. Anthony Koski* and Yaling Qian, Colorado State Univ


116-59 425a Effect of Application of Composted Cattle Manure on C4 Leaching from Unpolluted Paddy Fields. Kaoru Abe1, Saeko Kaburagi Yada3, Takeshi Ota2, Tetsuya Ishikawa2 and Motohiko Ishida2, (1)National Institute for Agro-Environmental Sciences, (2)National Agricultural Research Center

116-60 425b Determination of the Behavior and the Transport Parameters of Chromium in Soil-Water Systems. Imre Czinkota*1, Ibrahim Issa2, Gabriella Rétháti2 and Balázs Kovács2, (1)Szent Istvan Univ, Dept of Soil Science and Agricultural Chemistry, (2)Szent Istvan Univ, (3)Univ of Szeged, Dept of Mineralogy, Geochemistry and Petrology

116-61 426a A Functional Crop Growth Model to Reveal Soil-Water-Plant-Environment Interactions under Different Climatic, Edaphic and Management Conditions in Tropical Cropping Systems. Ann Verdoordt* and Eric Van Ranst, Ghent Univ, Laboratory of Soil Science

116-62 426b Evaluating the Proportion of Nitrified N Emitted as N2O, under Unsaturated and Saturated Conditions, Using 15N Tracers. Olivier Mathieu*, Jean Lévêque, Catherine Hénault, Marie-Jeanne Milloux, Francis Andreux and Elise Baujard, UMR 1229 Microbiologie et Géochimie des Sols

SESSION NO. 117

1.0WA Soil Geochemical Patterns at Regional, National, and International Scales—Poster

Convenor: David Smith, U.S. Geological Survey

117-1 128a Geochemical Signatures From Within and Around Old Farms. Donald A. Davidson*, Univ of Stirling, Clare Wilson, Univ of Stirling and Malcolm Cresser, Univ of York


117-3 129b Geochemical Landscapes of Alaska. Bronwen Wang1, Larry P. Gough1, David B. Smith*1 and Nils Gustavsson1, (1)U.S. Geological Survey, (2)Geological Survey of Finland


117-5 130b Element Survey of Wisconsin, USA, Soils. Zhuo Zhang*1, Philip Helmke2 and Cynthia Stiles2, (1)Univ of Wisconsin, (2)Univ of Wisconsin

117-6 131a Contamination Pattern of Soils and Surface Water on Vicinity of Abandoned Metalliferous Mine in Southeastern Part of Korea. Eul-Soo Yun*1, Sung-Hak Park 2, Ki-Yeol Jung 1, Jae-Sung Lee1, Je-Yeon Ko1 and Yeon-Kyu Park1, (1)Yeongnam Agricultural Research Institute, (2)Chengdo Myeong Agricultural Cooperative, (3)Miryang National Univ


117-8 228b Cost-effective Sampling of Regional Soil Chemistry. Dennis R. Helsel*, Barbara C. Ruddy and Martin Goldhaber, U.S. Geological Survey

117-9 229a Distribution of Soil Organic Carbon and Total Nitrogen in Molisol in the Northeast of China. Xie Hongtu* and Zhang Xiaodong, Institute of Applied Ecology, Chinese Academy of Sciences

117-10 230a Sediment Source Identification in an Urban Watershed. Olivia H. Devereux*1, Brian Needelman1, Karen L. Prestegaard2, Allen Gellis3 and Jerry Ritchie3, (1)Univ of Maryland, (2)Univ of Maryland, (3)USGS, (4)ARS-BARC-HRSL

117-11 230b Geochemistry and Morphology of Soils in the
Southern Basin and Range Province, Trans-Pecos, Texas, Susan Casby-Horton*, USDA-NRCS, Melanie A. Barnes, Geosciences Dept., Texas Tech Univ and B.L. Allen, Texas Tech Univ

SESSION NO. 118
Convention Center, Exhibit Hall A, Second Floor
1.0WB Wetlands: Science and Management—Poster
Convenor: K. Ramesh Reddy, Univ. of Florida, Soil and Water Science Dept.

118-1 231b Space-time Trajectories of Soil Total Phosphorus in a Large Subtropical Wetland, Gregory L. Bruland*, Univ of Florida, IFAS, Todd Z. Osborne, Univ of Florida, IFAS, K. Ramesh Reddy, Univ of Florida, Soil and Water Science Dept, Sabine Grunwald, Soil & Water Science Dept, Univ of Florida, South Florida Water Management District and William F. DeBusk, Escambia County Engineering Dept


118-4 234a Feasibility of Using Ornamental Plants to Remove Nutrients From Treated Municipal Wastewater in Constructed Wetlands, Zhenhua Zhang*, Zed Rengel1 and Kathy Memyen1, (1)Soil Science and Plant Nutrition, The Univ of Western Australia, (2)Syrinx Environmental Pty Ltd

118-5 330a An Overview of Land Use and Change Proximate to Wetlands and Its Management Implications around the Great Lakes, Yamille Cirino*, USEPA Great Lakes National Program Office and Karen Rodriguez, USEPA Great Lakes National Program Office (G17J)

118-6 330b Effect of Forest Fire on CO2 and CH4 Fluxes from Soil, Nishina N. Kazuya*, Chisato Takenaka1 and Ishizuka S. Shigehiro2, (1)Nagoya Univ, (2)Forestry and Forest Product Research Institute

118-7 331a Effect of Time, Number and Tools of Second Tillage on (Juncus Sp.) Weed Population in Paddy Field North of Iran, Meysam Tamimi1, Mohammad Reza Ardkani2, Ali Mohades1, Mojtaba Ardakani1 and Mohammad Mehdi Sharifi2, (1)Islamic Azad Univ-Karaj Branch, (2)Nuclear Research Center for Agriculture and Medicine-Atomic Energy Organization of Iran, (3)Rice Research Institute/Iran, (4)Rice research institute/Iran

118-8 331b Transformation of Humus Substances of Locally Hydromorphic Chernozems of the South of Russia, Svetlana A. Tischenko* and Olga S. Bezuglova, Rostov State Univ

118-9 332a Sustainability to Waterflooding of Biological Properties of Different Chernozems of Western Ciscaucasia, Vera I. Strelikova* and Kamil Sh. Kazyev, Rostov State Univ

118-10 332b Clay Mineralogy and Morphology of some Wetland Soils from the Ganges Delta in Bangladesh, Mohammad Sultan Hussain*, Mohammad Jashim Uddin* and Soheli Ferdous*, (1)Univ of Dhaka, Dept of Soil, Water and Environment, (2)KMP, Khulna, Bangladesh

118-11 333a Parameterized Soil Chemical Properties for Evaluating Methane Production from Rice Paddies, Weiguo Cheng*, Hiroko Akiyama2, Seiichi Nishimura2, Shigeto Sudo2, Kazuyuki Yagi2, Anne Hartley1 and J. Patrick Megenvalg1, (1)Florida International Univ, (2)Natl Atl. Inst for Agro-Env. Sci., (3)Smithsonian Environmental Research Center

118-12 333b Interactions of Mycorrhizal Fungal Assemblages with Plants from a Florida Wetland, David Sylvia*, Penn State Univ and Joannis Iapalantis, Univ of Florida

118-13 334a Composition and Dynamics of Methanogenic Archaeal Community in Japanese Paddy Field Soils, Takeshi Watanabe*, Makoto Kinumura and Susumu Asakawa, Graduate School of Bioagricultural Sciences, Nagoya Univ

118-14 334b Soil Formation on Clay Limnoglacial Plains of North West Russia, Natalia N. Matinian*, Saint Petersburg Univ

118-15 430a Performance and Microbial Assessment of an Artificial Wetland, Lesley A. Spokas*, Peter L.M. Veneman and Stephen C. Simkins, Univ of Massachusetts

118-16 430b A Spectrophotometric Method for Aluminium in Histosols, Lucila Helena C. Anjos* Sr., Adierson Gilvani Ebeling Jr., Daniel V. Perez2, Gustavo Souza Valladares Jr.1 and Marcos Gervasio Pereira Jr.1, (1)UFRRJ Soils Depto, (2)UFRRJ, (3)Centro Nacional de Pesquisa de Soios/EMBRAPA, (4)Embrapa Monitoramento por Satélite

118-17 431a Effect of dPAO and PAO on Treatment of Biological Nitrogen and Phosphorus of Sewage in Constructed Wetland, Dong Cheol Seo1, In Jae Cho1, Lu Yuan1, Ju Sik Cho2, Hong Jae Lee3 and Jung Soo Heo4*, (1)Division of Applied Life Science, Gyeongsang National Univ, (2)Dept of Biological Environment, Sunchon National Univ, (3)Dept of Environmental Engineering, Jinju National Univ

118-18 431b Optimum Conditions of dPAO in Constructed Wetland by Natural Purification System for Treatment of Biological Nitrogen and Phosphorus, Dong Cheol Seo1, In Jae Cho1, Lu Yuan1, Ju Sik Cho2, Hong Jae Lee3 and Jung Soo Heo4*, (1)Division of Applied Life Science, Gyeongsang National Univ, (2)Dept of Biological Environment, Sunchon National Univ, (3)Dept of Environmental Engineering, Jinju National Univ

118-19 432a Effects of Short- and Long-Term Water Level Drawdown on Litter Quality in Peatlands, Petra Vávrová*1, Marjut Karsisto2, Veikko Kitunen2 and Raija Laibo1, (1)Peatland Ecology Group, Dept of Forest Ecology, Univ of Helsinki, (2)Finnish Forest Research Institute, Vantaa Research Centre

118-20 433a Subaqueous Landforms and Soils of Chincoteague Bay, Maryland, USA, Danielle M. Balduf* and Martin C. Rabenhorst, Univ of Maryland

118-21 433a Redox Effects on Phosphorus Release Following Soil Deposition in a Riparian Wetland, W. Dean Hively*, Rebecca Blank2, Greg McCarty1, Martin Rabenhorst*, Randy Rowland3 and Omotomike Ogunwumiju1, (1)USDA-ARS Hydrology and Remote Sensing Laboratory, (2)Univ of Maryland

118-22 433b Subaqueous Soils, Water Quality, and Estuary Health, Margot K. Payne* and Mark H. Stolt, Univ of Rhode Island

118-23 434a The Physiochemical Controls on Selenium Release in Seasonally Flooded Soils, Lindsay A.
SESSION NO. 119
Convention Center, Exhibit Hall A, Second Floor

1.1A Hydropedology: Fundamental Issues and Practical Applications—Poster

Convenor: Henry Lin, Penn State University

119-1 132a Measuring Water Table Depth in Loamy Soils with Relic Features. Edgar Mersiovsky*1, Reed Cripps1, Doug Wysocki2 and Cathy Seybold3, (1)USDA-NRCS, (2)NRCS-USDA, (3)USDA/NRCS, National Soil Survey Center

119-2 133b Seasonal Water Table and Temperature Relationships in Glaciomarine Soils of Eastern Maine. David E. Turcotte* and David E. Wilkinson, USDA–Natural Resources Conservation Svc


119-5 135a Measuring Soil Bulk Density Using Vibration-induced Conductance Fluctuation (VICOF). Andreea Sz. Kishné*1, Cristine L.S. Morgan1 and László B. Kish2, (1)Texas A&M Univ, Dept of Soil and Crop Sciences, (2)Texas A&M Univ, Dept of Electrical and Computer Engineering

119-6 135b Effects of Sedimentation on Phosphorus Retention in Seasonally Submerged Wetland Soils. Jonathan Maynard*1, Anthony O’Geen1, Jaiyou Deng1, Neil Brauer2, Denise Tu2 and Randy Dahlgren3, (1)Univ of California, Davis, (2)Univ of California, Davis

119-7 136a Landscape and Soil Profile Development in a Disturbed Coastal Plain. Richard MacEwan*, Dept of Primary Industries

119-8 136b Earth’s Critical Zone and Hydropedology. Henry Lin*, Penn State Univ, Lawrence P. Wilding, Dept of Soil and Crop Sciences, Texas A&M Univ, Oliver Chadwick, Univ of California Santa Barbara, Gail Ashley, Rutgers Univ, and Stephen Burges, Univ. of Washington

119-9 137a Studies on the Use of Soil Water Retention Capacity Estimations to Prepare Soil Water Management Maps. Brigitta Tóth*1, András Makó2, Kálmán Rajkai2 and Péter Marth3, (1)Univ of Veszprém, Georgikon Faculty of Agriculture, (2)Research Inst for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, (3)Central Plant and Soil Protection Service

119-10 137b Effects on the Local Water Balance of Daily Soil Water Content Fluctuations in Semi-arid SE Spain. Luis Villagarcía*1, Ana Were2, Yolanda Cantón3, Francisco Fernández3, María José Moro4, Albert Sole-Benet5 and Francisco Domingo6, (1)Univ Pablo de Olavide, (2)Consejo Superior de Investigaciones Científicas, (3)Univ de Almería, (4)Univ de Alicante

119-11 138a Repeated Identical Top-soil Treatment and its Influence on Soil Hydrophysical and Microbiological Characteristic Changes. Svatošek Mátuľa4, Czech Univ of Agriculture in Prague, Dept. of Soil Science and Geology, Pavel Ruzek, Research Inst of Crop Production and Gabriela Mulhbachova, Research Inst of Crop Production

119-12 138b Soil Water Content Patterns in the High Plateau of Sierra De Gador (Almeria, SE Spain). Implications for the Local Water Balance. Yolanda Cantón1, Luis Villagarcía2, Albert Sole-Benet3, Francisco Domingo1, Juan Puigdefábregas2 and Sergio Contreras3, (1)Univ de Almería, (2)Univ Pablo de Olavide, (3)E.E.Z.A./C.S.I.C.

119-13 139a Estimation of the Soil Moisture Retention Curve (SMRC) using Pedotransfer Functions (PTF). Svatošek Mátuľa*4, and Kamila Spongrova, Czech University of Agriculture in Prague, Dept. of Soil Science and Geology

119-14 139b Relating Field Indicators of Hydric Soils to Saturation and Reduction in Sandy Soils. Gerren Lanier1, David Lindbo2* and Michael Vepraskas2, (1)Soil Science Dept North Carolina State Univ, (2)Soil Science Dept, North Carolina State Univ

119-15 232b Hydrological Control of Phosphorus Mobility in Altered Wetland Soils. Michael Litaor*, Tel-Hai College

119-16 233a Predicting Saturated Hydraulic Conductivity from Water Retention Data. Han Han* and Daniel Gimenez, Rutgers Univ

119-17 234b Effect of Wild Fire on Water Repellency of Sandy Forest Soils. Pavlo Dlapa*1, Ivan Simkovic1 and Ladislav Somsak2, (1)Dept of Soil Science, Faculty of Natural Sciences, Comenius Univ, (2)Dept of Soil Science, Faculty of Natural Sciences, Comenius Univ

119-18 235a Flooding on the Virgin River, USA: Impacts and Historic Perspective. Douglas Merkler*, USDA NCRS and Patrick Drohan, Univ of Nevada, Las Vegas

119-19 236a Effects of Organic Matter on New Redoximor-
Effects of Anthropogenic Disturbance on Riparian Soil Conditions. Adam Gray* and Martin C. Rabenhorst, Univ of Maryland

Identification of Parent Material of Soils along a Lithotoposequence in a Sedimentary Area using Particle-size Distribution and Mixing Equation. Céline Collin Bellier*, Dominique Arrouays*, Denis Baize*, Vincent Champdavonne*, Dominique King* and Jean-Pierre Rossignol*, (1)INRA, (2)INH.

Aeration in Grasslands. It Only Works Sometimes. Dorcas H. Franklin*, USDA ARS, J. Phil Campbell Sr., Natural Resource Conservation Center, Miguel L. Cabrera, Univ of Georgia and David Butler, Univ of Georgia, Crop and Soil Sciences

Effect of Relief on Soil Development: A Case Study of Two Toposequences in Northeast Thailand. Suphicha Thanachat**, Anchalee Sudhiprakan*, Irb Kheouruenromne* and Robert J. Gilkes*, (1)Dept of Soil Science, Faculty of Agriculture, Kasetsart Univ, (2)School of Earth and Geographical Sciences, The Univ of Western Australia

Simulation of Coupled Relationship Between Land Use and Groundwater Flow in the Western Arid Land of China. Chengyi Zhao*, Xinjiang Inst of Ecology and Geography, Chinese Academy of Science, Xi Chen Sr., Xinjiang Institute of Geography and Ecology, CAS and Minjiang Deng Sr., Dept of Water Resources of Xinjiang

Soil Moisture Temporal Patterns in a Forested Landscape. It Only Works Sometimes. Dorcas H. Franklin*, USDA ARS, J. Phil Campbell Sr., Natural Resource Conservation Center, Miguel L. Cabrera, Univ of Georgia and David Butler, Univ of Georgia, Crop and Soil Sciences

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Preliminary Study on Vertisols and Vertic Soils in Heilongjiang Province, NE China. Shannmei Wu*, Nanjing Agricultural Univ/Univ of California, Xainzhuo Long, Heilongjiang Water Conservancy and Hydropower Inst, Shengrong Xu, Nanjing Agricultural Univ and Qing Xu, Cotra Costa College

SESSION NO. 120
Convention Center, Exhibit Hall A, Second Floor

1.1B Site Disturbance: The Role of Soil Morphology in its Assessment—Poster

120-1 140a Use of Ground-Penetrating Radar to Assess Soil Heterogeneity. Eric Sucre* and Thomas Fox, Virginia Tech Univ


120-3 141a Applied Aspects of Studying the Holocene Evolution of Soil–Vegetation Complexes in the Middle Amur Region, the Far East of Russia. Marina I. Skripnikova* and Olga N. Uspenskaya, V.V. Dokuchaev Soil Science Inst

120-4 142a Morphology of Built Soils on Rehabilitated Bauxite Mines. Geoffrey Kew* and Robert Gilkes, Univ of Western Australia


120-6 240a Paleosols of Burial Hills and their Modern Natural Analogues. Roman V. Kuznetsov*, Vladimir S. Kryshchenko, Elena N. Karavaeva and Tatiana M. Magomedova, Rostov State Univ

120-7 240b Application of Geomorphological and Pedological Characteristics to a Plains Indian Archaeological Site. Crystal J. Frey****, Randall Miles* and William Raymond Wood**, (1)Univ of Missouri, (2)Univ of Missouri

120-8 241a Soil Structure Resulting from Earthworm Bioturbations and Soil Evolution in Landscape. Denis PIRON*, Christian Walter**, Daniel Cluzeau**, Guenola Pérès* and Stéphane Follain*, (1)University of Rennes 1, (2)INRA, (3)University of Rennes 1, (4)University of Rennes 1


120-10 242a Response of Soil Micro-structure to Land Use Shifting in the Loess Plateau of China. Xiubin He* Sr., Inst of Mountain Hazards and Environment and Guobin Liu, Inst of Soil and Water Conservation

120-11 242b Mapping of Micromorphometric Types of Pore Space in Loamy Soils. Elena B. Skvortsova* and Polina V. Koroleva, V.V. Dokuchaev Soil Science Inst


SESSION NO. 121
Convention Center, Exhibit Hall A, Second Floor

1.1C Soil Micromorphology, Archaeometry, and Archaeology—Poster

121-1 143b Characterization and Micromorphological Observations of Fe/Mn and Silicate Minerals in Okinawa and Brazilian Soils. Alexandra Pereira De Bakker*, Instituto Nacional de Pesquisas da Amazonia (INPA)

121-2 144a Root-Adhering Soil and Microstructure as Affected by Crop Species in a Volcanic Sandy Soil. Fernando De Leon-González***, Ma del Carmen Gutiérrez-Castorena*** and María del Carmen González-Chávez***, (1)Univ Autónoma Metropolitana-Xochimilco, (2)Colegio de Postgraduados
SESSION NO. 122

122-16 345b **Visualization Techniques in Soil Geomorphology.** Carolyn G. Olson* and William Effland, USDA-NRCS

122-17 346b **Pedologic Points and Geomorphic Space: Refining the Soil Map Unit Paradigm.** Ronald D. Tasker*, Cal Poly/USDA NRCS

122-18 347a **Spatial Variability of the Soil Properties of Mapping Units in Central Taiwan.** Bakhlaeva, Colegio de Postgraduados de la Universidad Autónoma de Madrid, Departamento de Edafología. Univ de Navarra and Jordi Garrell-Bloux Agricultural Univ, Geopedology Dept., (2)Catholic Univ of Louvain-la-Neuve, Unit of Environmetrics and Geomatics, (3)Univ de Barcelona

122-19 446a **Relationships Between Soil Properties and Envi-ronmental Biophysical Units in Milpa Alta, Central Mexico.** Jorge López Blanco Sr., Instituto de Geografía UNAM, Vela Correa Gilberto, Depto. El Hombre y su Ambiente UAM-X and Ma. de Lourdes Rodríguez Gamiño*, Instituto de Geografía UNAM

SESSION NO. 123

**Session Center, Exhibit Hall A, Second Floor**

1.2B **Soil System Behavior in Time—Poster**

Convenor: Peter Schad, Technical University

123-1 150a **Prediction of Climate Change Impact on Soil Properties (Example of Mexico).** Jouri Nikolskii Gavrilo*, Marcial Castillo-Alvare and Oktiabrina Bakhlaeva, Colegio de Postgraduados

123-2 150b **The Profile Development Index (PDI) of the Late-teritic River Terraces in Central Taiwan.** Heng Tsai*, Wen-Shu Huang*, Zeng-Yei Hseu* and Zueng-Sang Chen*, (1)Dep of Geography, National Cheng-Hua Univ of Education, (2)Dep of Environmental Science and Engineering, National Pingtung Univ of Science and Technology, (3)Dep of Agricul-tural Chemistry, National Taiwan Univ

123-3 151a **Indicators of Soil Degradation Processes on a Chernozem Field in Hungary.** Anita Gal*, Tamas Szegi*, Barbara Simon*, Balazs Szeder*, Erika Michel*, Etelka Tombucz*, Adam Zsolnay* and Junko Akagi*, (1)Szent Istvan Univ, Soil Science and Agrochemistry Dept, (2)Univ of Szeged, Dept of Colloid Chemistry, (3)GSF Institut für Bodenkologie

123-4 151b **Evolution Of Ecosystems Of The Central Siberia in the Upper Pleistocene (paleopedological data).** Galina A. Demidenko*, Krasnoyarsk State Agricultural Univ

123-5 249a **Common Features of the Soils of Forest Biogeoc-eences.** Vladimir F. Val’Kov*, Rostov State Univ


123-7 250a **Thirty-five Year Changes in Soil Mn, Zn, B, Cu, and Fe in Response to Forest Growth.** Jianwei Li*, Daniel Richter*, Arlene Mendoza* and Paul Heine*, (1)School of Environment and Earth Sciences, Duke Univ, (2)School of Environment and Earth Sciences, Duke University, (3)School of Environment and Earth Sciences, Duke University

123-8 250b **Aggregates Stability in a Removed Soil Undergo-ing a Recovering Process.** M.M. Taboada-Castro*, V. Do Nascimento*, M.C. Alves* and T. Taboada*, (1)Univ de A Coruña, (2)Univ Estadual Paulista

123-9 251a **Crop Rotation Systems to Sustainable Vegetable Production in the South of Uruguay.** Roberto Dacampo*, Claudio García*, Sebastián Casanova* and Armando Rabuffetti*, (1)National Research Inst of Agriculture of Uruguay, (2)National Research Inst of Agriculture of Uruguay

123-10 251b **Long-term Effects of Fertilization and Crop Rotation on Soil, Water and Air Quality.** Craig Drury*, Dan Reynolds*, Chín Tan*, Don W. McKenney* and Edward G. Gregorich*, (1)Agriculture & Agri-Food Canada, (2)Univ of Windsor

123-11 350b **Effect of Temperature and Moisture on the Rate of Nitrogen Mineralization, Microbial Activity and C:N Ratio in Soils.** Siva (Sivalingam) Sivakumar*, Jan McIvor, Steve Green, Iris Vogeler, Markus Deurer, Tessa Mills and Brent Climhier, HortResearch

123-12 351a **Impact of Sands and Gravels on Root Growth: Implications for Maize Seedlings.** Jayraju Nadimikert*, S.V.Univ

SESSION NO. 124

**Session Center, Exhibit Hall A, Second Floor**

1.2P Interdependency of Soils and Soil Scapes—Poster

Convenor: Peter Schad, Technical University

124-1 152a **New Technology and the NRCS Soil Survey Maintenance/Update Process in Abilene, Texas.** James Gordon* and Alan Stahnke, USDA-NRCS


124-3 153a **3D Soils Cover Models and Their Use for Pedo-logical and Environmental Studies.** Jordi Garrigós*, Dept de Química y Edafología. Univ de Navarra, David Elustondo, Dept de Química y Edafología. Univ de Navarra and Jaume Bech, Univ de Barcelona

124-4 153b **Soil Mapping Criteria to Predict Geochemical Background of Trace Elements in Soils from Local to Regional Scales.** Gilles Colinet*, Patrick Bogaert* and Laurent Bock*, (1)Gemblioux Agricultural Univ, Geopedology Dept., (2)Catholic Univ of Louvain-la-Neuve, Unit of Environment and Geomatics

124-5 252a **Human Activities, Soil Properties and Landscape Relations in Two Mountain Regions in Bulgaria.** Emiliya Velizarova*, Jaume Bech* and Maria Sokolovska* and Alejandro Lancas*, (1)Forest

124-7 253a Transformation of Parent Material (Mantle Loam and Moraine) Composition, Related to Soil Formation in the Upper Volga Region, Russia. Olga A. Samonova* and Elena N. Aseyeva, Faculty of Geography, Moscow State Univ

124-8 253b Redox Development in Soil Materials as Influenced by Time, Temperature, and Carbon Level. Rebecca A. Blue*1, Douglas D. Malo1, Thomas E. Schumacher1, James J. Doolittle2 and Jennifer J. Lund1, (1)South Dakota State Univ, (2)South Dakota Agricultural Experiment Station


124-10 352b The Soils Cover of the Volcanic Area from the Eastern Carpathians (Romania), Constantin Rusu1, Iulian Stanga2, Lilian Niacsu2, Iuliana Breban1 and Bogdan Rosca1, (1)Univ Al I Cuza, (2)Univ Al I Cuza

125-1 156a Effects of Converting Forest to Tea Garden on Soil Classification and Genesis: A Case Study in Guilan Province. Amir Bahrami*1, Mahmood Shabanpour* and Mehdi Aker1, (1)Guilan Univ, (2)Iran-Rash-Guilan Univ- Agricultural Faculty- Soil Sci. Group

125-2 156b Biological Weathering of Apatite and Mica in Calcaceous Goethitic Sandstone. Charles J. Everett*1, Dan F. Amos2 and Lee Daniels2, (1)Medical Univ of South Carolina, (2)Virginia Tech

125-3 157a Significance of the External Conditions in Salinized Soil Genesis. Tatiana N. Elizarova* Sr, Inst of Soil Science and Agrochemistry

125-4 157b Clay Mineralogy and its Relationship to Water Extract Composition for Soils from Different Environment in Humid Asia: Japan, Thailand, and Indonesia. Tetsuhiro Watanabe*, Shinya Funakawa1 and Takashi Kosakii, (1)Graduate School of Agriculture, Kyoto Univ, (2)Kyoto Univ

125-5 158a Quantitative Analysis on Soil Acidification and Organic Matter Dynamics in Humid Asia, Kazumichi Fujii*, Shinya Funakawa and Takashi Kosaki, Kyoto Univ

125-6 158b Experimental Simulation of Changes in Fine-Dispersed Minerals of the Mantle Loam under the Influence of Different Phytocenoses. Natalia P. Chizhikova*1, Irina A. Verkhovets1 and Alexander S. Vldychenskii2, (1)Dokuchaev Soil Science Institute, (2)Moscow State Univ


125-9 257a Imogolite-type Material in Podzols and Response to Forest Harvesting. Stephanie Grand*, Univ of British Columbia

125-10 257b Decade-scale Conversion to Non-allophanic Anthrosols with Secondary Succession. Paul McDaniel*1, Jason Jimenez*2, Jodi Johnson-Maynard1, Dennis Ferguson2 and Anita Falen1, (1)Univ of Idaho, (2)Univ of Idaho, (3)US Forest Service–Rocky Mountain Research Station

125-11 357a Balancing Watershed Level Soil Carbon Budgets Using Process-Level Measures. Matthew J. Richardson*, Univ of Rhode Island and Mark H. Stolt, Univ of Rhode Island

125-12 357b Site Quality Changes in a Volcanic Chronosequence at the Trans-Mexican Volcanic Belt. Victor Peña* and Christina Siebe, Instituto de Geología, UNAM

SESSION NO. 125

Contribution Center, Exhibit Hall A, Second Floor

1.3B Essence Diagnostic and Time-Scales of Natural and Human-Induced Pedogenic Processes—Poster

Convenor: Gan-Lin Zhang, Institute of Soil Science, Chinese Academy of Sciences

125-1 156a Effects of Converting Forest to Tea Garden on Soil Classification and Genesis: A Case Study in Guilan Province. Amir Bahrami*1, Mahmood Shabanpour* and Mehdi Aker1, (1)Guilan Univ, (2)Iran-Rash-Guilan Univ- Agricultural Faculty- Soil Sci. Group

125-2 156b Biological Weathering of Apatite and Mica in Calcaceous Goethitic Sandstone. Charles J. Everett*1, Dan F. Amos2 and Lee Daniels2, (1)Medical Univ of South Carolina, (2)Virginia Tech

125-3 157a Significance of the External Conditions in Salinized Soil Genesis. Tatiana N. Elizarova* Sr, Inst of Soil Science and Agrochemistry

125-4 157b Clay Mineralogy and its Relationship to Water Extract Composition for Soils from Different Environment in Humid Asia: Japan, Thailand, and Indonesia. Tetsuhiro Watanabe*, Shinya Funakawa1 and Takashi Kosaki2, (1)Graduate School of Agriculture, Kyoto Univ, (2)Kyoto Univ

SESSION NO. 126

Convention Center, Exhibit Hall A, Second Floor

1.3PA Anthrosols and Related Soils—Poster

126-1 258a Proposal of New Subgroups for Arents with Andic Characteristics. Marisa Tejedor*, Concepción Jiménez*, Silvia Armas-Espinol1 and Jose Manuel Hernández-Moreno*2, (1)Univ de La Laguna, (2)Univ de La Laguna

126-2 258b Properties and Classification of Volcanic Soils derived from the 10th Century Eruptive Deposits in Changbai Volcano Area, Northeast China. Hitoshi Kanno*1, Tsuyoshi Miyamoto2 and Masami Nanzo1, (1)Graduate School of Agricultural Science, Tohoku Univ, (2)Center for Northeast Asian Studies, Tohoku Univ

126-3 259a Soils Developed on Volcanic Materials in a Mountainous Environment (Mt. Teide, Canary Islands, Spain). Carmen D. Arbelo*1, J. Asterio Guerra1, Antonio Rodríguez-Rodríguez2, Bayanor Santana1, Jesús S. Notario1 and Juan L. Mora2, (1)Univ of La Laguna, (2)Univ of La Laguna

126-4 259b Variable Charge Soils Identified in a Cloud Forest. Maria Guadalupe Tenorio Arvvide*1, Joe B.
Dixon², Otilio A. Acevedo Sandoval³, Miguel A. Valera Perez⁴ and Gladys Linares Fleites⁵, (1)Benemerita Univ Autonoma de Puebla, (2)Texas A&M Univ, (3)Univ Autonoma del Estado de Hidalgo, (4)Benemerita Univ Autonoma de Puebla

126-5 260a Research of Charcoal Particles in Andosols around Lake Biwa, Central Japan. Jun INOUE*, Osaka City Univ

126-6 260b Heavy Metal Sorption by Andic and Non-Andic Soil Horizons Derived from Volcanic Parent Materials. Hartmut Tanneberg and Reinhold Jahn*, Martin-Luther-Univ Halle-Wittenberg

126-7 261a Water Dispersible Clay and Zeta Potential as Affected by Sodicity and Management Practices in Andic Soils. Silvia Armas-Espiné¹, Carlos M. Regalado² and Jose M. Hernandez-Moreno³*, (1)Univ de La Laguna, (2)ICIA

126-8 261b Classification of Heugag Soils in Jeju Island. Kwan-Cheol SONG*, National Institute of Agricultural Sciences and Technology

126-9 262a Characterization Of a Soil Catena on the Western Slope of The Plon Des Neiges Volcano (La Réunion). Frédéric Feder¹¹, Romain Olivier¹¹, Karine Alary¹¹ and Gérard Bourgeon¹², (1)CIRAD (French Agricultural Research Centre for International Development), (2)CIRAD (French Agricultural Research Centre for International Development)

126-10 262b Assessing the Risk of Soilborne Heavy Metals Leaching in an Andosol after Sewage Sludge Spreading. Emmanuel Doelsch¹, Frédéric Feder¹¹, Antoine Findeling¹, Yves Dudal³ and Hervé Saint Macary¹, (1)CIRAD (French Agricultural Research Centre for International Development), (2)INRA (French National Institute for Agricultural Research)

126-11 263a Modelling Mechanisms Controlling the Activity of Al³⁺ in Soil Solution of Volcanic Ash Soils Using Humic-ion Binding Model WHAM-Model V and Allophane Solubility. Yasumi Yagasaki*, Soil Classification Lab., Natural Resources Inventory Center, National Inst for Agro-Environmental Sciences, Jan Mulder, Dept. of Plant and Environmental Sciences, Norwegian Univ of Life Sciences and Masanori Okazaki, Graduate School of Bio-Applications and Systems Engineering, Tokyo Univ. of Agriculture and Technology

126-12 263b Icelandic Andosols and Vitrisols. Olafur Arnalds*, Agricultural University of Iceland

126-13 264a Volcanic Soil Resources of Europe: an EU funded research co-operation. Olafur Arnalds*, Agricultural University of Iceland, Francois Bartoli, Centre de Pédologie Biologique, Peter Buurman, Laboratory of Soil Science and Geology, Paul Quantin, Georges Stoops, Department of Geology and Soil Science, and Fabio Terribile, Instituto per lo studio dei problemi agronomici dell’Irrigazione nel Mosaic of nonallophanic Andosols, Umbrisols, and Cambisols on rhyodacite in the southern Brazilian highlands, Alexander Dümig*, Peter Schad, Mannath Kohok, Patrick Beyerlein, Wolfgang Schwimmer and Ingrid Kögel-Knabner, Lehrstuhl für Bodenkunde (Soil Science), Department of Ecology, Technische Universität München

126-14 358a A mosaic of nonallophanic Andosols, Umbrisols, and Cambisols on rhyodacite in the southern Brazilian highlands. Alexander Dümig*, Peter Schad, Mannath Kohok, Patrick Beyerlein, Wolfgang Schwimmer and Ingrid Kögel-Knabner, Lehrstuhl für Bodenkunde (Soil Science), Department of Ecology, Technische Universität München

126-15 358b Decomposition of leaf litter mixtures in volcanic chronosequences on Mount Etna, Sicily. Laury-Lee Shillam*, University of Stirling

126-16 359a The Current Status of the Soufrière Hill Volcanic Ejecta on the Andosols of Montserrat. Kamala N. Bhat⁴, Robert Taylor², Thilini D. Ranatunga¹, Zachary N. Senwo¹, Richard H. April³ and Bruce Jackson², (1)Alabama A&M University, (2)Department of Plant and Soil Science, Alabama A&M University, (3)Colgate university, (4)University of Massachusetts Lowell

126-17 359b Genesis of young volcanic soils from pyroclastic material in South Central Italy. Claudio Colombo⁴, Vincenzo Michele Sellitto¹, Giuseppe Palumbo¹ and Fabio Terribile¹, (1)Dip. SAVA Molise University, (2)DISSPA UNIVERSITÀ DI NAPOLI FEDERICO II

126-18 360a Vitrisols: a proposed WRB soil group. Olafur Arnalds*, Agricultural University of Iceland

126-19 360b Effect of phosphogypsum application on the chemical properties of Andisols. Eizichi Takasu¹¹, Shin Hiranuma¹, Fumiee Yamada¹, Yoshiaki Yoshida¹ and Masahiko Saigusa¹, (1)Field Science Center, Graduate School of Agricultural Science, Tohoku University / CO-OP Chemical Co., Ltd, (2)CO-OP Chemical Co., Ltd., (3)Field Science Center, Graduate School of Agricultural Science, Tohoku University

126-20 361a Soil aluminum toxicity in the Colombian coffee growing region: Sources of acidity and methods of determination. Maria E. Ortiz Escobar*, University of Hawaii, Raul D. Zapata, Universidad Nacional de Colombia and Siavosh Sadeghian, Centro Nacional de Investigaciones de Café, CENICAFE

126-21 361b Seasonal Dynamics of Organic Carbon Stocks and Forms in Andosols of the Canary Islands (Spain). Antonio Rodriguez-Rodríguez¹, Cecilia M. Armas, Carmen D. Arbelo, J. Astroizor Guerra, Bayanor Santana, Jesús S. Notario and Juan L. Mora, University of La Laguna

### SESSION NO. 127

Convention Center, Exhibit Hall A, Second Floor

1.3PB Arid Soils: Genesis, Geomorphology, and Geoarchaeology—Poster

Convenor: Sa’eb Khresat, Jordan University of Science and Technology

127-1 362a Distribution of Magnetic Susceptibility in Koglilouye Boyerahmad soils, Southwestern Iran. Hamidreza Owhiaie*, Yasouj Univ, Richard Heck, Univ of Guelph and Ali Abtahi, Shiraz Univ

127-2 363a Specificity of Chemical and Mineralogical Composition of Salts in Sor Solonchaks and Salt Lakes of the Kuldana Steppe, Western Siberia. Marina P. Lebedeva (Verba)², V.W. Dokuchaev Soil Science Institute and Olga V. Lopukhina, Faculty of Soil Science, Moscow State University

127-3 363b Mid-Miocene Nitrate Paleosols from the Atacama Desert: Implications for the Antiquity of the Atacama Desert. Jason A. Rech¹, Brian S. Currie³, Angela Cowan¹ and Gregory Michalski², (1)Miami Univ, (2)Purdue Univ

127-4 364a Genesis of the Hyperarid Soils of the Atacama Desert: Analogue for Mars?¹. Michael S. Howell¹, Brenda Buck², Jason A. Rech², Amy Brock² and Joel Prellwitz¹, (1)Univ of Nevada, Las Vegas, (2)Univ of Nevada, Las Vegas, (3)Miami Univ

127-5 458a Nitrate Concentrations in Atacama Desert soils and Their Implications for the Antiquity of the Atacama Desert. Joel Prellwitz¹, Jason Rech¹, Gre-
127-6 459a Influence of Volcanic Parent Material on Soil Properties in Murcia Province (SE Spain). Silvia Martínez-Martínez*, Ángel Faz Cano and Jose A. Acosta, Technical University of Cartagena


127-8 460a Genesis of Pisoliths and Brecciation Features in Stage VI Petrocalcic Horizons, Mormon Mesa, NV, USA. Amy Brock* and Brenda Buck, Univ of Nevada Las Vegas

127-9 460b Soil Surface Properties of Mojave Desert Landforms. Daniel R. Hirmas* and Robert C. Graham, Univ of California Riverside


127-11 461b Silcretes in southern Portugal—Micromorphological characteristics and differences. Daniela Sauer*, Christine Stein and Karl Stahr, Institute of Soil Science and Land Evaluation, University of Hohenheim

127-12 462a Soil Development along an Arid to Semi-arid Climosequence in the Trans-Pecos Area of West Texas. Nelson Rolonget*, Susan Casby-Horton* and B.L. Allen*, (1)USDA-NRCS, (2)Texas Tech University

127-13 462b Soil Toposequence on Pumice Tuff in the Semi-arid Canary Islands (Spain). Properties and Agro- and Ecological Significance. J. Asterio Guerra* Sr., Antonio Rodríguez-Rodríguez, Carmen D. Arbelo and Jesús S. Notario, University of La Laguna

127-14 463a Changes in Soil Physical, Chemical and Mineralogical Properties due to Bromus tectorum L. (C. heatgrass) Establishment over 2 Decades in Northern Nevada, USA. Patrick Drohan* and Joshua Boxell*, Maureen Yonovitz*, (1)Univ of Nevada, Las Vegas, (2)Univ of Nevada, Las Vegas

127-15 463b Overexploitation and Quality of Altoandine Soils: Study Case of Apolobamba (Bolivia). Mº Angeles Muñoz García*, Univ Politécnica de Cartagena and Ángel Faz Cano, Univ Politécnica de Cartagena

127-16 464a Assessing post-fire Soil Change: First Year Results from a Long-term Monitoring Project Following Ecosystem Recovery in Mesa Verde National Park, CO USA. Colin Robins* and Michael Howell* and Patrick Drohan*, (1)Univ of Nevada, Las Vegas, (2)Univ of Nevada, Las Vegas


127-18 465a Soils and Landforms as Indicators of Prehistoric Human Occupation at Big Bend National Park, Texas. Lynn E. Loomis*, USDA Natural Resources Conservation Service and Thomas C. Alex, Big Bend National Park


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SESSION NO. 128

1.3PC Pedogenesis and Weathering in Humid Tropics —Poster

128-1 525a Properties of Soils in Two Terrace Sequences Under a Perudic Soil Moisture Regime in the Amazon Basin. Steven Monteith*, USDA NRCS and Stanley Buol, North Carolina State Univ

128-2 525b Micromorphology and Mineralogy of Jamaican Bauxite Soils. Wendy A. Greenberg*, Bemidji State Univ

128-3 526a Magnetic Susceptibility to Characterize Soil Development on Basaltic Substrate, Hawaii. Remke L. Van Dam*, Jan M.J. Hendrickx* and J. Bruce J. Harrison*, (1)Michigan State Univ, (2)New Mexico Tech


128-5 527a Re-examination of H/Al Stoichiometry in Some Brazilian Soils. Daniel V. Pérez* and Aderson Girulvi Ebeling Jr.*, Lúcia Helena C. Anjos Sr.*, Maurício Rizzatto Coelho* and Marcos Gervasio Pereira Sr.*, (1)Centro Nacional de Pesquisa de Solos/EMBRAPA, (2)UFRRJ, (3)UFRRJ Soils Dept

128-6 527b Humic Fractions Distribution of Diagnostics Horizons from Brazilian Soils. Ademir Pontana*, Marcos Gervasio Pereira Sr.* and Lúcia Helena C. Anjos Sr.*, (1)UFRRJ, (2)UFRRJ Soils Dept

128-7 528b Tropical Weathering Profile in a Biotite Schist. Maria da G. de V. X. Ferreira*, Adriana Pulcini Ebeling Jr.*, Lucía Helena C. Anjos Sr.*, Mauricio Rizzatto Coelho* and Marcos Gervasio Pereira Sr.*, (1)Centro Nacional de Pesquisa de Solos/EMBRAPA, (2)UFRRJ, (3)UFRRJ Soils Dept

128-8 625a Relationship between Clay Fraction Mineralogy and Physical Soil Properties in Toposequence of Oxisols Developed from Basaltic Rocks in the Parana State, Brazil. Vander de Freitas Melo* Sr., Univ Federal do Parana, Andre Ademir Ghidin Sr., Faculdade Palas Atenas and Valmiqui Costa Lima Sr., Univ Federal do Parana

128-9 625b Chemistry and Mineralogy of Selected Kenyan Acid Soils. Pamela A. Obura* and Darrel C Schulze*, Caleb O. Othieno, John Robert Okalebo*, Derli P. Santana* and Clift T. Johnston*, (1)Purdue Univ,
128-10 626a Catastrophic High Temperature and Soil Redization — A Revisit. Yaofu Weng*, The Seed and Seeding General Station of Zhejiang Forestry, Liqun Xu, Zhejiang Forestry Academy and Zhongjie Ye, Zhejiang Forestry College

128-11 626b Characteristic Genesis Reflected in Minerals by Clay Fraction of Red Oxisols under Tropical Monsoonal Climate in Thailand. Punyisa Trakoonyingcharoen1*, Irb Kheouenromme1, Anchalee Sudhipprakarn2 and Robert J. Gilkes3, (1)Agriculture Faculty, Soil Science Dept, Kasetsart Univ, (2)Agriculture Faculty, Soil Science Department, Kasetsart University, (3)School of Earth and Geographical Sciences, The University of Western Australia

128-12 627a Endemic Soils Developed from Volcanics in the Trindade Island, South Atlantic. Carlos E.G.R. Schaeffer1*, Eliane P. Clemente1, Ruy V. Alves1, Liovando M. Costa1 and Vander F. Melo2, (1)Depto do Solos-Univ Federal de Viçosa, (2)Depto do Solos-Univ Federal de Viçosa


129-1 528a Mediterranean Forest Soils of Croatia. Boris Vebek*, Forest Research Institute, Jastrebarsko

129-2 529b Impact of Limestone Mining Activity on Soil Properties. Ajax Khan, Prabhu Prasadini1 and Ramesh Thatikunta, Acharya N.G. Ranga Agricultural Univ

129-3 628a Comparison of Two Fractionation Methods for Determination of Distribution of Chemical Forms of Manganese in Highly Calcareous Soils. Najafali Karimian1 and Seyed Ali Ghaffari-Nejad, College of Agriculture

129-4 628b The Peculiarities of Rendzina Genesis. Mihail A. Kutrovskiy* and Vladimir F. Val’kov, Rostov State Univ

129-5 629a Origin and Distribution of Clay Minerals of Semi-arid Soils Of Kohgilouye Boyerahmad Province, Southwestern Iran. Hamidreza Oâliâie*, Yasouj University, Ali Abtahi, Shiraz University, Shiraz, Iran, Farhad Khormali, Gorgan University of Agricultural and Natural Resource, Gorgan, Iran and Majid Baghernejad, Shiraz University, Shiraz, Iran


129-7 725a Micromorphology and Stable Isotope Investigation of Lacustrine Sediments on the Southern High Plains of Texas and New Mexico. Dusten Russell*, Wayne Hudnall and B.L. Allen, Texas Tech University


129-9 726a Soils on Hard Calcareous and Gypseous Rocks:Distribution, Genesis and Problems of Classification. Sergey V. Goryachkin*, Institute of Geography, Russian Academy of Sciences

129-10 726b How Should Soil Texture be Determined for Chalk Soils?. Ruth Kerry*, Dept of Geography, Brigham Young Univ and Margaret A. Oliver, Dept of Soil Science, Reading Univ

129-11 727a Evolution of the Soil Cover of a Limestone Plateau as a Consequence of Climate Cooling: a Predictive Approach. Sophie Maillant1*, Guillaume Echevarría1, Michel Gury1, Brigitte Van Vliet Lanoë2, Elisabeth Leclerc-Cessac3 and Jean-Louis Morel1, (1)Laboratoire Soils et Environnement UMR 1120 INPL-INRA, (2)Processus et Bilans des Domaines Sédimentaires, UMR 8110 CNRS, (3)Andra

129-12 727b A Model of Silicate Replacement of Carbonate on Dolomitic Landscapes. Cynthia Stiles* and Krista Stensvold, Univ of Wisconsin—Madison

129-13 728a Soil Development on Calcareous Rocks in Central Siberia. Dmitry Ye. Konjushkov*, V.V. Dokuchaev Soil Science Institute

129-14 728b Crop production, water quality and phosphorus in calcareous soils in South Florida. Yuncong Li*, Tropical Research and Education Center, University of Florida


129-16 729b Soil-like Properties of Limestone in Yucatan, Mexico. Hector EstradaMedina1*, Robert C., Graham1, Michael F. Allen2 and Juan Jose Maria Jimenez-Osorio1, (1)Univ of California-Riverside, (2)Univ of California, (3)Univ Autonoma de Yucatan

130-1 634a Soil Fertility Management & Compost Use in Senegal’s Peanut Basin. Nathan C. McClintock*, Univ of California–Berkeley and Amadou Makhtar Diop, The Rodale Institute
132-4 543b Paleosols and Environmental Changes in South-eastern European Steppes during Second Part of Holocene. Vitaly A. Demkin and Tat’ana S. Demkina. Institute of Physicochemical and Biological Problems of Soil Science, RAS

132-5 642a An Accumulative Pedogenic Process in Chinese Loess Plateau. Xue-feng Hu*. Dep't of Environmental Science and Engineering, Shanghai Univ

132-6 642b Interpreting Sedimentation Patterns and Paleo-climate from Paleosol Sequences of the Triassic-Jurassic Hartford Basin Rift Valley, Connecticut, USA. Cynthia Stiles, Univ of Wisconsin and Elizabeth H. Gierlowski-Kordesch*, Ohio Univ

132-7 643a Evidence of Sub-Tropical Humid Climate Paleosols from Paleocene-Eocene Sequences in the Williston Basin, North Dakota, USA. Cynthia Stiles, D. Clay Kelly, Elizabeth Clechenko, Kathleen F. Bolger and Eric D. Shullenberger, Univ of Wisconsin

132-8 643b Properties of Buried Soils at the Somma Vesuviana Ruins of Ancient Rome, Italy. Yudzuru Inoue*, Jamsranjav Baasansuren*, Makiko Watanabe and Hiroyuki Kamei*. (1)Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, (2)Graduate School of Information Science and Engineering, Tokyo Institute of Technology

132-9 742a Paleosols and Pedosediments of the Early-Middle Pleistocene Red Sediments (Scythian clays) of the Southern Russian Platform. Svyatoslav A. Inozemtsev*, Moscow State Univ, Dept of Soil Science and Andrey E. Dodonov, Geological Institute, RAS

132-10 742b Construction Techniques of Burial Mounds as an Essential Subject Matter of Paleosol Studies. Alexander O. Makeev*, Moscow State Univ, Soil Institute

132-11 743a PaleoVertisols in Russia and USA: the Use of Stable Isotopes, Morphology and Microfabricos for Reconstructions of Environmental Changes and Soil Processes. Irina V. Kovala*, Institute of Geography, Claudia Morá, Univ of Tennessee and Lawrence P. Wilding, Dep't of Soil and Crop Sciences, Texas A&M Univ

132-12 743b Contemporary Iron Stone Formation Due to Acid Sulfate Soil Processes. Leigh A. Sullivan*, Richard Bush and Edward Burton, Southern Cross Univ

132-13 645a Humic Acids of the Amazonian Dark Earth Soils: Terra Preta De Índio. Tony Jarbas Ferreira Cunha*, Beata E. Madari 2, Ladislau Martin Neto Sr. 3, Tony de Agricultura Tropical–CIAT

133-2 544b Anthrosol Diversity in Brazil: Terras Pretas, Terra Mutulas and Sambaquis. Carlos E.G. Schaefer*, Departamento do Solos-Universidade Federal de Viçosa, Guilherme R. Correa, Departamento de Solos and Hedinaldo N. Lima, Universidade Federal do Amazonas

133-3 545a Formation of Dark Earth Soils in Western Amazonia, Iquitos, Peru. Andrew Zimmerman* and Augusto Oyuela-Caycedo, Univ of Florida

133-4 545b Humus Composition Analysis by the NAGOYA Method for Amazonian Dark Earths of the Middle Amazon, Brazil. Satoshi Nakamura*, Mario Hiraoka2, Eiji Matsumoto1, Kenji Tamura1 and Teruo Higash1, (1)Tsukuba Univ, (2)Dep't of Geography Millserville Univ, (3)Dokkyo Univ


133-6 546b Terra Preta Research: The preSombroek and Sombrock Periods. William I. Woods*, Univ of Kansas and William M. Denevan, Univ of Wisconsin-Madison

133-7 547a Creating Terra Preta in Homegardens?: A Preliminary Assessment. Antoinette Winklerprins*, Michigan State Univ


133-9 548a Biodiversity in Amazonian Dark Earth Soils. Maria de Lourdes P. Ruivo*, MPEG, Maria de L. Oliveira, UEPa and Dirse Kern, Museu paraense emílio Goeldi


133-11 549a “Nutrients’Quantifying and Counting (C E N) of Microbial Population (Fungi and Bacteria) from Soils Enriched by Wood and Slaughter-House Wastes in Tailândia County – ParÁ – Brazil”. Maria de L. Oliveira1, Maria de Lourdes P. Ruivo*, UEPa and Dirse Kern, MPEG

133-12 549b Bio-Char Applications to a Tropical Oxisol Increase Crop Yield and Modify Water Relations. Julie Major4, Marco A. Rondon2 and Johannes Lehmann2, (1)Cornell Univ, (2)Centro Internacional de Agricultura Tropical–CIAT

**SESSION No. 134**

**Convention Center, Exhibit Hall A, Second Floor**

**2.0A Synchrotron Spectromicroscopy of Particulate Matter Affecting Air, Water & Soil Quality—Poster**

*Convenor: William Bleam, Univ. of Wisconsin*

**134-1** 550a **Manganese Oxide in Mine Sludge: A Redox Barrier Against Arsenic Mobilization?**—Suzanne Beauchemin*1, Glenn Poierz1 and James Ablett2, (1)Natural Resources Canada, (2)Brookhaven National Laboratory

**134-2** 553a **Soil organic C speciation and transformations following long-term anthropogenic perturbations in tropical ecosystems: evidence from 13C NMR and synchrotron-based C (1s) NEXAFS and FTIR-ATR spectroscopy.**—Dawit Solomon*1, Johannes Lehmann1, James Kinyangi1, Biqing Liang1, Ingo Lobe*2, Wulf Amelung*2 and Thorsten Schäfer*2, (1)Cornell University, (2)UFZ Centre for Environmental Research, (3)University of Bonn, (4)Institute for Nuclear Waste Management

**134-3** 550b **Sorption of Arsenate on Lithium/Aluminum Layered Double Hydroxide Intercalated by Chloride: Macroscopic and Spectroscopic Studies.**—Yu T. Liu*1, Ming K. Wang1 and P.M. Huang2, (1)Dept of Agricultural Chemistry, (2)Dept of Soil Science, Univ of Saskatchewan

**134-4** 653a **Quality of the Water in Rio Amajac, Hidalgo, Mexico, for the Handling of the Nutritious Solution in Hidroponia.**—Jesus Amado*, Enrique Rubinos, Mauricio Gavi Reyes and Enrique Mejia Zaens, Colegio de Posgraduados

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**SESSION No. 135**

**Convention Center, Exhibit Hall A, Second Floor**

**2.0P Measurement, Occurrence, and Transport of Radionuclides in Soils and Sediments, and their Transfer to Biota—Poster**

*Convenors: Edward Landa, U.S. Geol. Survey, MS 430; Shigeo Uchida1, (1)National Institute of Radiological Sciences, (2)Tokyo Nuclear Services Co., Ltd.*

**135-1** 555a **Radionuclides and Fungi: Fungal Behavior, Fungal Communities and Fungal Impacts on Radionuclide Mobility in Soil.**—John Dighton*1, Tatyana Tugay2, Nelli Zhdanova2 and Victor Zhelonkozyk2, (1)Rutgers Pinelands Field Station, (2)Institute of Microbiology and Virology, (3)The Institute for Nuclear Research

**135-2** 556a **Effects of Near-Surface Redox Potentials on Radioactive Selenium, Iodine and Technetium Mobility in Soils.**—George Shaw*, Univ of Nottingham

**135-3** 556b **Environmental Conditions for Insoluble Tc Formation in Ponding Water above a Paddy Field.**—Mary Lou Ramsey, Savannah River National Laboratory

**135-4** 557a **Natural Accumulators of Radionuclides in the Environment.**—Martine C. Duff*, Anna Knox and Mary Lou Ramsey, Savannah River National Laboratory

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**POSTERS**

**SESSION No. 135**

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**POSTERS**
SESSION NO. 135

135-5 557b Plant Uptake and Release of Cesium-137: Application to Phytoremediation. Mark Fuhrmann*, Brookhaven National Laboratory

135-6 558a Kinetics and Reversibility of Te Immobilisation in Soils under Flooded and Aerated Conditions. Siobhán Staunton*, INRA, Rhzosphere & Symbiose, Emmanuel Quillierou, Laboratoire de Radioécologie et d’Ecotoxicologie, IRSN, Claire-Sophie Haardin, Andrea, Guo Wang, Fujian Agricultural Univ, and Arnaud Martin-Garin, Laboratoire de Radioécologie et d’Ecotoxicologie, IRSN

135-7 558b Determination of Bioavailable Rhenium Fraction in Japanese Agricultural Soils. Keiko Tagami* and Shigeo Uchida, National Institute of Radiological Sciences

135-8 559b Depleted Uranium Corrosion and Mobility in an Arid Environment. Brenda J. Buck*, Univ of Nevada Las Vegas, Amy Brock, Univ of Nevada, Las Vegas, April L. Ulery, New Mexico State Univ and William H. Johnson, Los Alamos National Lab


135-10 561b Distribution Coefficients of Tin (Sn) in Japanese Agricultural Soils. Yasuo Nakamaru* and Shigeo Uchida, National Institute of Radiological Sciences

135-11 562b Transformation of Iodine Species in Submerged Paddy Soil. Noriko Yamaguchi*, National Institute for Agro-Environmental Sciences, Masashi Nakano, Research Institute of Soil Science & Technology and Hajime Tamida, Japan Synchrotron Radiation Research Institute

135-12 565a Radionuclides (137Cs) in Landscapes of Kiev Reservoir Banks. V.M. Starodubtsev* and O.L. Feoktens, National Agricultural Univ

135-13 566b Effects of the Soil Redox Status on Selenium Mobility: Contributions of Microbiological and Geochemical Processes. Olivia Darcheville*, Laureline Février1, Arnaud Martin-Garin1 and Pierre Renault2, (1)Institut de Radioprotection et de Sûreté Nucléaire, (2)Institut National de la Recherche Agronomique

135-14 567a Diffusive Gradient in Thin Film for Evaluating Uranium Bioavailability to Ryegrass in 18 Contaminated Soils. Lise Duquene*, SC-KEN


135-16 568a Effects of a Climate Cooling on the Behavior of Radionuclides in Soils. Sophie Maillant*, Guillaume Chevarria1, Elisabeth Leclerc-Cessac2 and Jean-Louis Morel1, (1)Laboratoire Sol et Environnement UMR 1120 INPL-INRA, (2)Andra, (3)INPL-ENSIA/INRA, Laboratoire Sol et Environnement

135-17 568b Inequilibrium between Fallout 137Cs and Stable Cs in Cultivated Soils. Hirofumi Tsukuda*, Akira Takeda, Shun’ichi Hisamatsu and Jiro Inaba, Institute for Environmental Sciences


135-20 660a Novel Synthetic Clays for Soil Remediation. Sridhar Komarneni*, The Pennsylvania State Univ


135-24 756a In Situ Formation of Colloidal Phases and Their Role in Radionuclide Transport. James Harsh*, Markus Pluery1, Youjun Deng2, Khlood Mashal2 and Gang Chen3, (1)Washington State Univ, (2)Hashemite Univ, (3)FAMU-Florida State Univ

135-25 757a Behavior of Cs, Sr and U in Soil Solution at Rhizosphere of Brassica rapa L. Akira Takeda*, Hirofumi Tsukuda, Yuichi Takaku and Shun’ichi Hisamatsu, Institute for Environmental Sciences

135-26 757b Estimation of the Effect of Farmland on the Behavior of 129I Released from Malfunctioning Atomic Facilities in Japan. Nobuharu Kihou*, Hideshi Fujuwara1 and Koushi Yuita2, (1)National Institute for Agro-Environmental Sciences, (2)Formerly, National Institute of Agro-Environmental Sciences

135-27 758a Modelling of Caesium-137 Behavior in a Soil-Plant System. Onggarbek Alipbeki*, Kazakh National Agricultural Univ

135-28 758b Influence of Soil Production Processes on Differential Mobility of Fallout Radionuclides in Taiwan. Narasimhan L. Vemuri* and Chih-An Huh, Institute of Earth Sciences

135-29 759a Tracing Stochastic Behavior of Rock Bearing Soils Using 137Cs: Pinglin, NE Taiwan. Narasimhan L. Vemuri* and Chih-An Huh, Institute of Earth Sciences

135-30 759b Influence of the Long-Term Fertilizing on the Radioactivity of the Soil and Different Degree of Adopting of Radionuclides from the Wheat and Corn. Mirko Grubišić*, Institute for technology of nuclear and other raw materials

135-31 760a The Assessment of Manure Application on Potential Mobility and Bioavailability of 137Cs in Tropical Soils. Maria Angelica Wasserman*, Antonio Passos Portilho1, Aline G. Viana1, Flavia Bartoly1, Daniel V. Pérez2, Ana C. Ferreira1, Valéria Argolo1 and Carlos Eduardo Menezes3, (1)Instituto de Radioproteção e Dosimetria/CNEN, (2)Centro Nacional de Pesquisa de Solos/EMBRAPA, (3)Colégio Agrícola Niló Peçanha, Universidade Federal Fluminense
136-1  466a Sieving Crusts and Water Repellency, Albert Sole-Benet*1, Sergio Cointeras1, Juan Puigdefábregas1 and Yolanda Cantón*, (1)E.E.Z.A./C.S.I.C., (2)Universidad de Almería

136-2  466b Return Flow Generating Point on a Varibly Saturated Hillslope Surface, Sanjit Kumar Deb*, Masaru Mizoguchi and Tsuyoshi Miyazaki, Graduate School of Agricultural and Life Sciences, The Univ of Tokyo


136-4  467b Effective Cross Section: A Structural Parameter to Consider Water Repellency in Soil Hydrology, Heiner Stoffregen*1, Gerd Wessolek1, Karsten Täumer1 and Jirka Simunek 2, (1)Technical Univ Berlin, (2)Univ of California Riverside

136-5  468a Soil Crusting Susceptibility Evaluated by Means of Turbidimetry, Sergio Pellegrini*, Nadia Vignozzi, Elisa Batistoni and Andrea Rocchini, CRA-ISSDS

136-6  468b A Multi-Scale Approach for the Assessment and Quantification of Seedbed Soil Structure, Brian S. Atkinson*, Sacha J. Mooney and Debbie L. Sparkes, Agricultural and Environmental Sciences, School of Biosciences, Univ of Nottingham

136-7  469a Soil Structure Dynamics of Paddy Fields as a Function of Cultivation and Time, Imke Janssen* and Rainer Horn, Institute of Plant Nutrition and Soil Science, CAU Kiel

136-8  469b Subsoil Compaction and Preferential Flow Paths Formation, Aminat Umarova* and Evgeny Shein, Moscow State Univ

136-9  565a Influence of Various Grazing Intensities on Soil Stability, Soil Structure and Water Balance in Inner Mongolia, P.R. China, Julia Krummelbein*, Stephan Peth and Rainer Horn, Institute of Plant Nutrition and Soil Science, CAU Kiel


136-12  566b Structural Attributes of a Clayey Hapludox Cultivated No Tillage System the Culture Sequences in Succession and Rotation, Jorge Luiz Piccinin*, Museum Paraense Emílio Goeldi–CTCTE, Carlos Roberto. Espíndola, Univ of Campinas–UNICAMP, Eleno Torres, Brazilian Agricultural Research Enterprise (Embrapa Soja) and Odilon Ferreira Saraiva, Brazilian Agricultural Research Enterprise (Embrapa Soja)

136-13  567a A Generalized Approach to Predict Shrinkage Using Water Potential, Thomas Baumgart*, Centre for Mixed Land Rehabilitation

136-14  567b Crop Yield and Physical Attributes of a Clayey Oxisol under Different Soil Management Systems and Crop Rotation, Jorge Luiz Piccinin*, Eleno Torres*, Lincoln Zotarelli, Odilon Ferreira Saraiva* and Carlos Roberto Espíndola*1, (1)Museum Paraense Emílio Goeldi, (2)Brazilian Agricultural Research Enterprise (Embrapa Soja), (3)Univ of Florida, Agronomy Dept, (4)Univ of Campinas UNICAMP

136-15  568b The Regularities of Changes in Soil Surface Properties Due to the Soil Formation and Agricultural Technogeneses, V.F. Utkaeva*, V.V.Dokuchaev Soil Science Institute

136-16  664a Synchrotron Computed Microtomography for Assessing Changes in Porosity as Influenced by Compaction, Clark J. Gantzer*1, Stephen Anderson1 and Shmuil Assouline2, (1)Dept of Soil, Environmental and Atmospheric Sciences, Univ of Missouri-Columbia, (2)Inst. of Soil, Water and Environmental Sciences

136-17  664b Effects of Polycrylamide Molecular Weight, Soil Texture and Electrolyte Concentration on Drainable Porosity and Aggregate Stability, A.I. Mane dov*1, S. Beckmann*, C. Huang and G.J. Levy3, (1)USDA-ARS, National Soil Erosion Research Laboratory, (2)Univ of Regensburg, Dept of Landscape Ecology and Soil Science, (3)Institute of Soil, Water and Environmental Sciences

136-18  665a Shrinkage modelling as a Tool to Quantify Soil Structural Changes: Insights and Perspectives, Pascal Bovin*, Institute of Research for Development

136-19  665b Tillage Management to Improve Soil Physical Conditions for Crop Growth, Dong Wang*, James Kurle and James Percich, Univ of Minnesota-Twin Cities Campus

136-20  666a The Effect of Magnesium on the Age-Hardening of Soil, Gemma E. Nichol*1, Judy Tisdall*1 and Nick Uren*, (1)Dept of Primary Industries, (2)La Trobe Univ

136-21  666b Influence of No-Till on Hydrophysical Properties of Argiudols of the Center of Santa Fe–Argentina, Roberto P. Marano, Hugo A. Micheloud and Silvia Imhoff*, Facultad de Ciencias Agrarias, Universidad Nacional del Litoral

136-22  667a Mass Fractal Dimension of Soil Aggregates; Minimum Number of Experimental Data, C. German
Soil Evaluation for Sustainability under Different Cropping Systems Using Organic and Inorganic Fertilizers, Pradeep K. Sharma* and Sudhir Verma, CSK Himachal Pradesh Agricultural Univ

New soil quality indices produced by image analysis techniques applied to the soil porous system. Giacomo Mele*¹, Angelo Basile¹, Roberto De Mascalii¹, Bruno Di Matteo¹ and Fabio Terribile², (1)CNR ISAFOM, (2)Disspa Univ Di Napoli Federico II

Quantification of the Effects of Cereal Root Anchorage Failure Using X-ray Computed Tomography and Image Analysis. Sacha J. Mooney⁶, Univ of Nottingham and Peter Berry, ADAS

Extent of Hardsetting Behavior of Soils in Region 10, Philippines and their Effects on Maize Plant Growth and Yield. Nonilona P Daquiado⁶, Central Mindanao Univ

Soil Hydrological Properties of Andisols in Japan. Ken Kawamoto⁶, Dept of Civil and Environmental Engineering, Saitama Univ, Per Moldrup, Environmental Engineering Section, Dept of Life Sciences, Aalborg Univ, Ty P.A. Ferre, Dept of Hydrology and Water Resources, Univ of Arizona, Markus Tuller, Soil and Land Resources Division, Ag. Sci. 113, Univ of Idaho, Ole H. Jacobsen, Dept of Agroecology, Institute of Agricultural Research Centre Foulum and Toshiko Komatsu, Graduate School of Science and Engineering, Saitama Univ

Soil Hydrological Properties of Andisols in Japan in Relation to the Dispersion-Coagulation Behavior. Katsutoshi Seki⁶, Tsuyoshi Miyazaki, Hiroomi Imoto and Masaru Mizoguchi, The Univ of Tokyo

Exploring the Relationship between Solute Transport and Soil Macropore Structure. Jonathan E. Holland⁶, Univ of Melbourne

Agroforestry and Grass Buffer Influences on CT-Measured Pore Characteristics. Ranjit P. Udawatta⁶, Center for Agroforestry, Univ of Missouri-Columbia, Stephen H. Anderson, Dept of Soil, Environmental and Atmospheric Sciences and Clark J. Gantzter, Dept of Soil, Environmental and Atmospheric Sciences, Univ of Missouri-Columbia


Temperature Dependent Capacitance Scaled Frequency. Ali Fares⁶, Natural Resources & Environmental Management Department and Syamsuddin Hamdhani, University of Hawaii

Pore System Characteristics of Pavement Seam Materials in Urban Areas. Thomas Nehls¹, Gerd Wessolek², Grzegorz Jozefaciuk², Zofia Sokolowska³ and Heiner Stoffregen⁴, (1)Technical Univ Berlin, (2)Dept of Agrophysics, Polish Academy of Sciences, (3)Dept of Agrophysics, Polish Academy of Sciences, (4)Univ of Tennessee

Pericd and Near-Pericd Soil Moisture Regimes in the Central Appalachians. E.J. Cielkosz⁴, D.A. Miller², W.J. Walmant², Sharon Walmant¹, T.M. Prescott¹, S.G. Carpenter¹ and A.R. Topalanchik¹

Grass Hedges. Achmad Rachman, Indonesian Soil Research Institute, Stephen H. Anderson⁴, Univ of Missouri-Columbia, Clark J. Gantzter, Dept of Soil, Environmental and Atmospheric Sciences, Univ of Missouri-Columbia and Ranjith P. Udawatta, Center for Agroforestry, Univ of Missouri-Columbia

Physical Interpretation of Soil Hydraulic Functions in Bi-Modal Soils with Log-Normal Pore Size Distribution. Miroslav Kutilek⁶, Soil and Tillage Research and Libor Jendele, Cervenka Consulting

Phyiscally-based Explanation of the Brooks and Corey Parameters in Terms of Partial Drainage of Random Mass Prefractals. Edmund Perfect⁶, Univ of Tennessee

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137-17 572a Water Retention and Color in Fine Earth and Soil Core Samples. Manuel Sanchez-Maranon1, Jaume Bech2, Raul Ortega2, Isabel Miralles1, Gabriel Delgado1, Juan Manuel Martin-Garcia1 and Rafael Delgado1, (1)Univ de Granada, (2)Univ de Barcelona

137-18 572b Quantification of Soil Micromorphology from Images of Soil Sections. Daniel Gimenez1, Adolfo Posadas2 and Hyen Chung Chun1, (1)Rutgers Univ, (2)International Potato Center

137-19 573a Observation and Analysis of Microscale Heterogeneity of Infiltration and Water Flow in Chernozem and Black-Chestnut Soils. Vyacheslav N. Semenov1 and Anatoli Zeiliger, Moscow State Univ of Environmental Engineering

137-20 573b An Upscaling Algorithm for Simulating Water Flow in Unsaturated Soils under Flood Irrigation at Field Scale. Li Ren, Meng Mao1, Zhiming Chen2 and Renduo Zhang3, (1)Dept of Soil and Water Sciences, China Agricultural Univ, (2)Institute of Computational Mathematics, Chinese Academy of Sciences, (3)Univ of Wyoming

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137-22 574b Modeling Saturated Hydraulic Conductivity in Clay Soils at Guilan Province (Iran) Using Artificial Neural Networks. Meyesam Doai1, Mahmoud Shabampion Shahrestani and Farid Baghirti, Guilan Province-Guilan University-Agriculture Faculty

137-23 668a Superficial Tension of Biologically Active Water for Using in Soil-Plant Systems. Nemat Mamedov1, Geys Garibov and Sh. Sh. Alekperov, Baku State Univ

137-24 668b Leaf Water Potential in Corn and Cotton in Relation to Root Zone Soil Water Status and Depth of Rooting. Ram Baboo Sharma1, Indira Gandi Agricultural Univ

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137-31 672a Gas Transport Parameters along Field Transects of a Volcanic Ash Soil. Augustus Resurreccion1, Toshikko Komatsu1, Ken Kawamoto2, Per Moldrup1 and Dennis Rolston1, (1)Graduate School of Science and Engineering, Saitama Univ, (2)Dept of Civil and Environmental Engineering, Saitama Univ, (3)Environmental Engineering Section, Dept of Life Sciences, Aalborg Univ, (4)Dept of Land, Air, and Water Resources, Univ of California, Davis

137-32 672b Use of Class Pedotransfer Functions to Predict Water Retention Properties of Soils: Are They Still of some Interest?. Hassan Al Majou1, Ary Bruand2, Odile Duval1 and Isabelle Cousin1, (1)Institut des Sciences de la Terre (ISTO), (2)Université d’Orléans, (3)INRA

137-33 673a Critical Water-Absorption Rate when a Plant Absorbs Water from a Soil-Water System through Its Rooting System. Michihiro Hara1, Kazuyoshi Miyamoto and Bikash C. Sarker, Iwate Univ

137-34 673b Hydraulic Characteristics of Mountainous Soils in Korea. Kang-Ho Jung1, Seungho Hur1, Yeon-Kyu Sonn1, Yeong Sang Jung2 and Sang-Keun Ha1, (1)National Institute of Agricultural Science and Technology, (2)Kangwon National University

137-35 674a Particle Size Distribution and Mineralogy of Brazilian Ferralsols: Significance for the Structure and Hydraulic Properties. Adriana Reatto1, Euzébio Medrado Silva1, Ary Bruand2, Eder de Souza Martins1, Isabelle Cousin1 and Michel Brossard1, (1)Empresa Brasileira de Pesquisa Agropecuária (Embrapa Cerrados), (2)Université d’Orléans, (3)INRA, (4)IRD

137-36 674b Field and Numerical Study of Chlorotoluron Transport in the Soil Profile Affected by Non-Equilibrium Flow. Radka Kodesová1, Martin Kocárek1, Josef Kozák1 and Jirka Simunek2, (1)Czech Univ of Agriculture in Prague, (2)Univ of California Riverside

137-37 678a Effect of Dry Layer Thickness on the Evaporation from Surfaces of Different-Sized Glass. Michiko Hayano*, JSPS research fellow / JIRCAS

137-38 678b Effect of Agricultural Sulfur on Chemical Properties and Hydraulic Conductivity (under Saline-Sodic Conditions) of Different Calcareous Soils from Dry Region of Iran. Ali Kasraian1 and Abdol Majid Sameni, Shiraz Azad Univ

137-39 679a Infiltration Water Sampling Using an Automated Suction-Controlled Flux Sampler. Yasushi Mori*, Shimane Univ, Naoko Higashi, Arid Land Research Center and Mitsuhiro Inoue, Arid Land Research Center, Tottori Univ

137-40 679b The Effect of Induced Electrical Gradent During Hyperfiltration in Clay. J.P. Gustav Loch*, Utrecht Univ, Faculty of Geosciences and Katja Heister, Utrecht Univ, Dept of Earth Sciences

137-41 768a PedoTransfer Functions for Estimating the Water Release Curve and Resistance to Penetration Curve of Soils of Sante Fe–Argentina. Silvia Imhoff1, Alvaro Pires da Silva2, Pablo Ghiberto1 and Miguel Pilatti1, (1)Facultad de Ciencias Agrarias, Universidad Nacional del Litoral, (2)ESALQ, Universidade de Sao Paulo
137-42 770b The Diversion Capacity of Curved Capillary Barriers in Layered Slopes, Tsuyoshi Miyazaki* and Michiho Kojima, The Univ of Tokyo

137-43 771a Effects of Flow Field Properties on Partitioning Intervtell Tracer Test (PITT), Junko Nishiwaki*, Tsuyoshi Miyazaki and Masaru Mizoguchi, The Univ of Tokyo

137-44 771b Different Stocking Rate Effects on Soil Hydraulic Conductivity Measured with Tension-Infiltrometers in Catamarca (Argentina), Pablo J. Ghiberto, Osvaldo Felli, Miguel A. Pilatti and Silvia Imhoff*, Facultad de Ciencias Agrarias, Universidad Nacional del Litoral

137-45 772a Infiltration from Surface Disc and Strip Sources, Arthur Warrick* and Naftali Lazarovitch, Univ of Arizona

137-46 772b Preferential Water Flow in the Subsoil of an Andisol in Relation to the Initial Water Content and Amount of Rainfall under Field Conditions, Sadao Eguchi*, National Institute for Agro-Environmental Sciences and Shuichi Hasegawa, Graduate School of Agriculture, Hokkaido Univ

137-47 773a Use of Polyacrylamide to Reduce Seepage From Unlined Irrigation Canals: Small Scale Tests, Richard Susfalk1, Michael Young*1, Max Schmidt2, Brian Epstein1, John Goreham1, Jay Swihart1 and Delbert Smith1, (1)Desert Research Institute, (2)Water Solutions of Colorado, (3)Hydrologic Solutions, LLC, (4)US Bureau of Reclamation

137-48 773b Soil Water Characteristics of Mixed Conifer and Deciduous Forest in Low Mountain Area in Beijing China, Lishui Nie*, Michigan State Univ

137-49 774b Vegetation-Induced Changes of Soil Properties in Buffer Zones in a Clay and a Sandy Soil in Finland, Kimmo Rasa*1, Mari Rätty1, Markku Yli-Halla1, Rainer Horn2 and Liisa Pietola1, (1)Dept of Applied Chemistry and Microbiology, Univ of Helsinki, (2)Institute of Plant Nutrition and Soil Science, CAU Kiel

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138-1 825a Stability of the Zinc-Humic/Fulvic Complexation Equilibria of Soils of Terai Agroecological Region of West Bengal (India), Amlan Bhattacharya* and Dibyendu Mukhopadhyay, Uttar Banga Krishi Viswavidyalaya


138-3 826a Long-Term Black Carbon (Bio-Char) Dynamics in Cultivated Soil, Binh Than Nguyen*, Johannes Lehmann and James Kinyangi, Cornell Univ


138-5 827a Characterization and Stability of the Organic Matter of the Plaggic Anthrosols from Central Europe, Northwest and North Russia, Olga Kalinina*1, Oleg Chertov1, Marina Nadporozhskaya1 and Luise Giani1, (1)St.Petersburg State Univ, (2)Carl von Ossietzky Univ

138-6 827b Are Recalcitrant Biomacromolecules Potential Sinks in the Global Carbon Cycle?, Klaus Lorenz* and Rattan Lal, Carbon Management and Sequestration Centre, School of Environment and Natural Resources, FAES/OARDC, The Ohio State Univ

138-7 828a Compositions, Aspects of Structures, and Clay Associations of Soil Humic Components, Michael H.B. Hayes*, Univ of Limerick, André J. Simpson, Dept of Physical and Environmental Sciences, Univ of Toronto, Scarborough College, C. Edward Clapp, USDA ARS & Dept of Soil, Water & Climate, Univ of Minnesota and James Burdon, Univ of Birmingham

138-8 828b Simulation of Soil Tillage Effects on Soil Organic Matter Turnover, Dmitri Chatshikh*1, Bjorn M. Petersen1, Soren Hansen2, Jorgen E. Olesen1 and Jorgen Berntsen1, (1)Danish Institute of Agricultural Sciences, (2)The Royal Veterinary and Agricultural Univ

138-9 829a The Role of Arbuscular Mycorrhizal Fungi in Aggregate Stability and Soil Carbon and Nitrogen Storage in Tallgrass Prairie, Gail Wilson* and Charles Rice, Kansas State Univ

138-10 829b Characterization of Stable and Labile Soil Organic Matter Using a Novel Multiple Elemental Scanning Thermal Analysis, Y. Ping Hsieh*, Florida Ad&M Univ

138-11 830a Organic Carbon Status of a Laterite and a Red Soil under Long Term Rice Cultivation in Karnataka, India, A. Sudhir, Geo Jose*, H.C. Prakashra and N.A. Janardhan Gowda, Univ of Agricultural Sciences

138-12 830b Soil Organic Matter Dynamics in Relation to Tractor Tillage and Bio-Residues in Fodder Production Systems, Banwari Lal Suman*, Indian Grassland and Fodder Research Institute

138-13 831a Soil Carbon Conservation Approaches in Intensive Cropping System, Ramaiah Kutralingam Kaleeswari*, Kalpana Rengabasham and Devasaopathy Palanisamy, Tamilnadu Agricultural Univ

138-14 831b Biochemical Origin of Humic Acid and their Role in Soil C Sequestration, Fabrizio Adani*, Dipartimento di Produzione Vegetale—Università degli Studi di Milano

138-15 832a Mangrove Leaf Tannins: Their Fate and Role in Dissolved Organic Nitrogen Cycling in Subtropical Coastal Environment, Nagamitsu Matue*, Rudolf Jaffe* and Oliva Pisan*, (1)Southeast Environmental Research Center, Florida International Univ, (2)Department of Chemistry & Biochemistry, Florida International University

138-16 832b Effect of Temperature on the Dynamics of Different Soil Organic Matter Fractions, Michele Hadidix1, Megan Steinweg1, Richard Conant*, Alain Plante*, Eldor Paul* and Johan Six*, (1)Natural Resource Ecology Lab, (2)Villanova Univ, (3)Dept of Plant Sciences, Univ of California-Davis

138-17 833a Enriching Sugarcane Bagasse Compost by Sulphur, Nitrogen Fixing (Azotobacter Chroococcum) and Phosphate Solubilizing Bacteria (Enterobac-
ter Cloaceae), Iadan Razikordmahalleh*, Department of Environment.

138-18 833b Destabilization of SOM Following Overgrazing and Aggregate Deterioration in a Steppe Ecosystem in Inner Mongolia (China). Markus Steffens*, Angelika Koelbl and Ingrid Koege-Knabner, Lehrstuhl für Bodenkunde TÜ Muenchen

138-19 834b Exploring Atypical Stabilization Pathways Using Pool-Based Modeling. Saran Sohi*, Rothamsted Research

138-20 835b Dynamics of Soil Microbial Biomass C, N & P in a Tropical Irrigated Agro Ecosystem Due to Continuous Application of Farmyard Manure and Inorganic Fertilizers under Intensive Cultivation in a Vertic Ustropept. Duraisamy Selvi*, Ponnusamy Santhy and Palaniappa Pillai Malavizhi, Tamil Nadu Agricultural Univ

138-21 925a Patterns of Enzymic Activities in a Boreal Peatland. Petra Vávrová*, Chris Freeman2 and Raija Laiho1, (1)Peatland Ecology Group, Dept of Forest Ecology, Univ of Helsinki, (2)School of Biological Sciences, Univ of Wales

138-22 925b Direct and Residual Effect of Lignite Humic Acid (Potassium Humate) on Productivity in Turmeric – Maize Cropping System in Alfisol. Kolappan Baskar*, TNAU

138-23 926a Biomass and carbon Partitioning in Rice and Wheat, and Active Carbon Pools in their Rhizosphere when Grown under Elevated Carbon Dioxide in a Typic Haplustept. Subhendu Bhadraray*, Thulasivnaswantha and Deo Pal, Indian Agricultural Research Institute


138-25 927a Carbon Dioxide Emissions in the Atmosphere in Relation to Different Soil Managements. Carlo Piovaneli, Stefania Simoncini, Alessandro Agnelli, Camilla Gamba, Marco Platinetti and Marcello Pagliai*, CRA-ISSDS

138-26 927b Increasing Long Term Soil Carbon Sequestration in Agriculture and Forestry: The Role of Phytooliths, Leigh A. Sullivan* and Jeff Parr, Southern Cross Univ

138-27 928a Microbial Response to the Addition of Glucose and 14C-[U]Glucose in Western Australian Soils, F.C. Hoyle1*, D.V. Murphy1 and P.C. Brookes2, (1)Univ of Western Australia, (2)Rothamsted Research


138-29 929a Significance of Soil Acidity to Sequestrate Organic Carbon in Forest Soils. Shinya Funakawa*, Kazumichi Fujii, Atsunobu Kadono and Takashi Kosaki, Graduate School of Agriculture, Kyoto Univ

138-30 929b Responses of Plant Growth and Nutrient Cycling under Elevated CO2: A Meta-Analysis. Kees Jan van Groenigen1, Marie Anne de Graaff1, Johan Six1, Bruce Hungate2, Nico Van Bremen1 and Chris van Kessel1*, (1)Dept of Plant Sciences, Univ of California-Davis, (2)Dept of Biological Sciences and Merriam-Powell Center for Env. Research, Northern Arizona Univ, (3)Laboratory for Soil Science and Geology, Wageningen Univ


138-32 930b Carbon Pools and Microbial Activity of the Former Agricultural Lands in Russia. Irina N. Kurganova1*, Dana Lenon2 and Valentin Lopes de Geremey3, (1)Institute of Physicochemical and Biological Problems in Soil Science, (2)Gulliver Preparatory School


138-34 931b Soil Carbon Sequestration as a Function of Initial Carbon Content in Different Crop Management Systems of a Long-Term Experiment. Senthil K. Subramaniam*, A. N. Kravchenko and G. P. Robertson, Michigan State Univ

138-35 932a Conservation Tillage and Cover Cropping Induced Changes in Total Carbon and Aggregate Protected Carbon. Jessica Veenstra*, William Horwaith and Jeffrey Mitchell, Univ of California, Davis

138-36 932b Effects of Topography and Texture on Spatial Variability of Total C in Soil Carbon and Crop Sciences, (2)Natural Resource Ecology Laboratory and Dept of Soil and Crop Sciences, (2)Natural Resource Ecology Laboratory, (3)Dept of Statistics, (4)Dept of Atmospheric Science


138-39 934a Potential Carbon Sequestration and Soil Aggregation in Reestablished Grassland. Doyoung Lee1, Dae-Kil Heo2, Vance N. Owens1, James J. Doolittle3, Arvid Boe4 and Doug Y. Chung5*, (1)Plant Science Dept, (2)Chungnam National Univ, (3)South Dakota Agricultural Experiment Station, (4)Plant Science Department

138-40 934b Evaluation of Carbon Sequestration in the Organic Matter of the Arable Sandy Soil Using Data of the Long-Term Field Experiment with Fertilizers. Anastasiya Tulina*, Institute of Physicochemical and Biological Problems in Soil Science, Russian Academy of Sciences and Nina Stavrova, Novozybkov Agricultural Experimental Station

138-41 935a Long Term Dissolved Organic Carbon Fluxes in Streams of Central Scotland. Catherine L. Wear- ing1, Ian C. Grieve and David W. Hopkins, School of Biological and Environmental Sciences


138-44 936b Conservation Tillage and Cover Cropping Induced Changes in Total Carbon and Aggregate Protected Carbon. Jessica Veenstra*, William Horwaith and Jeffrey Mitchell, Univ of California, Davis

138-43 1025a Microbial Determinants of Soil Carbon Response to Climate Warming. Teresa Balser*, Univ of Wisconsin-Madison

138-44 1025b Calculating the Agricultural Greenhouse Gas Budget at the County Level in California. Steven DeGryse1, Johan Six1, Santhi Wicks2, Rosa Catala-Luque3 and Richard Howitt2, (1)Dept of Plant Sciences, Univ of California-Davis, (2)Agricultural and Resource Economics, Univ of California-Davis

138-45 1026a Long-Term Subsurface Drainage Intensity Effect of Long Term Fertilization and Rotation on Soil Organic Carbon of Burozem. Han Xiaorui*, Yin Hongbin, Xie Fang, Yang Jinfeng and Cao Hongjie, Land and Environment College, Shenyang Agriculture Univ

138-46 1026b Sequestration and Vertical Distribution of Organic Carbon and Total Nitrogen under Warm-Season Grasses Relative to Croplands. Rex A. Omonode1, (1)INRA Agronomie, (2)INRA UMR FARE

138-47 1027a Effects of Tillage on Soil Aggregate Distribution and Its Content in Glomalin and Carbohydrates. Fernando Borie1, Alfredo Morales1, Rosa Rubio1, María Aguileras1 and Gilda Borie1, (1)Universidad de La Frontera, (2)Universidad de Chile


138-50 1028b Role of Cell Wall Components on the Decomposition of Maize Roots in Soils: Impact on Carbon Mineralization. Gaylord E. Machinet1, Isabelle Bertrand1, Brigitte Chabbert1 and Sylvie Recous1, (1)INRA Agronomie, (2)INRA UMR FARE

138-51 1029a Change of Functional Parameters and Contents of Humus in Buried and Fallow Soils, Serafin M. Chukov*, Alexander G. Ryumin and Alexander S. Koposov, Saint-Petersburg State Univ


138-53 1030a Ecosystem Responses to Uncoupling Mycorrhizal Symbiosis: Above- and Belowground C and N Dynamics. Paul White*, Charles Rice, Tim Todd and Gail Wilson, Kansas State Univ

138-54 1030b Soil Organic Matter Stabilization and Associated Degradation Threshold Dynamics. James Kinyangi1, Johannes Lehmann1, Alice Pell1, Janice Thies2, Solomon Ngozie2, Susan Riha1, David M. Mbugua1 and Louis Vercho2t, (1)Cornell Univ, (2)World Agroforestry Center

138-55 1031a Free Amino Acids in Eroded Typical Seroser Soil of Uzbekistan. Laizza Gafurova*, Tashkent State Univ of Agriculture

138-56 1031b Spatial Analysis of Model Performance, Illustrated by Soil Carbon Dioxide Emissions. M.J. Pringle and R. Murray Lark*, Environmetrics Group, Biomathematics and Bioinformatics Division, Rothamsted Research

138-57 1032a Effects of Soil Erosion on CO2 Evolution of Serozem Soil from Semi Arid Region of Uzbekistan. Laizza Gafurova*, Tashkent State Univ of Agriculture

138-58 1032b Mineralisation of Miscanthus-Derived C in Three Differently Textured Soils and Its Incorporation into Microbial Biomass. Katja Schneckenberger* and Yakov Kuz' yakov, Institute of Soil Science and Land Evaluation, Univ of Hohenheim

138-59 1033a Quantification of Organic Carbon in Soil Fractions by DRIFT-PLS for Use in Models. Michael Zimmermann*, Jens Leifeld1, Michael W. I. Schmidt2 and Jürg Fuhrer1, (1)Swiss Federal Research Station for Agroecology and Agriculture, (2)Dept of Geography, Univ of Zurich


138-63 1035a Sequestration Characteristics of Soil Organic Matter at the Rice-Corn Rotation Fields in Trop-ical-Subtropical Area with Model Evaluation. Cheng-Peng Hsu1, Chiu M. Chang1, Tai-Lee Hu2 and Chenfang Lin3, (1)Dept of Soil and Environmental Sciences, National Chung Hsing Univ, (2)Dept of Environmental Engineering & Science

138-64 1035b Assessment of Soil Carbon Turnover in the Long Term Fertilizer Experiment and Validation of RothC-26.3 Model. Ganesh S. S*, Dhakshinamoorth-iy M, Kumaraperumal R, Anandakumar G and Devarajan S, Tamil Nadu Agricultural Univ

138-65 1036a Examining the C Saturation Concept in a Tem-perate Agricultural System. Hae-jeun Chung*, Johan W. Six1 and John H. Grove1, (1)Dept of Plant Sciences, (2)Plant and Soil Science Dept


138-67 1125b CPMAS 13C-NMR Spectra of Size-Fractions of a Soil Humic Acid Separated by Preparative Size-Exclusion Chromatography. Pellegrino Conte*, Dipartimento di Scienze del Suolo, della Pianta e del-l’Ambiente, Università di Napoli Federico II and Alessandro Piccolo, Università di Napoli Federico II

138-68 1126b Enhancing the Productivity of Crops and Grasses while Reducing Greenhouse Gas Emissions through Bio-Char Amendments to Unfertile Tropical Soils. Marco A. Rondon4, Diego Molina1,
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Soil Carbon Dioxide and Nitrous Oxide Efflux in Agricultural Watersheds with Agroforestry and Grass Contour Buffer Strips. Peter Motavalli*¹, Neal Bailey², Ranjith P. Udawatta³ and Kelly Nelson⁴. (1)Univ of Missouri-Columbia, (2)Univ of Missouri, (3)Center for Agroforestry, Univ of Missouri-Columbia.


Changes in Total Soil Organic Carbon Due to Crop Rotation and Bio-Cover under No-Tillage Production. Jason P. Wight⁶, Fred Allen² and Donald D. Tyler². (1)Univ of Tennessee, Dept of Plant Sciences, (2)Univ of Tennessee.


Lignin Degradation in an Arable Soil: How Does the input of Plant Residues Affect this Process? Andriana Andriamialison*¹, Hans Attia², Alexandre Heym and Michael W. I. Schmidt, Dept of Geography, Univ of Zurich.


A Model for Soil Organic Matter Turnover Proposed from Laboratory and Field Labelling Experiments and Sensitivity Analysis. Marc Pansu⁵ Sr., IRD and Pierre Bottner Sr., CNRS.

Fate of ¹³C and ¹⁵N Labelled Mustard Litter (Sinapis Alba) in an Agricultural Crop Land. Angelika Koelb³, Margit von Luetzow and Ingrid Koegel-Knabner, Lehrstuhl für Bodenkunde TU Muenchen.


The Effects of Soil pH and Microorganisms Source on N Mineralization and Nitrification. Asher Bar-Tal¹, Benjamin O. Danga², Dror Minz¹, Isaiah I.C. Wakindiki², Josephine Ouma³, Larissa Kautski³, Shoshana Suryano¹ and Aviva Hadas¹. (1)Institute of Soil, Water and Environmental Sciences, Agricultural Research Organization, (2)Egerton Univ.


Microbial Activities in Dark Brown Volcanic Ash Soils Was Affected by Different Fertilizer Application Methods in Citrus Orchard. Jae-Ho Joa¹, Han-Chuel Lim, Seung-Gap Han, KyungHwan Moon and Seung-Jong Jeon, National Institute of Subtropical Agriculture, RDA.

Soil Cations Availability in an Intensive Agroforestry System. Antonella Cesi*, Alessandra Lagomarsino¹, Sara Marmari¹, M. Cristina Moscatelli², Paolo De Angelis¹ and Stefano Grego². (1)Dept Forest Environment and Resources–Univ of Tuscia, (2)Dept Agrobiology and Agrochemistry–Univ of Tuscia.

Model Evaluation to Assess Organic Carbon Stocks and Changes in Soils of the Indo-Gangetic Plains, India. Tapas Bhattacharyya¹, Dilip Kumar Pal¹, KS Gajbhiye¹, P. Chandran¹, SK Ray¹, C. Mandal¹, Mark Easter¹, Keith Paustian², Steve Williams³, K. Killian¹, Kevin Coleman³, Pete Falloon⁴, David Powlson⁴, Niels Batjes¹ and E. Milne³. (1)National Bureau of Soil Survey and Land Use Planning, (2)Natural Resource Ecology Laboratory, (3)National Resource Ecology Laboratory, Colorado State Univ, (4)Rothamsted Research, (5)The Met Office, Hadley Centre for Climate Prediction and Research, (6)Rothamsted Research, Agriculture and Environment Division, (7)ISRIC-World Soil Information, (8)Dept of Crop and Soil Sciences, Colorado State Univ.
Determination of Point of Zero Charge of Manganese Oxides Using an Improved Salt Titration Method. Wen Feng Tan1, Fan Liu1, Qiao Yun Huang1 and Ji Zheng He2, (1) Faculty of Resources and Environment, Huazhong Agricultural Univ, (2)Research Centre for Eco-Environmental Sciences, CAS.

Determination of Point of Zero Charge of Manganese Oxides in Alluvium Derived Soils of North-West India in Relation to Soil Characteristics. SANJAY ARORA*, S.K.Univ of Agricultural Sciences and Technology-J and D.S. CHAHAL, Dept of Soils, Punjab Agricultural Univ

Desorption Kinetics of Boron in Alluvium Derived Soils of North-West India in Relation to Soil Characteristics. SANJAY ARORA*, S.K.Univ of Agricultural Sciences and Technology-J and D.S. CHAHAL, Dept of Soils, Punjab Agricultural Univ

Relation between the Molecular Composition of Organic Matter and the Sorption of Iodine. Sophie Maillantat1, Pierre Faure2, Alain Rouillier2, Frederic Lamnuel1 and Elisabeth Leclerc-Cessac1, (1)Laboratoire Sols et Environnement UMR 1120 INPL-INRA, (2)UM CNRS 7566-G2R, Universite Henri Poincare, (3)Andra

Heavy Metal Contents in the Soils around the Novocherkassk Power Station. Saglara Mandzhieva1, Tatiana Minkina1, Samokhin Alekssei1 and Olga G. Nasarenko2, (1)Rostov State Univ, (2)Don Agrarian Univ

Aging Effects on Sorption-Desorption and Dissipation of Simazine in Soil. Jussara B. Regitano*, Univ of São Paulo/CENA, William Koskimen, USDA-ARS/Univ of Minnesota and Michael Sadovsky, Univ of Minnesota

Effects of Aging on Bioavailability of Simazine in Soil. Jussara B. Regitano*, Univ of São Paulo/CENA, William Koskimen, USDA-ARS/Univ of Minnesota and Michael Sadovsky, Univ of Minnesota

Plant Growth Inhibitory Activity of L-DOPA as Affected by Adsorption and Transformation Reactions of Soils. Syunarto Hiradate1, Akhiro Furubayashi and Yoshiharu Fujii, National Institute for Agro-Environmental Sciences (NIAES)

Response of Sorption Properties of Soils to Soil Development, Land-Use and Management. Martin H. Gerzabek1, Georg J. Lair1, Peter Winkler1, Michael Novoszad2, Georg Haberhauer2, Hans Lischka1 and Daniel Tunega1, (1)Institute for Soil Research, University of Natural Resources and Applied Life Sciences, (2)Dept of Environmental Research, (3)Institute for Theoretical Chemistry, Univ of Vienna

Modelling the Competition from Fe(III) and Al(III) on Trace Metal Binding to a Spodosol Mor Layer. Jon Petter Gustafsson1, Ingmar Persson2, Dan Berggren Kleja1 and Joris W.J. Van Schaik2, (1)KTH (Royal Inst. of Technology), (2)Swedish Univ of Agricultural Sciences (SLU), (3)Swedish Univ of Agricultural Sciences
Phosphorous Availability as Influenced by Different Application Rates of Elemental Sulphur to Soils. Mohamed Abbas Rasheed*, Soils and Water Use Dept, National Research Centre

139-39 1140b Phosphorous Sorption Related to Extractable Aluminium and Iron in Some Podzols (Spodosols) in Michigan, USA. Antoni Szafranek*, Dept of Soil Science and Soil Conservation, Warsaw Univ of Technology and Delbert L. Mokma, Dept of Crop and Soil Sciences, Michigan State Univ


139-41 1141b Distribution Coefficient (Kd) of Heavy Metals in Brazilian Soils. Marcio Roberto Soares*, Federal Univ of São Carlos and Luís Reynaldo Ferracciú Alleoni, Univ of São Paulo

139-42 1142a Comparative Study of Cadmium, Copper, Nickel and Zinc Adsorption by Brazilian Variable Charge Soils. Ernesto Rinaldi Mouta*, José Carlos Casagrande and Marcio Roberto Soares, Federal Univ of São Carlos

139-43 1142b Surface Electric Properties of Mucks from Potentiometric Titration. Dorota Matyka-Sarzynska*, Institute of Agrophysics

139-44 1143a Phosphorous Status of Red Soils as Influenced by Continuous Fertilization under Finger Millet–Hybrid Maize System at Bangalore–India. C.M. Vinatha*, S.M. Jayaprakash, B.R. Jagadeesh, N. Vatsuki and K. Sudhir, Univ of Agricultural Sciences

139-45 1143b Soil Hygroscopicity as Related to Water Vapour Adsorption Isotherms and Surface Area Prediction of Certain Soils. Abdel-monem Mohamed Amer*, Soil Science Dept, Faculty of Agriculture, Menoufia Univ

140-1 848b Rapid Biosynthesis Process of Amino Sugars in Soil by Using NH4+ and Glucose. Hongbo He*, Xuadong Zhang, Institute of Applied Ecology, Chinese Academy of Sciences


1137a Evaluation of Acid Neutralization Capacity of Silandic and Alundic Andosols Using Comprehensive Sample Population. Toyoaki Ito*, Naoto Kikawa and Masahiko Saigusa, Field Science Center, Grad. School of Agricultural Sci.e, Tohoku Univ

1137b Fate of Fipronil in Soils under Sugar Cane Cultivation from the Northeast of Brazil: Adsorption and Degradation. Carmem S. M. Masutti*, Fundação Universidade Federal do Vale do São Francisco and Ahmet Mermut, Dept of Soil Science, Univ of Saskatchewan

1138a An Evaluation of Organic Amendments for Nonpoint Source Pollution Attenuation in Mitigation Wetlands. Emily K.D. Stockman*, Deborah J. Picking* and Petrus L.M. Veneman*, (1)Univ of Massachusetts, Amherst, (2)University of Massachusetts, Amherst


1139a Aflatoxin Sorption by Smectic Clay Modified with Aluminum Ions. Maria Guadalupe Tenorio Arvide*, Ines Kannewischer and Joe B. Dixon, Texas A&M Univ


1041b Quantitative and Mechanistic Analysis of Sulfate Adsorption Isotherms on γ-Al2O3 and Kaolinite. Baizhong Xu*, Forestry Bureau of Deqing County, Liqun Xu, Zhejiang Forestry Academy, Li-Ming He, Zhejiang Forestry Univ/County of San Diego and Lucian Zelazny, Virginia Tech

1042a P XANES Studies of Biosolids-Amended Soils. Derek Peak*, Univ of Saskatchewan

1042b Attachment of Manure-Borne Escherichia coli to Soil. Andrey Guber*, Yakov A. Pachesky* and Daniel Shelton*, (1)Univ of California, (2)USDA/ARS/BA/ANRI/ESML


1043b Agricultural Management Effects on Soil Organic Matter Hydrophobicity. Sara Marinar*1, Kattia Liburdi*, Danilo Corradini*2 and Stefano Grego*, (1)Dept Agriobigrocty and Agrochemistry–Univ of Tuscia, (2)National Research Council (CNR), Institute of Chemical Methodology (IMC)


1137a Evaluation of Acid Neutralization Capacity of Silandic and Alundic Andosols Using Comprehensive Sample Population. Toyoaki Ito*, Naoto Kikawa and Masahiko Saigusa, Field Science Center, Grad. School of Agricultural Sci.e, Tohoku Univ

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Session No. 140

2.3A Microbial Habitat: Evolution, Structure and Distribution in Soils—Poster

Convenor: Richard Dick, Ohio State University

140-1 848b Rapid Biosynthesis Process of Amino Sugars in Soil by Using NH4+ and Glucose. Hongbo He*, Xuadong Zhang, Institute of Applied Ecology, Chinese Academy of Sciences


140-4 849c The Influence of Temperature on Bacterial Activity in the Soil of the Northern Part of China. Zhi-Zhuang Cao, Yang Liu, Beishang Institute of Chemical Methodology and Synchrotron-based XANES. Peter Leinweber*, Univ of Rostock, André Schlichting, Steinbeis-Transferzentrum Soil Biotechnology and Tom Regier, Canadian Light Source Inc.
of Soil Science, (2)Dept of Soil Science, Moscow State Univ

140-4 851a Decomposition of Cotton Residues in Australian Soils, Gupta V.S.R. Vadakattu*, M. Hicks and M. L. Kasper, CSIRO Entomology

140-5 851b Role of Algobacterial Associations in Soil Forming Process, Elena O. Omorova*1, Galina M. Zenova1, Natalia P. Chizhikova2 and Vladimir K. Orlean- skii2, (1)Moscow State Univ, Faculty of Soil Science, (2)Dokuchaev Soil Science Institute, (3)Institute of Microbiology, Russian Academy of Sciences

140-6 947b Enumeration, Isolation and Identification of Di- azotrophic Bacterial Species from Paddy Rice in Korea, Ugi Gum Kang*, Youngman Agricultural Research Institute, National Institute of Crop Science

140-7 948a Pedobiological Action of Soil Fauna, Angela PIN- ZON PINTO*, Corporación tecnologica de Bogotá and Maria ROMERO PINTO, Universidad de Bogotá Jorge Tadeo Lozano

140-8 949a Phosphate Solubilization and Growth Promotion of Maize (Zea mays L.) by the Rhizosphere Soil Fungus Penicillium exalincium, Wansik Shin1, Jeoughyoun Ryu1, Yongjoo Kim2, Jinchul Yang2, Munusamy Madhaiyan3 and Tongmin Sa3, (1)Chungbuk National Univ, (2)KG Chemical Corp.

140-9 949b The Effectiveness of Arbucysic Mycorrhizal Fungi (AMF) Inoculation of Korean Ginseng (Panax Ginseng C.A. Meyer) Seedlings, Eun Ju Cho1, Seo Young Jin1, Chi Do We1, Ju Sik Cho1, Hong Lim Kim1 and Bo Kyoon Sohn1*, (1)Dept of Biological Environment, Sunchon National Univ, (2)National Horticultural Research Institute

140-10 950a Characterization of Bacterial Communities Isolated from Rhizosphere Soil of Field Grown Chinese Cabbage (Brassica campestris ssp pekinensis) by Cultivation Dependent Methods and Screening of Potential Plant Growth Promotion, Selvaraj Poonguzhali1, Munusamy Madhaiyan1, Kyouna Kim1, Daesuck Suhi2, Bumki Park2, Jaeyoung Kim1* and Tongmin Sa3, (1)Chungbuk National Univ, (2)Namhae Chemicals Corp, (3)Chungbuk National University

140-11 950b Proteome Analysis of Differentially Displayed Proteins as a Tool for Evaluating the Effect of the Natural Soil Mineral Illite Applied as a Soil Conditioner on the Growth of Lettuce. Keun-Yook Chung*, Chungbuk National Univ

140-12 951a Characterizing Biological and Physical Soil Properties across a Spatial Gradient from In-Row to Inter-Row in a Long-Term Vegetable Tillage Study, Laura F. Overstreet* and Greg D. Hoyt, North Carolina State Univ

140-13 951b Phylogenetic Characterization of a Polychlorinated-Biphenyl-Dechlorinating Microbial Community under Different Anaerobic Treatments. Andres E. Nunez* and Elisa M. D’Angelo, Dept of Plant and Soil Science, Univ of Kentucky

140-14 1046a Indicative Values of Enzimatic Activity and Biological Properties about Soils from Oaxaca Mexico. Reyes-Ortigoya Amada Laura1, Universidad Nacional Autónoma de México

140-15 1046b Microbial Populations Response to Tillage and Residue Managements in a Calcareous Soil. Mojiaba Yahyaabadi*, Dept of Soil and Water Research, Isfahan Agriculture Research Center

140-16 1047a Relationship of Glyphosate Application and Foliar Amendment on IAA-Producing Bacteria and Urase Activity in the Rhizosphere of Glyphosate-Resistant Soybean. Su-Jung Kim*, Dept of Soil, Environmental, and Atmospheric Sciences, Univ of Missouri-Columbia and Robert J. Kremer, USDA-ARS, Cropping Systems and Water Quality Research Unit

140-17 1047b Identification of Rare Species of Actinomycetes in Soils of Mongolia. Norusenov Jadamba*, Lab- oratory of Microbiology, Biology Institute of the Mongolian Academy of Sciences, Vitalii I. Savich, Russian State Agricultural Univ–INOA Timiryazev and Galina M. Zenova, Faculty of Soil Science, Moscow State Univ

140-18 1048a Correlation between the Secondary Metabolism of Fluorescent Pseudononas spp. and their Rhizospheric Competence. Messaoud Benchabane*, Univ de Blida and Rabah Bakhou, USSTHB

140-19 1048b Occurrence of C. perfringens from Different Cultivated Soil. Criša Voidarou1*, Sotirios Kandrelis1, Dimitrios Vassos2, Athina Tzora1, Ioannis Skoufós1, Athanasios Alexopoulos3 and Evgenia Bezirtzoglou1, (1)T.E.I. of Epirus, Laboratory of Animal Health and Infectious Diseases, Dept of Animal Production, (2)Univ of Ioannina, Medical School, Hygiene Lab, 45110, (3)Democritus Univ of Thrace, School of Agricultural Development, Microbiology Lab


140-21 1049b Effect of Waterlogging and Drought on Mycorri- rhizal Colonisation in Lotus Glaber Roots in a Saline-Sodic Soil. Rodolfo Mendoza* and Garcia Ileana, MACN (Museo Argentino de Ciencias Naturales – CONICET)

140-22 1050a Short-Term Dynamics of Organic Matter and Microbial Biomass of Soils after Simulated Rainfall on Dry Cropland under Different Climate, Soil Texture, and Crop Residue Management. Sugihara So*1, Funakawa Shinya1, Kilasara Methodo2 and Kosaki Takashi3, (1)Graduate School of Agriculture, Kyoto Univ, (2)Dept of Soil Science, Sokoine Univ of Agriculture, (3)Graduate School of Global Environmental Studies, Kyoto Univ

140-23 1050b The Study of Salinity and Drought Tolerance of Sinorhizobium meliloti Isolated from Province of Kerman In Vitrro and In Vivo Condition. Mahboobeh Abolhasani1, Amir Lakzian2 and Gholamhossein Haghnia2, (1)MSc student, (2)Ferdowsi Univ of Mashhad

140-24 1051a Abundance and Distribution of Phosphate Solubi- lizing Bacteria and Fungi in Some Soil Samples from North of Iran. Alireza Fallah*, SWRI

140-25 1051b The Ecology of Earthworms on Five UK Golf Courses. Mark D. Bartlett*, National Soil Resource Institute, Karl Ritz, The National Soil Resources Institute, Cranfield Univ, Jim A. Harris, Institute of Water and Environment, Cranfield Univ and Iain T. James, Cranfield Centre for Sports Science

140-26 1146b The Increase of Fertility and Productivity of Salt Affected and Poor Arid Soils by Using Biodiversity of Rhizobacteria. Difuza Egamberdieyeva*, Tashtek State Univ of Agriculture

140-27 1147a Poststraining Restoration of Ammonifying Bac- teria of Chernozem Ordinary in Modelling Experiment. Tatyana V. Denisova*, Rostov State Univ

140-28 1147b Viral Ecology in the Floodwater of a Japanese Rice Field. Natsuko Nakayama1*, Mami Okumura1, Katsuhirou Inoue2, Susumu Asakawa1 and Makoto Kimura1, (1)Graduate School of Bioagricultural Sciences, Nagoya Univ, (2)Aichi-ken Anjo Reserch and Extention Center
**2.3B Molecular Approaches to Microbial Ecology in Soils**

**Poster**

**Convenor: James M. Tiedje, Center for Microbial Ecology**

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**141-1** 853b **Microbial Diversity, Activity and Nitrogen Mineralization in Organic Matter Amended Soils.** Christine H. Stark, Leo M. Condon, Alison Stewart, Hong-jie Di, Maureen O’Callaghan, (1)Lincoln Univ, (2)National Centre for Bio-protection Technologies, (3)AgResearch

**141-2** 952a **Effects of P and N Enrichments on Sediment Bacterial Communities in Florida Bay: Estimation by PCR-DGGE Analysis.** Makoto Ikenaga, Serafim N. Chukov, (1)Research Institute of Biological and Environmental Sciences, Ashley D. Sparrow, (2)School of Biological and Environmental Sciences, Ashley D. Sparrow, Dept of Natural Resources and Environmental Sciences, Edward G. Gregorich, Agriculture & Agri-Food Canada, Bo Elberling, Institute of Geography, Laurence G. Greenfield, Univ of Canterbury and Phil Novis, Manaaki Whenua–Landcare Research

**141-3** 953a **Methane Oxidation in Landfill Cover Soils as Revealed by PLFA Analyses and 13C Measurements.** Andrea Watzinger, Frank Rasche, (1)Univ of Natural Resources and Applied Life Sciences, (2)ARC Seibersdorf Research, (3)Federal Research and Training Centre for Forests, Natural Hazards and Landscape, (4)Austrian Agency for Health and Food Safety

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**Convention Center, Exhibit Hall A, Second Floor**

**2.3P New Strategies for Management of Plant Pathogenic Soil Microorganisms—Natural Soil Suppression or Genetically Modified Plants**

**Poster**

**142-1** 853a **Soil Structure–Influenced Population Shifts of Methanogens in Paddy Soil.** Stefan Knauth, Rolf Tippkötter, Univ of Bremen, Institute for Soil Science

**142-4** 953b **Controls on Biological Activity in Soils from Antarctic Dry Valleys.** David W. Hopkins, School of Biological and Environmental Sciences, Edward G. Gregorich, Agriculture & Agri-Food Canada, Bo Elberling, Institute of Geography, Laurence G. Greenfield, Univ of Canterbury and Phil Novis, Manaaki Whenua–Landcare Research
Root Exudates of Apple Seedlings (Malus x Domestica Borkh.): What is the Role of Phloridzin in Apple Replant Disease? Anett Hofmann* and Lutz Wittenmayer, Martin Luther Univ, Halle Wittenberg


Pathogenic Fungi of Olive Orchards in La Rioja Soils, Argentina. Beatriz A. Pérez*, Gervasio Carboni, Julio M. Sánchez* and Gustavo A. Cruzate*, (1)INTA-IMYZA-Castelar, (2)INTA-CIRN-Instituto de Sueños

Effects of Field Management Practices on Plant Health and Rhizosphere. María Soledad Benítez*, Fulya Baysal-Tustas, Amara Camp and Brian B. McSpadden-Gardener, Dept of Plant Pathology, Ohio State Univ, OARDC

Survival and Reproduction of Phytophthora ramorum in Forest Soils. Elizabeth J. Fichtner*, Shannon C. Lynch and David Rizzo, UC Davis

Identification and Antimicrobial Activity of 2-Amino benzoic Acid from Pantoea spp. Strain HB-22. Hwangbo Hoon* Sr., Jin Rong De, Cho Min Young, Na Sang su, Lim Hyoung Woo, Kim Kil Yong and Kim Yong Woong, Division of Applied BioScience and Biotechnology, College of Agriculture and Life Science, Chonnam National Univ

Inhibition of Meloidogyne Incognita Reproduction by Gelatinolytic Bacteria in Tomato. Jin Rong De* Sr., Cho Min Young, Jung Na Young, Kim Yong Woong and Kim Kil Yong, Division of Applied BioScience and Biotechnology, College of Agriculture and Life Science, Chonnam National Univ

Impact of Long-Term Orchard Ground-Cover Management Practices on Apple Seedling Growth in an Orchard Soil. Angelika Rumberger*, Dept for Horticulture and Janice E. Thies, Dept of Crop and Soil Sciences, Cornell Univ

Biological Control of Verticillium Wilt of Cotton by Salt Tolerant Rhizobacteria in Extreme Soil Conditions. Dilfuza Egamberdiyeva*, Tashkent State Univ of Agriculture

Isolation and Characterization of Antifungal Substances from Culture Broth of Burkholderia sp. Mao Sophareeth*, Jin Rong De, Park Mi Jung, Kim Yong Woong and Kim Kil Yong, Division of Applied BioScience and Biotechnology, College of Agriculture and Life Science, Chonnam National Univ

Role of Chitinase and Beta-1,3-Glucanase Activities of Fluorescent Pseudomonad NDNI In Vitro Inhibition of Macrophoma Phaseolina and its In Vivo Control. Naveen K. Arora*, Dept of Microbiology, Institute of Biosciences and Biotechnology, C S I M Univ

Blueberry Fungi under Different Soil Conditions in Buenos Aires Province, Argentina. Beatriz A. Pérez*, Gervasio Carboni* and Julio M. Sánchez*, (1)INTA-IMYZA-Castelar, (2)INTA-CIRN-Instituto de Sueños

Influence of Cultivation and Agricultural Practices on Metabolic Quotient in Venezuelan Entisols and Inceptisols. Magaly Ruiz*, Univ Romulo Gallegos and Jorge E. Paolini, Instituto Venezolano de Investigaciones Científicas (IVIC)

Biocontrol of Late Blight (Phytophthora capsici) in Pepper by Chitin Broth Containing Multitude of Chitinolytic Bacteria. Kim Sung Jae* Sr., Jin Rong De, Ryu Ji Yeon, Yun Kyung Mi, Kim Yong Woong and Kim Kil Yong, Division of Applied BioScience and Biotechnology, College of Agriculture and Life Science, Chonnam National Univ

Effects of Combined Cultural Practices on Suppression of Soilborne Pathogens and Microbial Community Patterns in a Plainfield Sandy Loam. Mafmudije Selimi*, Teresa Balser, Douglas J. Rouse and Ann MacGuidwin, Univ of Wisconsin–Madison

Reduction of Phytophthora Stem Rot Disease on Soybeans by the Application of CaCl2 and Ca(NO3)2. Takuma Sugimoto*, Kazukiho Watanabe, Minoru Matsuyama, Masataka Aino and Shinya Yoshida, Hyogo Agricultural Institute for Agriculture, Forestry and Fisheries

The Effect of Inorganic Elements on the Reduction of Phytophthora Stem Rot Disease of Soybean. Takuma Sugimoto, Kazukiho Watanabe*, Minoru Matsuyama, Mikihiro Sugimoto and Shinya Yoshida, Hyogo Agricultural Institute for Agriculture, Forestry and Fisheries

Zinc Efficient Rice Genotypes Resistant to Nematode Infection?. Ramasamy Krishnasamy*, Chinnappan Sudhalakshmi1, U. Surendran1 and A. Rajarajan2, (1)Tamil Nadu Agricultural Univ, (2)Regional Research Station


Soil Evolution as a Function of Parent Material Properties in Salty Paddy Field in Korea. Ju-Young Lee*, Division of Plant Nutrition, NIAST

The Study on the Changes of Physico-Chemical Properties in Salty Paddy Field in Korea. Chul-Hyun Yoo*, Byeong-Su Kim1, Chang-Hyu Yang2, Ji-Ho Jeong3, Jae-Duk Kim1 and kwang-Yong Jung2, (1)Honam Agricultural Research Institute NICS, RDA, (2)Honam Agricultural Research Institute NICS, RDA, (3)Honam Agricultural Research Institute

Effects of long-Term Orchard Ground-Cover Management Practices on Apple Seedling Growth in an Orchard Soil. Angelika Rumberger*, Dept for Horticulture and Janice E. Thies, Dept of Crop and Soil Sciences, Cornell Univ
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2.5A Soil Physicochemical-Biological Interfacial Interactions: Impacts on Transformations and Bioavailability of Metals and Metalloids—Poster

Convenor: A. Violante, Università di Napoli- ITALY

144-1  861a Adsorption of Cadmium on Three Soils with Different pH Values as Influenced by Dissolvable Organic Matter. Hongqing Hu*, Jing Liu, Suwan Chen and Yongguan Zhu, Huazhong Agricultural Univ

144-2  861b Towards a National Soils Database in the Republic of Ireland. Deirdre Fay* and David McGrath, Teagasc

144-3  862a Silica Polymerization on Goethite and its Influence on Ligand Promoted Dissolution. Todd Luxton* and Matthew Eick, Virginia Tech

144-4  863a Feasibility of Zerovalent Iron to Stabilize Cd in the Paddy Soils Adjacent to the Closed Metal Mines in Korea. Jae E. Yang*, Kyung-Yool Yoo1, Yong-Sik Ok1, Jai Joung Kim1 and Yi Nam3, (1)Kangwon National Univ, (2)Chungbuk National Univ, (3)National Agricultural Cooperative Federation (Nonghyup)

144-5  863b Zinc Uptake in Phaseolus Vulgaris (CV. Borlotto), Marco Sciortino1, Tanja Mimmo1, Andrea Simon1, Claudio Marzador2 and Giorgio Gianquinto2, (1)Dept of Agroenvironmental Sciences and Technologies, Alma Mater Studiorum – Univ of Bologna, (2)Dept of Agronomy, Univ of Florence, (3)Department of Agricultural Sciences, Alma Mater Studiorum – Univ of Bologna

144-6  864a Bioremediation of Soils Contaminated with Heavy Metals Using Phosphate Rock and Biosolids. Lenom J. Cajuste*1, Lenom Cajuste Jr.2, Patricia Hernandez-R1, Cecilia Garcia-O1 and Jaime Cruz-Diaz1, (1)College of Postgraduates, (2)Univ of Arizona

144-7  864b Phytoextraction of Heavy Metal Contaminated Soil by Hyperaccumulator Sedum alfredii Hance with Mixed Chelant in a Co-Crop System. Ze-Bin Wei1, Qi-Tang Wu2, Ying Ouyang2 and Jean Louis Moral1, (1)College of Natural Resource and Environment, South China Agricultural Univ, (2)Dept of Water Resources, St. Johns River Water Management District, (3)INPL/ENSAIA/INRA, Laboratoire Sols et Environnement

144-8  865a Potassium Solubilization from Silicatic Rocks by Aspergillus Niger. M. Adriana Carrasco2, Gabriela Castillo3 and Loreto Matic1, (1)Facultad de Ciencias Químicas y Farmacéuticas, (2)Facultad de Ciencias Agronómicas, (3)Facultad de Ciencias Físicas y Matemáticas

144-9  865b Mixing of Anthropogenic and Geogenic Lead Through Biogeochemical Cycling at a Temperate Moist Forest Ecosystem in Japan. Yuto Itoh1, Kotaro Noguchi, Masamichi Takahashi and Shuichiro Yoshinaga, Forestry and Forest Products Research Institute, Japan

144-10  866a Kinetics of Radioesium Released from Contaminated Soil by Fertilizer Solutions. Po-Neng Chung1, Ming-Kuang Wang1, P.M. Huang2 and Jeng-Jong Wang3, (1)National Taiwan Univ, (2)Dept of Soil Science, Univ of Saskatchewan, (3)Institute of Nuclear Energy Research

144-11  867a Characteristics of Heavy Metal Contamination in Residual Mine Tailings Near Abandoned Metaliferous Mines in Korea. Goo-Bok Jung*, Won-II Kim, Jong-Sik Lee, Jin-Ho Kim and Jeong-Taek Lee, National Institute of Agricultural Science and Technology

144-12  867b Fractionation and Potential Mobility of Heavy Metals in Tailings and Paddy Soils near Abandoned Metaliferous Mines. Goo-Bok Jung*, Won-II Kim, Jong-Sik Lee, Jin-Ho Kim and Mun-Hwan Koh, National Institute of Agricultural Science and Technology

144-13  868a Bio-Availability of Heavy Metals in Soils Treated with Lime-Stabilized Biosolids and Irrigated with Wastewater. Juan Pedro Flores-Margez*1, Esaul Jaramillo-Lopez1, Naomi Waissman Assadian2, George D Di Giovanni2, Federico Perez-Casio1 and Baltazar Corral-Diaz1, (1)Univ Autonoma de Ciudad Juarez, (2)Texas A&M Univ

144-14  868b Adsorption and Redox Reactions of Heavy Metals on Synthesized Manganese Oxide Minerals. Fan Liu*, Huazhong Agricultural Univ, Xiong Han Feng, College of Resources and Environment, Huazhong Agricultural Univ and Wen Feng Tan, Faculty of Resources and Environment, Huazhong Agricultural Univ


144-16  869b Birnessite Reduction by Iron(II) Organic Complexes. Jonathan L. Edwards* and Christopher J. Matocha, Univ of Kentucky

144-17  960a Alumina Content of Synthetic Al-Humin Substance Complexes and their Influence on Plant Root Growth. Tadashi Takahashi*1, Masami Nanzo1 and Syuntaro Hiradate2, (1)Faculty of Agric. Tohoku Univ, (2)Nat'l. Inst. of Agro-Env. Sci.

144-18  960b Clay Mineralogy and Trace Elements Content in Volcanic Polluted Soils from South Italy. Mariavittoria Zampella1, Paola Adamsio1, Laurent Caner2, Sabine Petit2 and Dominique Righi2, (1)Dipartimento di Scienze del Suolo, della Pianta e dell’Ambiente, Univ di Napoli Federico II, (2)Univ de Poitiers, UMR CNRS 6532 Hurdy ASA

144-19  961a Extractability of Cu, Cr, Ni, Pb and Zn in Some Chilean Biosolids-Amended Soils Using BCR Sequential Extraction Procedure. Inês Ahumada1, Adriolfo Maricán1, Cristina Pedrazzi1, Pablo Richter1, M. Adriana Carrasco2, Gabriela Castillo3 and Loreto Ascar1, (1)Facultad de Ciencias Químicas y Farmacéuticas Univ de Chile, (2)Facultad de Ciencias Agronómicas Univ de Chile, (3)Facultad de Ciencias Físicas y Matemáticas Univ de Chile
The Effect of Soil Sterilization on Zn, Cu, Fe, and Mn Uptake by Maize. Samaneh Aryanab, Amir Fotovat*, Amir Lakzian and Gholamhossein Haghnia, Ferdowsi Univ of Mashhad


Experimental Study of Heavy Metals Distribution, Attenuation and Mobility in Two Oklahoma Soils Amended with Sewage Sludge. Kefeni Kajela*, USDA/NRCS and Dee Ann Sanders, Associate Professor, School of Civil and Environmental Engineering, Oklahoma State Univ

Distribution and Contamination of Zn, Cd and Pb, and Establishment of Local Referende Value for the Vazante (MG)–Brazil. Meubles Borges Junior*, UNEC, Jaime W. V. Mello, Univ Federal de Viçosa and Carlos E.G.R. Schaefer, Depto do Soilos- Unif Federal de Viçosa

Lead Phytoextraction from Soil by Corn, Sunflower, and Cotton Species Applying EDTA and Sulfuric Acid. Ebrahim Fattahi Kiasari, Amir Fotovat*, Alireza Astarei and Gholamhossein Haghnia, Ferdowsi Univ of Mashhad

Colloid Mobilization and Heavy Metal Transport in Reclaimed Soils Following Coal Mining. Jarrod Miller†, Anastasios Karathanasis† and Ole Wendorff†, (1)Univ of Kentucky, Dept of Plant and Soil Sciences, (2)Univ of Kentucky

Weathering of Ni-Bearing Minerals in the Rhizosphere of Hyperaccumulator Plants. Vanessa Chardot†, Guillaume Echevarri†, Emmanuelle Montargès-Pelletier†, Geneviève Villemin†, Laurent Michot† and Jean Louis Morel†, (1)LSE ENSIAA-INPL/INRA, (2)LEM INPL/CNRS


Crop Rotation and Crop Residue Biocycling Affect on the Availability of Heavy Metals to the Subsequent Crop. Lisa M. Eastley†, Cynthia Grant†, Don Flaten† and Mario Tenuta†, (1)Dept of Soil Science, (2)Agriculture & AgriFood Canada, Brandon Research Centre

Metals-Organic Interactions and Their Ecological Significance. Symposium 2.5A. Galina V. Motuzova* Jr., Moscow State Univ, Faculty of Soil Science

Forms and Q/I relationship of Potassium in Sub-Montane Region of Maharashtra, Western India. Kashinath Ragho Sonar*, Mahatma Phule Agriculture Engineering, Oklahoma State Univ

Impacts of Long-Term Land Application of Poultry Litter on Metal Status in Soil. Irenus A. Tazisong*, Zhongqi He*, Zachary N. Senwo* and Donglin Zhang*, (1)Alabama A&M Univ, (2)USDA-ARS, (3)Univ of Maine

Obtaining environmentally Sound Mixtures of Anthropogenic Materials for Land Restoration. Marta Camps Arbestain*, NEIKER and Felipe Macías, Univ de Santiago de Compostela

The Biogeochemical Cycling of Manganese in a Forested Ecosystem of the Canadian Shield. Nathalie Gingras*, Dépt de géographie, Univ de Montréal and François Courchesne, Dépt de Géographie, Univ de Montréal

A Column Study Using Mixtures of Anthropogenic Materials. Ander Santesteban*, Rocio Melendez†, Fernando Blanco†, Miriam Pinto†, Maria Luisa Ibargoitia†, Felipe Macías† and Marta Camps Arbeastain†, (1)NEIKER, (2)Univ. Santiago de Compostela

Heavy Metals in Contaminated Calcareus Soils: Distribution, Mobility and Bioavailability. Ivanka Anguelova†, Gueorgui Anguelov† and Ivan Tzanassov†, (1)Florida A&M Univ, (2)Institute for Sustainable Development

Maize Genotype Responses to CaCO3 in Soils. Hero Gollany®, Columbia Plateau Conservation Research Center and Thomas Schumacher, South Dakota State Univ

Chemical Interactions of Arsenate, Arsenite, Phosphate, and Silicate with Iron(II,III) Hydroxycarbonate Green Rust. Chumning Su* and Richard T. Wilkin, United States Environmental Protection Agency

Oxidation and Mobilization of Selenium by Rhizosphere Processes and Chemicals. Libbie Oran†, Daniel G. Strawn†, Greg Moller†, Jodi L. Johnson-Maynard†, Mathew Marcus† and Sirine Fakra†, (1)Univ of Idaho, (2)Lawrence Berkeley National Laboratory

Kinetics and Mechanism of Mineralogically- and Biologically-Assisted Arsenic Transformation: A Macroscopic Assessment. Brandon Lafferty†, Michael Borda, Andrew Madison, Jeffry Fuhrmann and Donald Sparks, Univ of Delaware

Relation between Selenium Immobilisation and Anoxic Conditions in Soil Columns at Constant Water-Table. Claire-Sophie Hauđin*, Elisabeth Leclerc-Cessac*, Pierre Renault* and Siobhán Staunton*, (1)Andra, (2)Institut National de la Recherche Agronomique, (3)INRA, Rhizosphere & Symbiose

The Volatilization of Arsenic in Poultry Litter and Litter Amended Soils. Masayuki Shimizu* and Donald L. Sparks, Univ of Delaware


Arsenic Fractions, Adsorption and Potential Release of Arsenate and Arsenite from Two Soils of South West Bangladesh Irrigated with As Contaminated Water. Maria Martin*, DIVAPRA, Univ of Turin, Grugliascor (Torino), Elisabetta Barberis, DIVAPRA, Univ of Turin and Antonio Violante, Univ of Naples FedericoII, Portici (Napoli)


Predicting Anion Adsorption Affinity on Andisols by the Triple Layer Model. María de la Luz Mora*, Paula Cartes, Erika Vistoso and Alejandra A. Jara, Univ de La Frontera
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<td>Arsenic Attenuation upon Bioreduction of Ferrihydrite. Yoko Masue*, Thomas Borch, Ben Kocar and Scott Fendorf, Dept of Geological and Environmental Sciences, Stanford Univ</td>
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<td>144-49 1066a</td>
<td>Effect of Humic Acid Coating on Arsenite Adsorption on Ferrihydrite-Kaolinite Complexes. Maria Martin*, Luisella Celi, Elisabetta Barberis, Antonio Violante, Leonard M. Kozak and P. M. Huang, (1)DIVAPRA, Univ of Turin, Grugliasco (Torino), (2)Univ of Naples FedericoII, Portici (Napoli), (3)Dept of Soil Science, Univ of Saskatchewan</td>
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<td>144-50 1066b</td>
<td>Structural Perturbations of Aluminum Hydroxides and the Impact on their Kinetics of Arsenate Adsorption. Maria Martin*, Guifên Yu, Elisabetta Barberis, Antonio Violante, Leonard M. Kozak and P. M. Huang, (1)DIVAPRA, Univ of Turin, Grugliasco (Torino), (2)Institut de Soil Science, Chinese Academy of Sciences, (3)Univ of Naples FedericoII, Portici (Napoli), (4)Dept. of Soil Science, University of Saskatchewan, Saskatoon, SK Canada, (5)Dept of Soil Science, Univ of Saskatchewan</td>
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<td>144-51 1067a</td>
<td>Validation of a Multicomponent Freundlich Type Equation to Describe Mutual Interactions of Selenium and Phosphate on Andisols. Paula Cartes*, Alejandra A. Jara1, Noora Hyyryläinen2 and María de la Luz Mora, (1)Univ de La Frontera, (2)Univ of Helsinki</td>
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<td>144-52 1067b</td>
<td>Thermodynamic Description of Sulfate Behavior on Allophanic Synthetic Compound. Alejandra A. Jara*, Paula Cartes and María de la Luz Mora, Univ de La Frontera</td>
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<td>144-53 1068a</td>
<td>Biogeochemical Cycling of As in a Paddy Soil-Rice Plant System in Bangladesh. Jessica Dittmar*, Andreas Voegelin, Ruben Kretzschmar, Linda C. Roberts, Stephan J. Hug, Ganesh C. Saha, M. Ashraf Ali and A. Borhan M. Badruzaman, (1)Institute of Terrestrial Ecology, Swiss Federal Institute of Technology Zurich (ETH), (2)Swiss Federal Institute of Aquatic Science and Technology (EAWAG), (3)Bangladesh Institute of Engineering and Technology</td>
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<td>Culturable Bacterial Populations in Arsenic Poluted Soils of the South West Bangladesh. Elena Dell’Amico1, Lucía Cavela1, Laura Terruzzi1, Luigi Allièvi1, Maria Martin2 and Vincenza Andreoni3, (1)Univ degli Studi di Milano, (2)DIVAPRA, Univ of Turin</td>
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<td>Kinetics and Mechanism of Mineralogically- and Biologically-Assisted Arsenic Transformation: A Spectroscopic Assessment. Michael Borda1, Brandon Laflerty1, Andrew Madison1, Michael Martin2, Jeffry Fuhrmann1 and Donald Sparks3, (1)Univ of Delaware, (2)Lawrence Berkeley National Laboratory, (3)University of Delaware</td>
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<td>144-56 1162a</td>
<td>Impact of Microbial Processes on the Fate of Metals in Groundwater. Piet Seuntjens, Ludo Diels*, Karolien Vanbroeckhoven, Sandra Van Roy and Kristof Tirez, Flemish Institute for Technological Research</td>
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<td>144-59 1163b</td>
<td>Interaction of Phosphatase with a Chilean Andisol Clay in the Presence of Manganese and Molybdenum. Maria De la Luz Mora1, Roxana López3, Maria A. Rao2, Liliana Gianfreda3 and Analí Rosas1, (1)Dep. de Ciencias Químicas, Univ de La Frontera, (2)Dept of Soil, Plant and Environment Sciences, Univ of Naples Federico II</td>
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<td>144-61 1165a</td>
<td>Plant Growth in a Chromium Contaminated Site Affected by Different Fertilizers. Farideh Karbasi*, Bu-Ali Sina Univ</td>
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<td>Change In Soil Biological Activity Under Man-Caused Factors OF The Landfills of Solid Municipal Wastes*. Dina Nivendomskaya*, Rostov State Univ</td>
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<td>Geochemical and Biochemical Properties of Coalmine Tailings of North Eastern Collieries of Assam, India. Har Prasanna Deka Boruah*, Regional Research Laboratory, (CSIR), Jorhat</td>
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<td>144-64 1166b</td>
<td>The Dissolution and Bioavailability of Cu from a Cu-contaminated Orchard Sandy Loam under the Influence of Dissolved Organic Matter. Jonathan WC Wong*, Dept of Biology, Hong Kong Baptist Univ</td>
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<td>Bioavailability and Phytoremediation of Mercury Contaminated Soils. Fengxian Han*, Yi Su and David Monds, Mississippi State Univ</td>
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<td>144-67 1168a</td>
<td>Bioavailability of Contaminant Metals in a Mining Impacted Region of Ontario, Canada. Graeme A. Spiers and Jomal Abedin*, MIRARCO, Laurentian Univ</td>
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<td>144-68 1168b</td>
<td>Physical , Chemical and Morphological Properties of the Soils Developed on 5 Parent Materials in Northface of Elborz Mountain in Iran. Hassan Ramezanpour* and Raheleh Hesami, Guilan Univ</td>
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<td>144-69 1169a</td>
<td>Study of Interactions Between Thiobacillus Bacteria and Mycorrhizal Fungi on Some Growth Characteristics of Wheat Under Greenhouse Conditions. Hosein Besharati*, Soil and Water Institute of Iran</td>
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2.58 Interactions between Clays and Organic Matter and Their Impact on Sorption and Availability of Organic Compounds in Soil Environments—Poster

Convenor: Baoshan Xing, University of Massachusetts

145-1 774a Study on The Adsorption of Bensulfuron-methyl by Main Zonal Soils in Central-South China Region. Tian-Zhi Ouyang, Dept of Applied Chemistry, Wuhan Univ of Technology and Xue-yuan Li*, College of Resources and Environment, Central China Univ of Agriculture


145-3 776a Studies on Sorption, Movement and Persistence of Soil Applied Pesticides in Different Soils. Rajanjan Jayakumar*, Tamil Nadu Agricultural Univ

145-4 776b Effects of Urea on Interaction Between Sulfonlurea herbicides and Cathalase by Fluorescence Spectroscopy. Fabing Ye*, Dept of Chemistry, Huazhong Agriculture Univ, Tian-Zhi Ouyang, Dept of Applied Chemistry, Wuhan Univ of Technology and Yuanyan Dong, Dept of Chemistry, Huazhong Agriculture Univ,


145-6 872b Behaviors of Layered Double Hydroxides in Soils. Man Park1, Young Jin Seo2, Choong Lyelal Choi3, Jong Hec Lee4 and Pyoung Yeol Kim4, (1)Dept of Agricultural Chemistry, Kyungpook National Univ, (2)Kyeongsangbukdo Agricultural Technology Administration, (3)Kyungpook National University, (4)Kyungpook National Univ

145-7 873a Soil Organic Matter Amphiphility and Water-Stable Aggregates Formation. E. Yu. Milanovsky* and E.V. Shein, Moscow State Univ, Soil Science Faculty

145-8 873b Humus Regime, Colloid Forms and Fractional Structure of Humus in Red-Brown and Brown Soils. Saeed Zeraat Kar*, Kharkov National Agrarian Univ

145-9 874a High Accumulation of Organic P in Chemical Fertilizer Treatment than Compot Treatment. Chang Hoon Lee* and Pil Joo Kim, Division of Applied Life Science, Gyeongsang Univ

145-10 874b Release of DOM from Mucks in the Presence of Phosphates. Dorota Matyka-Sarzynska* and Zofia Sokolowska, Institute of Agrophysics

145-11 875a P Desorption in Andisols with Anion Exchange Resin Membranes Sequential Extraction. Miguel A. Negrin1, Jose Manuel Hernandez-Moreno2, Francois Bartoli2 and Monserrat Espino1, (1)Univ de La Laguna, (2)Laboratoire Sol et Environnement ENSAIA/INRA

145-12 875b Transport and Concentration of Allergens and Light Organics in Dust. Richard E. Zartman* and William F. Jaynes, Texas Tech Univ

145-13 876a Pedotransfer Functions for Mineralization and Retention of Waste Waters. Francisco Bautista*, Depto de Ecologia, FMVZ, Univ Autonoma de Yucatan and Yameli Aguilar, Univ Autonoma de Yucatan


145-15 877a Molecular Ratio of PAH as a Tool to Reveal Ancient Farming Practice from Paleo-Paddy Soils in the Yangtze Delta of China. Yuanhua Dong*, Zhihong Cao, Jiuhai Li, Hui Wang, Qing An, Zhengyi Hu, Linzhang Yang, Xinggui Lin and Rui Yin, Institute of Soil Science, Chinese Academy of Sciences

145-16 877b Importance of Kerogen Carbons in Soils and Sediments from the Pearl River Delta and Estuary, China. Yong Ran*, Ke Sun1 and Baoshan Xing2, (1)Guangzhou Institute of Geochemistry, (2)Dept of Plant, Soil, and Insect Sciences, Univ of Massachussetts

145-17 878a Soil Organic Colloids Effective in Entrapping Prion Proteins?. Maria A. Rao*, Fabio Russo and Liliana Gianfreda, Dept of Soil, Plant and Environment Sciences, Univ of Naples Federico II


145-20 972b Selection of Chilean Native Wood-Rot Fungi for Bioremediation of Allophanic Soil Contaminated with Chlorophenols. Gonzalo R. Tortella, Rubilar Olga Margarita, Mora Maria de la Luz and Diez Maria Cristina*, Univ de La Frontera

145-21 973a Bioremediation of PAHs Contamination Soil by Biosurfactants Producing Bacteria A. calcoaceticus BU03 under Thermophilic Composting Systems. Jonathan WC Wong*, Dept of Biology, Hong Kong Baptist Univ

145-22 973b Remediation of Petroleum Contaminated Soils by Lime Addition. Chris D. Collins*, Dan Lothian1 and Vito Schifano*, (1)Reading Univ, (2)Arcadis GMI

145-23 974a Sorption of Chlorinated Phenols by Allophanic Soils. Mara X. Cea, Barbara S. Fuentes, M. Cristina, Diez Maria de la Luz Mora, Univ de La Frontera

145-24 974b Quantity and Chemical Composition of Dissolved Organic Carbon (DOC) in B and C Horizons of an Arable Soil. A. Lavaud1, A. Chabbi* Sr.2, C. Rumpel3, V. Jacquemet3, E. Gherman3 and J.-P. Croué Sr.4, (1)LCEE-CNRS-Univ de Poitiers, (2)INRA, (3)Anjou Recherche-Véolia Water Maisons Lafitte, (4)LCEE-CNRS-Université de Poitiers


145-26 975b The Adsorption/Desorption of Metal Ions, Phosphate, Organic Substances on Goethite and Influence Factors. Feng-lin Xu* and Xue-yuan Li, Huazhong Agricultural Univ

145-27 976a Transport and Degradation of Isotopically Labelled Black Carbon Subjected to Incubation under Controlled Laboratory Conditions. André Hilscher* and Heike Knicker, Lehrstuhl fuer Bodenkunde, TU-Muenchen

145-28 976b Oxidation of Black Carbon Along a Climosequence. Chih-Hsin Cheng* and Johannes Lehmann, Cornell University


145-31 978a Study on the Contents of Shallow Profile Soil and Biomass Carbon under Different Plant Processes, Kun Shi*, Dalian Jiaotong Univ

145-32 978b Theoretical Calculations of Glyphosate Adsorption in Montmorillonite Interlayers, George Khoury, Todd Gehris and Lorena Tribe*, Penn State Berks

145-33 1072a Glyphosate Adsorption on Pure Soil Component (Montmorillonite): Mineral Structure Modifications View by XPS and DRX Techniques. Guillermo Zampieri, Comisión Nacional de Energía Atómica Centro Atómico Bariloche, Maria Dos Santos Afonso, INQUIMAE-FCEyN-UBA and Rosa Maria Torres Sanchez*, CETMUC

145-34 1072b Sorption of Glyphosate and Phosphate by Tropical Variable-Charge Soils. Ole K. Borggaard*, Anne Louise Gimsing and Casper Sizlas, Royal Veterinary & Agricultural Univ

145-35 1073a Sorption of Aflatoxin by Clays and Modified Clays, William F. Jaynes*, Richard Zartman and Wayne Hudnall, Texas Tech Univ

145-36 1073b Water-Stable Aggregates of Back Soil under Long-Term Application of Chemical Fertilizers and Recycled Organic Manures, Xiaozeng Han*, Shouyu Wang* and Baoshan Xing*, (1)Northeast Institute of Geography and Agro-ecology, Chinese Academy of Sciences, (2)Dept of Plant, Soil, and Insect Sciences, Univ of Massachusetts


145-38 1074b Sorption, Desorption, and Biodegradation of Alkaline in Soil. Holger Fischer* and Yakov Kuzyakov, Univ of Hohenheim

145-39 1075a The Effect of Catechol Interaction with the Mailhard Reaction on Abiotic Humification as Catalyzed by Birnessite. A.G. Hardie*, L.M. Kozak* and P.M. Huang*, (1)Univ of Saskatchewan, (2)Dept of Soil Science, Univ of Saskatchewan

145-40 1075b Tracing the Fate of Lignin-Derived Carbon in Particle Size Fractions of Soils by Compound Specific 13C Isotope Analysis. Alexander Heim* and Michael W. I. Schmidt, Dept of Geography, Univ of Zurich

145-41 1076a Protection of DNA by Clay Minerals and Various Colloidal Particles from an Alfisol. Qiao Yun Huang*, Faculty of Resources and Environment, Huazhong Agricultural Univ

145-42 1076b Characterization of AdsorbedDicarboxylic Acids onto Minerals. Seunghun Kang* and Baoshan Xing, Dept of Plant, Soil, and Insect Sciences, Univ of Massachusetts


145-44 1077b Adsorption of Humic Acid on Minerals as Examined by FTIR, NMR, and Elemental Analysis, Saikat Ghosh*, Seunghun Kang, Prasanta C. Bhowmik and Baoshan Xing, Dept of Plant, Soil, and Insect Sciences, Univ of Massachusetts

145-45 1078a Sorption of Sulfonamide Antimicrobials to Humic-Clay Complexes. Juan Gao*, Univ of Wisconsin, Madison and Joel A. Pedersen, Univ of Wisconsin


145-47 1169b Humin as a Fractal Nanomaterial. James A. Rice*, South Dakota State Univ

145-48 1170a In-Situ U Stabilization by Microbial Metabolites; Sequestration of U by Melamin and its Sorption to Minerals. Anna S. Knox* and Charles Turic, Savannah River National Laboratory


145-50 1172a Effects of Ionic Strength on MES Sorption and Ni Sorption Kinetics at the Goethite-Water Interface. Brian Rosen*, Ryan Tappero, Kristian Paul and Donald Sparks, Univ of DE

145-51 1172b Some Unique Characteristics of Humic Acid in the Vertisols of Central China. Shannei Wu*, Nanjing Agricultural Univ/Univ of California, Xirong Gao, Nanjing Agricultural Univ, Chuanqing Lu, Institute of Soil Science and Qing Xu, Cotra Costa College

145-52 1173a Pythoremiediation and Site Management of Soil Contaminated with Pentachlorophenol (PCP) and Heavy Metals in New Zealand. Siva (Sivalingam) Sivakumaran*, Tessa Mills, Iris Vogeler, Brent Clothier, Cara Norling and Ian McIvor, HortResearch


145-57 1175b Fortified Water and Soils Extraction-Efficiency of Triclopyr (3, 5, 6-trichloro-2-pyridinloyxycetic acid) with Four Organic Solvents. Desh Duseja* and Gary Kriner, Tennessee State Univ
SESSION NO. 146

Convention Center, Exhibit Hall A, Second Floor

3.0A Long-term Agronomic Experiments: Their Importance for Science and Society—Poster

146-1 1225a Long-term Agricultural Experiments: The Necessity for Change and the Need for Continuity. David S. Powlson1, Paul R. Poulton1, Andrew J. Macdonald1 and Zhao Bingqiang2 (1)Agriculture and Environment Division, Rothamsted Research, (2)Chinese Academy of Agricultural Sciences, Institute of Agricultural Resources and Regional Planning


146-3 1226a Long-Term Application of Farmyard Manure and Fertilizers Effects on Soil Quality in Northwestern China. Shengmao Yang1, Shengmao YANG2, Sukhdev.S. Malhi1, Feng-Min Li2, Dong-gang Suo3, Yu Jia4, Ping Wang2, Tianwen Guo3 and Jianguo Wang4, (1)Soil and Fertilizer Institute, Gansu Academy of Agricultural Sciences, (2)The Key Laboratory of Arid and Grassland Agroecology, Lanzhou Univ, Ministry of Education, (3)Agriculture and Agri-Food Canada, (4)Institute of Agricultural Sciences of Zhangye Prefecture, (5)Institute of Soil and Fertilizer, Gansu Academy of Agricultural Sciences

146-4 1226b Soil Chemistry After Fifteen Years Intensive Applications of Swine Lagoon Effluent. Ardeshir Adeli1, Dennis E. Rowe and Karamat R. Sistani, USDA-ARS

146-5 1227a Accumulative Effect of Long-term Conservation Tillage Methods on Irrigated Corn in San Luis Potosí, Mexico. Miguel A. Martinez-Gamiño1 and Cesario Jasso-Chaverria, INIFAP

146-6 1227b Nitrogen Fertilization Effects on Soil and Crop Management Efficiency of Winter Wheat in Long-term Experiment. Peter Pepo3, Agricultural Univ of Debrecen

146-7 1228a The Bioassay Procedure for N & P Availability Determination: Can We Learn More? David Bonfill1, Israel Munafri1, Silvia Asido1 and Ger-shon Kalyan2, (1)Agricultural Research Organization, (2)Fertilizers and Chemicals LTD.

146-8 1228b Long-Term Fertilization on Sustenance of High-Production Farming in an Inceptisol. Malarvizhi Palaniappia pillai*, Selvi Duaisamy and Gopalakrishnan Mylesamy, Professor, Dept of SS&AC, Tamil Nadu Agricultural Univ

146-9 1229a Soil Nutrient Availability and Balance under Long-Term Fertilization and Garden Land Cropping System. Malarvizhi Palaniappia pillai* and Selvi Duaisamy, Professor, Dept of SS&AC, Tamil Nadu Agricultural Univ

146-10 1229b Sustainable Soil Management in Lowland Rice Ecosystems: Experiences from Long-Term Experiments. Roland J. Buresh1, W.M. Larazo, E.V. Laureles, M.I. Samson and M.F. Pampolino, International Rice Research Institute

146-11 1325a Crop Rotation, Nutrient Management, and Biomass Removal Effects on Soil Organic Matter Content. Krisztina Elek1, Richard Cruse1, László Fodor2, Lajos Szabó2 and Sándor Hollo2, (1)Iowa State Univ, (2)Károly Róbert College, (3)Fleischmann Rudolf Agricultural Research Institute

146-12 1325b Simulation on Nitrogen and Soil Organic Matter in Paddy Soils under Long-Term Application by WNMM. KI-DO PARK*1, Chang-Young Park2, Yong Li3, Deli Chen4, Jae-Saeng Lee2, Il-Soo Son2, Dong-wook Lee2, Ui-Gum Kang2 and Sung-Tae Park2, (1)Yeongnam Agricultural Research Institute, NICS, RDA, (2)National Yeongnam Agricultural Research Institute, R.D.A, (3)The Univ of Melbourne, (4)The University of Melbourne

146-13 1326a Effects of Long-Term Application of Compost and Silicate on Nitrogen Mineralization and Soil Chemical Properties of Korean Paddy Soil. Chang-Young Park*, Ki-Do Park, Il-Soo Son, Dong-wook Lee, Ui-Gum Kang and Ho-Young Kim, Yeongnam Agricultural Research Institute, NICS, RDA

146-14 1326b Net Soil Nitrogen Mineralization and Nitrification of a Lowland Subtropical Rain Forest in Southern Taiwan. Chun-Chih Tsui*, Dept Agricultural Chemistry, National Taiwan Univ and Zhueng Sang Chen, Dept of Agricultural Chemistry, National Taiwan Univ

146-15 1327a Effect of Long-Term Application of Rice Straw on the Plant Available Silicon of Paddy Soil. Noriko Kobayashi1, Akiko Chida2 and Masahiko Saigusa1, (1)Field Science Center, Graduate School of Agricultural Science, Tohoku Univ, (2)Miya Pref. Toyotoyo Agricultural Extension Center

146-16 1327b Long-Term Agroecosystem Experiments and Sample Archives at USDA-ARS-NGPR. Mark A. Liebig1, John R. Hendrickson and Kristine A. Nichols, USDA-ARS

146-17 1328a Changes in Soil Properties after 10 Years at the Beltsville Farming Systems Project, a Long-Term Experiment to Assess the Sustainability of Conventional and Organic Cropping Systems. Michel A. Cavigelli1, USDA-ARS-SASL

146-18 1328b Nitrogen Sufficiency Diagnosis in Corn in the Southwest of Paraná, Brazil. Alexson Bobato*1, A. Cavigelli*, USDA-ARS-SASL

146-19 1329a The Role of Nitrification Inhibitors in Mitigating Nitrogen and Cation Losses in Grazed Pasture. Jagraj Singh1, Nanthi Bolan*1 and Surinder Saggi2, (1)Soil and Earth Sciences, (2)Landcare Research

146-20 1329b The Role of Nitrification Inhibitors in Mitigating Nitrogen and Cation Losses in Grazed Pasture. Jagraj Singh1, Nanthi Bolan*1 and Surinder Saggi2, (1)Soil and Earth Sciences, (2)Landcare Research

SESSION NO. 147

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3.0B Emerging Topics in Soil Use and Management—Poster

147-1 1329b The role of nitrification inhibitors in mitigating nitrogen and cation losses in grazed pasture. Jagraj Singh1, Nanthi Bolan*1 and Surinder Saggi2, (1)Soil and Earth Sciences, (2)Landcare Research


147-3 1425b Effect of nitrogen fertilizer on biological yield and morphological characteristics of balm (Melissa officinalis L.) under field condition. Mohammad reza Arakani1, Rehlob Abbasszadeh2, Shahriar Shariif ashourabadi2, farzad Paknejhad3 and mohammad hossain Lebaschi2, (1)nuclear research center for agriculture and medicine-atomic energy organization of iran, (2)research institute of forests and rangelands, (3)islamic azad university-karaj branch

147-4 1426a Effect of solid nitrogen application on biological yield, essential oil percentage and essential oil
yield of balm (Melissa officinalis L.) under greenhouse condition. bohliul Abbaszadeh1, ebrahim Sharifi ashourabadi1, mohammad reza Arakani2, farzad Paknejhad3, davood Habibi3 and mojtaba Adrak3, (1)research institute of forests and range-lands, (2)nuclear research center for agriculture and medicine-atomic energy organization of iran, (3)islamic azad university-karaj branch

147-5 1426b Estimation for Nitrogen Status of Rice Plant by Reflectance Indices of Ground-Based Remote Sensors. Soon-dal Hong1, Seong-Soo Kang1, Hyun-Cheol Jeong1, Suyong Hong2 and Yi-Hyun Kim2, (1)Chungbuk National University, (2)National Institute of Agricultural Science and Technology, RDA


147-7 1428a Poultry Litter Application Creates Nutrient Accumulation in Sorghum-Sudangrass Soils. Rebecca Gilfillen*, Byron Sleugh and Todd Willian, Western Kentucky University

147-8 1428b Site-Specific Soil Management for Pineapple Production in a Tropical Peat. Siva Balasundram*, Ahmad Husni and Osmanu Ahmed, Universiti Putra Malaysia

147-9 1429a Soil and leaf nutrients norms for sweet orange(citrus sinensis osbeck) grown on marathwada region of maharashtra, sahebrao more2, Marathwada Agricultural University, Parbhani , Maharashtra ,India and Harihar Krishnarao Kausadikar, Marathwada Agricultural University , Parbhani , Maharashtra , India

147-10 1429b Liming in Green Harvested Sugar Cane Cultivated under Conventional and No-Tillage Systems. Denizart Bolonhezi1, Heitor Cantarella2, Fábio L.F. Dias2, Osvaldo Gentilini Junior1, Antonio L. Cerdeira3, Manoel Dornellas3 and Miguel A. Mutton4, (1)Estação Experimental APTA–Centro Leste, (2)Instituto Agronômico, (3)EMBRAPA–Environment, (4)UNESP

147-11 1525a Soil Fertility Degradation and Management in the Highlands of Kenya. Solomon Ngoza1, Susan J. Kihia1, J.M. Kinyangi1, Johannes Lehmann1, Louis Vercho2, David M. Mbuya2 and A.N. Pell1, (1)Cor nell University, (2)World Agroforestry Centre

147-12 1525b The characteristics of soil organic matter under different stages of degraded grassland in a sandy desertification area on Ordos Plateau, northwestern China. Yizhong Lv*, College of Resources and Environment, China Agricultural University

147-13 1526a Cemetery soils: A window on the past?. Samuel B. Geleta*, Christopher H. Briand, Kimberly C. Clark, Michael E. Folkoff, Irene K. Miller and Brent J. Zaporowski, Salisbury University

147-14 1526b Spatial variability of microbial properties in prairie soils. Eirini Katsalirou*, Shiping Deng and David Nofziger, Oklahoma State University

147-15 1527a Utilizing green normalized difference vegetation indices (GNDVI) for production level management zone delineation in irrigated corn. T.M. Shaver*, R. Khosla and D.G. Westfall, Colorado State University


147-17 1528a Korean Soil Database: Perspectives on Geospatial Information for Agri-Environment. Suk Young Hong*, Sang Kyu Rim, Gab Sue Jang, Yi Hyun Kim, Jee Min Lee and Han Kang Kwak, National Institute of Agricultural Science and Technology, RDA

147-18 1528b A new way to measure soil salinity comes with a conversion factor. Tina Dalby, Agronomy and Soil Science and Peter Cull*, ICT International Pty Ltd

SESSION No. 148

Convention Center, Exhibit Hall A, Second Floor

3.0W Sustainable Soils and Life on Land—Poster

148-1 1432a Romanian Soil Irrigation Feasibility. Ion Seceleanu* Sr., National Institute for Research and Development for Soil Science, Agrochemistry and Environmental Protection-ICPA

148-2 1433a Preliminary Results from Special Lysimeters on the Recultivated Dump of the Former Lignite Mine Witznitz, Germany. Ulrike Haferkorn*, Staatliche Umweltbetriebsgesellschaft

148-3 1433b Microbial Community Composition and Function in Hardwood and Coniferous Forests in the Basque Country: Effect of Forest Management Practices. Nahia Gartzia-Bengoetxea1, Ander Gonzalez-Arias*, Javier Aróstegui2, Ellen Kandelers and Inazio Martinez de Arano1, (1)NEIEKER-Basque Institute for Agricultural Research and Development, Forestry Unit, (2)Universidad del País Vasco/Euskal Herriko Unibertsitatea, Department of Mineralogy and Petrology, (3)Institute of Soil Science, Soil Biology Section, University of Hohenheim

148-4 1434a Dynamics of N Leaching Losses of a Haplic Phaeozem with Agricultural Use in the Central German Dry Region on the Basis of Long Term Lysimeter Measurements. Steffi K. Knoblauch*, Thuringian State Institute of Agriculture

148-5 1434b Leaching of Some Pollutants into Drainage Water in Croatia. Ivan Simunic* and Franjo Tomic, Faculty of Agriculture

148-6 1435a Why Soil Exists?. David Kirvalidze*, Georgian State Agricultural Univ, Soil Science Dept and Izolda Jakobashvili, Georgian State Agricultural Univ, Dept of Agrochemistry


148-8 1436a Extractable Phosphorus Following Fertilizer Application from Rice Soils. Md. Rafiqul Islam* and Md. Abu Saleque, Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh

148-9 1436b Use of the Nutrient Management Expert System NuMaSS to Improve Management of Nitrogen in Maize-Based Systems in Hillsides of Honduras and Nicaragua. Marco Trejo* Sr., MIS Consor tium, Miguel Ayarza, CIAT, T. Jot Smyth, NC State Univ and Denise Finney, Crop Science Dept

148-10 1532a Select Enzyme Activities as Affected by Long-Term Management Practices. Frieda Eivazi*, Lin coln Univ and M.R. Bayan, The E-TEC Group, LLC.

148-11 1532b Transition of the Natural 15N Abundance (Δ15N) in Paddy Soil Affected by Long-Term Application
of Compost in the Cool Region of Japan. Mizuhoko Nishida, Kaori Iwaya, Hirokazu Sumida and Naoto Kato, (1)National Agricultural Research Center for Tohoku Region, (2)Aomori Prefectural Agriculture and Forestry Research Center, (3)National Agriculture and Bio-oriented Research Organization (NARO)


148-13 1533b Water Quality and the Relation with Different Types and Uses of Soil in Districto Federal (DF), Brazil, Using GIS. Marina R. Bilich and Marilusa P. C. Lacerta, Univ of Brasilia

148-14 1534a Earthworm Communities in Different Soil Habitats of the Eastern Palouse Region. Yanira Sanchez-de Leon, Katherine Smetek and Jodi Johnson-Maynard, Univ of Idaho


148-16 1535a Production of Dry Matter of Corn and Mobility of P and K in Soils That Received Application of Dejections of Swine. Lani Joao Luiz, Univ Federal de Viçosa and Correa Gilberto Fernandes, Univ Federal de Uberlandia


148-19 1536b Crop Intensification—Forage Production and the Soil Water Balance. Ymène Fouli, Sjoerd Duiker, Al Rotz, Marvin Hall and David Johnson, (1)Penn State Univ, (2)Penn State South East Research and Extension Centre

148-20 1537a Soil Nutrients Capture, Availability and Recycle Potentials of the Locally Available Woody and Non-Woody Species in the Guinea Savannah of Nigeria. Oluwole A. Fatumbi, Univ of Fort Hare, Yukihiro Hayashi, Nihon Univ, Guanglong Tian, Metropolitan Water Reclamation District of Greater Chicago and Gideon O. Adeoye, University of Ibadan

148-21 1537b Response of Soybean (Glycine max L. Merrill) to Lime and Phosphorus Fertilizer Treatments on an Acidic Alfisol of Nigeria. E. A. Akinrinde and M. O Anetor, Agronomy Dept, Univ of Ibadan

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SESSION NO. 149

3.1A Land Use Planning: Environmental, Economic and Social Trade-offs—Poster

149-1 1234a Analysis of Different Statistical Models for Assessing Potential Distribution of Forest Types in Southern Spain. Maria Anaya, Rafael Pinor, Antonio Jordan, Lorena Martinez-Zavala, Nicolas Bellinfante and Isidoro Gomez, (1)Dept Cristalography, Mineralogy and Agricultural Chemistry (Univ of Sevilla), (2)Dept of Statistics and Operational Research

149-2 1234b Crop Yield Assessment in Traditional Cordia Africana Lam. Tree Intercrop Based Farms in West Wellega. Diriba Nigusie Debele, Forestry Research Center

149-3 1235a Spatial Changes of the Main Land Use Types in Beijing Suburban from 1993 to 2004. Xiao-gang Cui, De-hai Zhu and Tai-lai Yan, College of Information and Electronic Engineering, Chinese Agriculture Univ

149-4 1235b A Decision Support System Based on Soil Ecological Criteria: Results from the European ECOGEN Project. Jerome Cortet, Marko Bohancevic, Martin Znidarsic, Marko Debeljak, Bryan Griffiths, Sandra Cault, Jacqueline Thompson and Paul H. Krogh, (1)Institut National Polytechnique de Lorraine—ENSAIA, (2)Jozef Stefan Institute, Dept of Knowledge Technologies, (3)Scottish Crop Research Institute, (4)National Environmental Research Institute

149-5 1236a Analysis of Landscape Pattern Using GIS According to Land Use at Agricultural Area in Korea. Myung Chul Seo, Seung Gil Hong, Yeon Kyu Sonn, Kwang Lai Park and Pil Kyun Jung, National Institute of Agricultural Science and Technology

149-6 1236b Analysis of Landscape Patterns Based on Land Use Using GIS Application at Two Agricultural Areas in Korea and Its Comparison. Seung Gil Hong, Myung Chul Seo, Yeon Kyu Sonn, Kwang Lai Park and Kee Kyung Kang, National Institute of Agricultural Science and Technology


149-8 1237b European Soil Visual Assessment—Field Guide. Beata Housekova and Luca Montanarella, Institute for Environment & Sustainability, Joint Research Centre

149-9 1238a Influence of Household Characteristics on Land Use/Management and Holding Size in the Subhumid Agroecosystems of Western Ethiopia. Nega Emiru and Abebe Yadesa, Oromia Agricultural Research Institute


149-11 1239a Sustainable Agriculture in Azerbaijan (East Shirvan). Chingiz K. Alekperov, Tel-Avis Univ George
Hamid Reza Rahmani*, Esfahan Agricultural and Natural Resources Research Center

150-6 1342b Long-Term Effects of Conservation Tillage on Soil Quality under Rainfed Semi-Arid Conditions (Southwestern Spain). Felix Moreno*, Jose M. Murillo1, Engracia Madejon1, Ignacio F. Giron1 and Francisco Pelegrín1, (1)INRA (CSIC), (2)EUITA (Univ of Sevilla)

150-7 1343a Productivity and Soil Quality as Affected by Fencing in Mixed Muc-batchment in North-easttract of Punjab, India. M. S. Hadda*, Dept of Soils and K. B. Thapa, Dept of Soils


150-9 1440a Soil Functional Capability Classification Map of the World. Sonya Ahamed1, Rafael Flor1, Marc Levy1, Cheryl Palm1, Pedro Sanchez2*, Adam Storeygard1 and Stanley Wood2, (1)Columbia University, (2)IFPRI

150-10 1440b Background Levels of Potentially Toxic Elements in distance Education Programs—an Essentials. (1)Teagasc, (2)Univ College Cork, (3)Univ of Ulster, (4)Univ of Limerick, (5)Teagasc, (6)Trinity College Dublin, (7)Univ. College Dublin

150-11 1441a Transition of Korean Soil Quality. Won Kyo Jung1, You Hak Kim, Myeong Sook Kim and Han Kang Kwak, National Institute of Agricultural Science and Technology


150-13 1442a Framework and Components of a New Land Evaluation System in Hungary. Tamás Németh1, András Bidlo2, Zoltán Gáll3, Bálint Heil3, Tamás Hermann4, András Makó4, Ferenc Máté5, Ferenc Speiser6, István Szűcs7, Gergely Tóth1, Tibor Tóth1, György Váralyay8 and József Vass9, (1)Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, (2)Univ of Western Hungary, (3)Univ of Veszpréms Faculty of Economics, (4)Univ of Veszpréms Geogkon Faculty of Agriculture, (5)Univ of Veszpréms Geogkon Faculty of Agriculture, (6)Univ of Ve szpréms Faculty of Information Technology, (7)Szent István Univ, (8)Univ of Veszpréms Faculty of Information Technology, (9)Szentesz István Univ, (10)Univ of Veszpréms Faculty of Information Technology


150-16 1540a Available Micronutrients Status in the Traditional Arecaanut Growing Soils of Karnataka. Vishwanath Shetty*, C. Narayanaswamy, H.V. Rudramurthy, T.S. Vageesh and M. Hegde, College of Agriculture and Zonal Agricultural Research Station

150-17 1540b Simulated Rainfall Impact on Carbon Dioxide Emissions from Corn and Soybean Cropping Systems on a Mollisol. Roop Kamal*, Diane E. Stott2, Doug Smith3 and Dennis L. Bucholtz3, (1)Univ of Nebraska, (2)USDA-ARS National Soil Erosion Research Laboratory, (3)USDA-ARS-MWA, National Soil Erosion Research Laboratory


150-19 1541b Soil Quality Indicators Response to Long-Term Grazing Exclusion as a Recovering Strategy in Some Rangelands in Central Iran. Mohammad A. Hajabbasi*, Isfahan Univ of Technology, College of Agriculture, Dept of Soil Science, Mehdi Sharifif, Agriculture and Agri-Food Canada and Mohsen Sheklabadi, Isfahan Univ of Technology, College of Agriculture, Soil Science Dept

150-20 1542a Effect of Farming Production in Peri-Urban Small-Scale Vegetable Farming Systems on N, P and K Balances at Plot Level. Biao Huang1,2, Xuezheng Shi3 and Ingrid Öborn4, (1)State Key Laboratory of Soil and Sustainable Agriculture, Institute of Soil Science, the Chinese Academy of Sciences, (2)Dept of Soil Sciences, Swedish Univ of Agricultural Sciences

150-21 1542b Incorporating N Fixation Uncertainty into Nitrogen Budgets for Organic Vegetable Farms. Katie Mønser and Carol Shennan, Univ of California Santa Cruz

150-22 1543a A Proposal for the Formal Designation of Rare and Threatened Soils. Patrick Drohan* and Timothy Farnham, Univ of Nevada, Las Vegas

150-23 1543b Phosphorus Loss from Agriculture to Water in Ireland. Hubert Tunney*, Ger Kiely4, Phil Jordan5, Richard Mole5, Karen Daly5, Ger Morgan5, Isabelle Kurz1, Declan Ryan5, Eleanor Jennings6, Ken Irvine6, Nicholas Holden7, Donnacha Doyle1, David Bourke1, Paul Byrne8, Colin O’Reilly1, Owen Carton1 and Deirdre Faye1, (1)Teagasc, (2)Univ College Cork, (3)Univ of Ulster, (4)Univ of Limerick, (5)Teagasc, (6)Trinity College Dublin, (7)Univ. College Dublin

150-24 1544b Soils in Distance Education Programs—an Essential Science Online. Ronald J. Reuter*, Oregon State Univ and Carol Bronick, Oregon State University

150-25 1545a Evaluation of the Texas Phosphorus Index. Sam E. Feagley*, Fred Jacoby1, Laura Harstad1, Todd Carpenter1, Jim Akin2, Tom Hallmark3, Frank Hons3 and Robert Knight4, (1)Texas A&M Univ, (2)Range Land. Ecol. & Mgmt. Dept

150-26 1545b N Rapid Assessment in Relation to Crop Production in Zimbabwe. Justice Nyamangara*, Univ of Zimbabwe, Dept of Soil Science & Agricultural Engineering
3.2A Environmental Impacts of Soil Erosion—Measuring and Modeling On- and Off-Site Damages of Soil Erosion—Poster

151-1 1244a The Potential Effect to Flocculate Clay Particles by a Biopolymer, Fe and Al Alone and Combined. Manuel Antonio Henriquez Rodríguez*, UCL, José María Gascó Montes, ETSAI Agrónomos UPM and Juana Pérez Arias, ETSAI Agrónomo UPM

151-2 1244b Soil Wind Erosion on Agricultural Field and Its Impact on Air Quality: Measurement and Modelling, Guanglong Feng*, Washington State Univ and Brenton Sharratt, USDA-ARS

151-3 1245a Wind Erosion Effects on Soil Properties: A Case Study at Big Spring, Texas. R. Scott Van Pelt* and Ted M. Zobeck, USDA-ARS

151-4 1245b Direct Suspension as an Important Process of Wind Erosion within the Columbia Plateau. Brenton Sharratt*, USDA-ARS and Guanglong Feng, Washington State Univ

151-5 1246a Reducing Phosphorus Movement from Soil Contaminated by Over Addition of Manure. L. Darrell Norton*, S. J. Livingston, A. I. Mamedov and C. Huang, USDA-ARS National Soil Erosion Research Laboratory

151-6 1246b The Environmental Effects of Phosphorus Losses Due to Runoff and Erosion from Agricultural Fields. Ghasem Rahimi*, Steve Robinson and Stephen Nortcliff, Dept of Soil Science, The Univ of Reading

151-7 1247a Development of an Environmental Soil Test to Determine the Intrinsic Risk of Sediment and Phosphorus Mobilization in Runoff from European Soils. Paul Withers*, ADS Consulting UK

151-8 1248a Phosphorus Fractions in the Soil Surface as Affected by Tillage System. Antonio Delgado*, Juan Velasco, Concepcion Saavedra, Purificacion Pajuelo, Maria Dolores Hurtado and Francisco Perea, Univ of Seville

151-9 1248b Effect of Soil Condition and Amendments Application on Phosphorus Loss. A.I. Mamedov*, C. Huang, J.D. Norton and D.R. Smith, USDA-ARS, National Soil Erosion Research Laboratory

151-10 1249a Predicting Transport of Soil Phosphorus in Landscape in Response to Manure Application. Yongsheng Feng*, Univ of Alberta and Xiaomei Li, Alberta Research Council

151-11 1249b Catchment Characterization and Targeting of BMPs to Control Sediment and Phosphorus in Land Runoff Using the PSYCHIC Decision Support Tool in the UK. Paul Withers* and Eunice Lord, ADS Consulting UK

151-12 1250a Effectiveness of Cropping on Runoff and Soil Losses on Diverse Environmental Settings in Brazil. Sonia C. F. Dechen*1, Isabella C. DeMaria1, Jerry A. Ngailo2, Orlando M. Castro1 and Sidney R. Vieira1, (1)Instituto Agronómico, (2)Ministry of Agriculture and Food, Agricultural Research Institute Mingano, National Soil Service


151-14 1251a Assessment of Water Quality near the Sloping Uplands in Nakdong River Basin, Korea. Jinho Joo*, Jae E. Yang, Yeong Sang Jung, Dae-Hoon Kim, Su-chan Yang, Kyung-Yoal Yoo and Yong-Sik Ok, Kangwon National Univ


151-16 1252a Effectiveness of PAM in Controlling Soil Erosion in a Highly Degraded Soil of the Tropics Under Steep Slopes. Gustavo Martínez* and Rafael Ramos-Santana, Univ. of Puerto Rico

151-17 1252b The Impacts of a Severe Rainfall on Soil Properties in Steep-Slope Agricultural Areas. Byung-Kyun Hyun*, National Institute of Agricultural Sciences and Technology

151-18 1253a Chemical Treatment to Reduce Turbidity in Borrow Pit Discharges. Joshua W. Vetter* and Richard A. McLaughlin, North Carolina State Univ

151-19 1254a New Data on Comparison of Soil Erosion Models. Csaba Centeri1, Zoltan Szalai2, Gergely Jakab2 and Karoly Barta1, (1)Szent Istvan Univ, Dept. of Nature Conservation, (2)Geographical Research Institute Hungarian Academy of Sciences, (3)Univ of Szeged, Dept. of Physical Geography and Geoinformatics

151-20 1254b Mathematical Representation of the Morphological Evolution of Rills. Ruth Maria Bianchini de Quadros*, Environment Ministry


151-23 1256a Using Magnetic Spheres for Measuring Soil Erosion and Pollutant Transfer. Alexander N. Gennadiyev*, Kenneth Olson2 and Serge S. Chernyanskii2, (1)Moscow State Univ, Faculty of Geography, (2)Univ of Illinois, Dept of Natural Resources and Environmental Sciences

151-24 1256b The Effects of Forest Clearance and Subsequent Land Use on Erosion Losses and Soil Properties in the Golestan National Park, Iran. Mohammad K. Kianian1, Sadat Feiznia2, Amin Saleh Pour Jam2 and Alireza Zahirnia1, (1)Univ of Tehran, (2)Univ of Tehran

151-25 1257a The Effects of Flood Control Structures on Erosion Losses. A. I. Mamedov*, C. Huang and S. J. Livingston, Soil and Water Assessment Lab., USDA-ARS, National Soil Erosion Research Laboratory

151-26 1257b The Effects of Flood Control Structures on Erosion Losses. A. I. Mamedov*, C. Huang and S. J. Livingston, Soil and Water Assessment Lab., USDA-ARS, National Soil Erosion Research Laboratory

151-27 1344a The Potential Effect of a Biopolymer, Fe and Al Alone and Combined. Manuel Antonio Henriquez Rodríguez*, UCL, José María Gascó Montes, ETSAI Agrónomos UPM and Juana Pérez Arias, ETSAI Agrónomo UPM


151-29 129 POSTERS
151-29 1345a Erodibility Status of Soils under Different Landscapes in Shiwalik Hills of Himachal Pradesh, India. J. C. Sharma*, Dept of Soil Science & WM, Dr Y. S. Parmar Univ of Horticulture and Forestry and Vijip Kumar, Dept of Soil Science & WM, Dr Y. S. Parmar Univ of Horticulture and Forestry


151-31 1346a Use of DEMs for Predictive Gully Soil Erosion Mapping in Lebanon. Rania C. Bou Kheir*, National Council for Scientific Research, Remote Sensing Center and John Wilson, Univ of Southern California, Dept of Geography, College of Letters, Arts and Sciences, GIS Research Laboratory

151-32 1346b Modeling Soil Erosion in Central Greece. Sid. P. Theocharopoulos*, Heleni Florou2, F. Tsouloucha1, Stamata Karagianni-Christoul1, Panagiotis Tountas1 and Maria Ntoula1, (1)National Agricultural Research Foundation, Soil Science Institute, (2)Democritos, Environmental Radioactivity Lab

151-33 1347a The Impact of Climatic Changes on Land Capability in the Picasa Lagoon Area, Buenos Aires Province, Argentina. Gervasio Carboni*, Julio M. Sánchez and Juan C. De La Fuente, INTA-CIRN-Instituto de Suelos

151-34 1347b Tillage and Crop Rotation Affect Bulk Density and Penetration Resistance. Ivica Kisić*, Ferdo Basic, Milan Mesic, Krunoslav Sajko and Zeljka Zgorelec, Faculty of Agriculture


151-38 1353b Using Vetiver Technology to Mitigate Sediment Transport for Erosion Control and Water Quality Improvement at a Typical Watershed in Southern Guaman. Mohammad H. Golabi#, Univ of Guam

151-39 1354a Space-time Kalman Filtering of Soil Redistribution. Gerard B.M. Heuvelink*, Jeroen M. Schoorl1, Tom Veldkamp1 and Dan J. Pennock2, (1)Wageningen University and Research Centre, (2)University of Saskatchewan

151-40 1354b Evaluating Soil Survey Data for Optimum Production of Watermelon and Cucumber. Sug Jae Jung#, National Institute of Agricultural Science and Technology

151-41 1355a Erosion Rates of Different Particle Sizes from Roads and a Wildfire, Colorado Front Range. Zamir Libohova1, Lee MacDonald1 and Jay Pietraszek2, (1)USDA-NRCS, (2)Colorado State Univ

151-42 1355b The PO4/NO3 Ratio in Seepage Waters as an Indicator for the Macropore Contribution to Leaching. Martin Kuecke#, Deok Hoon Yoon and Joerg-Michael Greef, Institute of Crop and Grassland Science, Federal Agricultural Research Center

151-43 1356a Runoff, Sediment Loss, and Aggregate Stability Under Center Pivot Irrigation. Gary A. Leersch and D. C. Kincaid, USDA-ARS


SESSION NO. 152

Convention Center, Exhibit Hall A, Second Floor

3.2B Dryland Conservation Technologies: Innovations for Enhancing Productivity and Sustainability—Poster

152-1 1453a Effect of 20 years of Cropping, Fertilization, Farm Yard Manure and Groundnut Shells Application on Water Retention, Chemical and Biological Properties of Alfisol and Pod Yields of Rainfed Groundnut under Arid Climate. Cherukumalli Srinivasarao#, M Vijayasankar Babu, KPR Vittal, B Venkateswarlu, T Yalamanda Reddy, Sumanta Kundu and PN Gajbiye, Central Research Institute for Dryland Agriculture

152-2 1453b Nitrogen Fertilizer Management for Corn Crop Under No-till in Brazilian Cerrado. Edson Cabral da Silva#, Takashi Muraoka*2, Paulo C. O. Travelin#, Salatier Buzetti1 and Geovane Lima Guimarães1, (1)Center for Nuclear Energy in Agriculture, (2)Center for Nuclear Energy in Agriculture-Univ of S Paulo (USP), (3)UNESP

152-3 1454a Landscape and Conservation Management Effects on Soil Hydraulic Properties for an Epi-aquulf. Pingping Jiang1, Stephen H. Anderson2, Newell Kitchen1, E. John Sadler1 and Kenneth A. Sudduth1, (1)Univ of Missouri, (2)Department of Soil, Environmental and Atmospheric Sciences, (3)USDA-ARS

152-4 1455a Drought Avoidance Using Skiprow Corn at Akron, Colorado. Merle F. Vigil1, David Nielsen, Brien Henry, Joseph Benjamin, Robert Klien and Francisco Calderon, USDA-ARS, Central Great Plains Research Station

152-5 1549a Agricultural Use of Residues of the Cotton Acid Deleling Process. Evangelia Vavoulidou, Anthi Dinirkou, Periklis Papadopoulos* and Christos Paschalidis, Soil Science Institute of Athens, NA-GREF

152-6 1549b Management of Vertisols with Limited Water Availability for Improving the Productivity of Durum and Aestivum Wheats. Uma Kant Behera1, Hira Nand Pandey2 and P. K. Varma2, (1)Indian Agricultural Research Institute, (2)IIARI, Regional Station

152-7 1550a Conservation Agriculture for Cotton Production in a Coastal Plain Soil of Central Alabama, USA. Francisco J. Arriaga#, Kipling Balkcom, Andrew Price, Jason Bergtold, Ted Kornecki and Randy Raper, USDA-ARS

152-8 1550b Influence of Tillage, Crop Rotation and Phosphorus Fertility on Grain Sorghum Yields. John E. Main1, M. Richard2 and Steve Livingston1, (1)Texas A&M Agricultural Research and

152-11 1552b

Potassium Availability, Distribution and Categorization of Various Soil Types Under Different Rainfed Production Systems of India. Cherukumalli Srinivasarao*, Central Research Institute for Dryland Agriculture

152-12 1552b

Ground Cover and Irrigation Effects on Soil Fertility, Mineral Nutrition, and Productivity of Sweet Cherry. Xinhua Yin1, Janet Turner1, Clark Seavert1, Rita Guiliani2, Roberto Núñez-Elisea1 and Helen Cahn1. (1) Oregon State Univ, (2) Oregon State University

152-13 1553a

Recycling and Integrated Use of Agriculture Based Organic Sources of Nutrients in Rainfed Sunflower Crop (Helianthus annus L.) in Semiarid Tropical Alfisols. Kishori Lal Sharma*, Central Research Institute for Dryland Agriculture and Swetlana Poberejskaya, Institute of Soil Science and Biochemistry, Lower Gangetic Plain of India. Supradip Sarkar* and Subhendu B. Goswami, Bidhan Chandra Krishi Viswavidyalaya

152-14 1553b

Sugar-beet Vinasse Increases the Effectiveness of Iron Sulphate and Viscantite Correcting Iron Chlorosis. Antonio Delgado* and Ana De Santiago, Univ of Seville

152-15 1554a

Effect of Nitrification Inhibitor Combined with Nitrogen Fertilizers on Soil Microbial Activity and Net Nitrification Under Cotton Cultivation. Difftuza Egaemberleyeva*, Tashkent State Univ of Agriculture and Svetlana Poberejksaya, Institute of Inorganic and Organic Chemistry

152-16 1554b

Earthworm Activity and Physical Soil Quality of Maize-based Cropping Systems under Conventional vs. Conservation Agriculture in the Highlands of Central Mexico. Mirjam Pulleman*,1, Antonio Castellanos Narvarrete2, Lijbert Brussaard2, Ron de Goede1 and Maja Kooistra3, (1) CIMMYT, (2) Wageningen Univ and Research Centre, (3) Kooistra Micromorphological Services

153-9 1262a

Water Productivity Functions of Onion (Allium cepa L.) Under Micro Sprinkler Irrigation in Lower Gangetic Plain of India. Sumrapad Sarker* and Subhendu B. Goswami, Bidhan Chandra Krishi Viswavidyalaya

153-10 1262b

Does Drip Irrigation Degrade Soil Structure in Vineyards? Dougal R. Currie*,1, Cameron D. Grant1, Robert S. Murray1 and Michael McCarthy2, (1) Univ of Adelaide, (2) SARDI

153-11 1263a


153-12 1263b

Heavy Metals in Waters and Sediments of Natural Lakes of District Nainital, India. Ajay P. Singh*, Prakash C. Srivastava* and Prashant Srivastava*, (1) Dept of Soil Science, G.B. Pant Univ of Agriculture and Technology, Pantnagar 263145, Uttarakhand, (2) Faculty of Agriculture, Food and Natural Resources, The Univ of Sydney, Australia

153-13 1264a

Performance of HYDRUS-1D to Simulate Water and Salt Movement in Rice (Oryza sativa L.) Crop in Relation to Different Salinity Irrigations. Vinod Phogat*, A.K. Yadav and Sanjay Kumar, CCS Haryana Agricultural Univ

153-14 1264b

The Effects of Strategic N Fertilizer Application During the Cool Season on the Soil Nitrogen Dynamics in a Perennial Ryegrass-White Clover Pasture in the Western Cape Province of South Africa. Johan Labuschagne*, M.B. Hardy1 and G.A. Agenbag*, (1) Dept of Agriculture Western Cape, (2) Univ of Stellenbosch

153-15 1265a

Agricultural and Climatic Impacts on the Groundwater Resources of a Small Island: Measuring and Modelling Water and Solute Transport in Soil and Groundwater on Tongatapu. Marion Van der Velde*, Steve R. Green1, Marnik Van Cleemput* and Brent E. Clothier2, (1) Univ of Louvain (Louvain-la-Neuve), (2) HortResearch, (3) Univ of Louvain

153-16 1265b

Water and Nitrogen Dynamics as Influenced by Agro-Management Practices under Rice Crop in Haplustalf. S. Kar* and Samarendra Sahoo, Indian Institute of Technology

153-17 1358a

Soil Matric Potential Under Two Moisture Levels with Surface Irrigation. Rafael Figueroa*, Antonio

153-4 1259b

Set Points for Scheduling Potato Irrigation Using Capacitance Probes. Ashok Alva*, USDA-ARS

153-5 1260a

The Effects of the Interaction between Sodium and Potassium on Growth, Yield and Fruit Quality of Tomato in Southwestern Nigeria. Mary K. Idowu* and Emmanuel A. Adauyi, Dept of Soil Science

153-6 1260b

Mycorrhizal Colonization Promotes Nutritional Qualities of Tomato under Water Deficit Conditions. Kizhaeral S. Subramanian*, Dept of Soil Science & Agricultural Chemistry

153-7 1261a

The Physiological Role of Nitrate on Resistance of Water Stress in Two Sainfoin Species. A.Z. Yaghobi* and K.F. Rahimizadeh, Tehran Univ

153-8 1261b


153-11 1263a


153-12 1263b

Heavy Metals in Waters and Sediments of Natural Lakes of District Nainital, India. Ajay P. Singh*, Prakash C. Srivastava* and Prashant Srivastava*, (1) Dept of Soil Science, G.B. Pant Univ of Agriculture and Technology, Pantnagar 263145, Uttarakhand, (2) Faculty of Agriculture, Food and Natural Resources, The Univ of Sydney, Australia

153-13 1264a

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153-14 1264b

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153-15 1265a

Agricultural and Climatic Impacts on the Groundwater Resources of a Small Island: Measuring and Modelling Water and Solute Transport in Soil and Groundwater on Tongatapu. Marion Van der Velde*, Steve R. Green1, Marnik Van Cleemput* and Brent E. Clothier2, (1) Univ of Louvain (Louvain-la-Neuve), (2) HortResearch, (3) Univ of Louvain

153-16 1265b

Water and Nitrogen Dynamics as Influenced by Agro-Management Practices under Rice Crop in Haplustalf. S. Kar* and Samarendra Sahoo, Indian Institute of Technology

153-17 1358a

Soil Matric Potential Under Two Moisture Levels with Surface Irrigation. Rafael Figueroa*, Antonio

153-19 1539a Delineating Site-Specific Irrigation Management Units Using Geospatial ECA Measurements. Dennis Corwin#, Scott M. Lesch†, Peter Shouze†, Richard Soppe† and James Ayras‡, (1)USDA-ARS, George E. Brown Jr. Salinity Laboratory, (2)Univ of California, Riverside, (3)Water Watch, (4)USDA-ARS, Water Management Research Laboratory

153-20 1359b Bioavailability and Toxicity of Residual Boron Originating from Saline Irrigation Water. Uri Yermiyahu*, Joon Zilberman*, Alon Ben-Gal† and Rami Keren†, (1)Agricultural Research Organization, (2)Shaham

153-21 1360a Effect of Tillage, Irrigation and Nutrient Levels on Seedling Emergence, Yield and Water Use Efficiency of Rabi Sunflower (Helianthus annuus L.) in Rice Based Cropping System. Sangarao Meduri* and Praveen Kumar, Acharya N.G. Ranga Agricultural Univ


153-23 1361a Distributed Water Transfers in an Andosol under Banana Plant. Sansoulet Julie†, Cabioco Yves-Marie† and Cattan Philippe‡, (1)Institut National Recherche Agronomique (INRA), (2)Centre International de Recherche Agronomique pour le Développement (CIRAD)

153-24 1361b Arsenic Accumulation in Evaporation Basins for Agricultural Drainage Disposal, California, USA. Suduan Gao§, Ji-hun Ryu§ and Kenneth K. Tanji‡, (1)USDA-ARS, (2)Univ of California, Davis

153-25 1362a Fertilization Effect on Corn Yield and its Components in San Luis Potosi, Mexico. Cesario Jasso-Chaverría§, Miguel A. Martinez-Gamino§ and Jesus Huerta-Díaz‡, (1)INIFAP, (2)Facultad de Agronomía, UASLP

153-26 1363a Assessment of Water Purification by Estimating Nitrogen Balance Combined Different Data at Paddy Farming in Korea. Myung Chul Seo*, Kee Kyung Kang, Hong Bac Yun and Byung Geun Hyun, National Institute of Agricultural Science and Technology

153-27 1363b Partial Root Drying: an Alternative Irrigation Management to Improve the Water Use Efficiency of Potato Crops. Adolfo Posadas*, Roberto Quiroz, Guliwer Rojas and Miguel Malaga, International Potato Center

153-28 1364a Nitrate Leaching in Different Soils and Cropping Systems in Lombardy (Italy). Stefano Brenna* and Marco Pastori, ERSAF

153-29 1364b Analysis of Water Flux and Solute Transport for a Clay Soil under Different Groundwater Conditions in Southern Italy. Domenico Ventrela*, Nicola Losavio, Luisa Giglio, Rita Leogrande and Mirko Castellini, CRA-Istituto Sperimentale Agronomico

153-30 1365a The Speciation and Accumulation of Selenium in Agricultural Evaporation Basins in California, USA. Ji-hun Ryu§, Suduan Gao§ and Kenneth K. Tanji‡, (1)Univ of California, Davis, (2)USDA-ARS

153-31 1365b Growth, Yield and Water Productivity of Tomato under Different Watering Level and Plastic Mulches. Salvador Berumen-Padilla*, Rafael Figueroa-Viramontes, Juan Jose Martinez-Rios, Cirilo Vazquez-Vazquez, Jose Dimas Lopez-Martinez and Enrique Salazar-Sosa, Facultad de Agricultura y Zootecnia de la Univ Juarez del Estado de Durango

153-32 1458a Effect of Irrigation Using Wastewater on Heavy Metal Contents of Soils under Vegetable in Tabriz, Iran. Azita Behbahannia*, Azad Univ, Rodehen Branch, Dept of Environment and Ramin Salmasi, Azad Univ, Rodehen Branch, Dept of Environment

153-33 1458b Ten Years of Phosphorus Best Management Practices in the Everglades Agricultural Area. Samira Daroub*, Timothy Lang, Orlando Diaz and Ming Chen, Univ of Florida

153-34 1459a Changes in the Conservative Features of Chernozems under the Impact of Secondary Hydromorphism. Svetlana O. Rozhdestvenskaya*, Faculty of Soil Science, Moscow Sate Univ

153-35 1459b Preferential Nitrate Leaching in the Hill of Potato. Peggy Macaigne*, François Anctil and Léon-Étienne Parent, Univ Laval

153-36 1460a Performances of Three Late-Season Sugarcane Varieties under Soil Water Deficit at the Yield Formation Stage in Northern Ivory Coast, Crépin Péné*, Ferké Research Station/Sugarcane Program and M. Khé, Regional Scientific Coordination of Korhogo

153-37 1460b Nitrate-N Leaching to Subsurface Drains as Affected by Drainage Intensity and Agronomic Management Practices. Eileen J. Kladivko*, Purdue Univ

153-38 1461a The Environmental Evolvement of the Hetao Irrigation District: An Equilibrium between the Combat Facing Irrigation Induced Soil Salinity and the Respect of the Receiving Media. Bernard Vincent†, Jingwei Wu†, Alain Vidal†, Jinzhong Yang†, Sami Bouarfa† and Juxiu Tong†, (1)Chinese of Water Use Efficiency in Agriculture. Robert Wiedenfeld* and Juan Enciso, Texas Agricultural Experiment Station

153-40 1462a Nitrogen Spatial Distribution and Transformation in a Florida Sandy Soil Cropped with Tomatoes under Seepage Irrigation. Shinjiro Sato*, Monica Ozoares-Hampton and Kelly Morgan, SWFREC/Univ of Florida

153-41 1462b Modelling the Processes of Soil Salinization and Soilification in Irrigated Lands: New Approaches. Idelfonso Pla* Sr., Lleida Univ

153-42 1463b Water Use Efficiency of Potato Between Sprinkler and Drip Irrigation Systems Under Field Conditions. Kyung-Hwan MOON*†, Han-Chool Lim* and Hae-Nam Hyun*, (1)National Institute of Subtropical Agriculture, (2)Cheju National Univ

153-43 1560a Leaching of As from Arid Calcareous Soil under Water and Safflower Cultivation – a Column Study. Gholamreza Sayyad#, Majid Afyuni#, Karim Abbaspour#, Mousavi Sayed-Farhad# and Rainer Schulin#, (1)Ishafan Univ of Technology, (2)EAWAG, (3)ETHZ Institute of Terrestrial Ecology (ITÖ)

153-44 1560b Improving Input Efficiency in Agriculture. Charan Jeet Singh Seth#, Punjab Agricultural Univ

153-45 1561a Effect of Saline Water Irrigation and Zinc Application on Post Harvest Soil in Mustard (Brassica

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3.3A Future Challenges in P Fertilization and the Environment—Poster


154-2 1266a Effect of Nitrogen and Phosphorus Fertilizers on Seed Quality and Yield of Common Bean (Phaseolus vulgaris L). Joshua O. Belle*, Forest Dept.

154-3 1266b Enriching Sugarcane Bagasse Compost by Sulfur, Nitrogen Fixing (Azotobacter chroococcum) and Phosphate Solubilizing Bacteria (Enterobacter cloacae) Bagasse Decomposition and Produced Compost Enrichment. Iadan Razikordmahalleh*, Department of Environment

154-4 1267a Dynamics of Water-Soluble Phosphorus in Surface-Applied Broiler Litter. Liliana Ines Picone*, Facultad Ciencias Agrarias-Univ Nacional Mar del Plata, Miguel Cabrera, Univ of Georgia, Armando S. Tasistro, Agricultural and Environmental Services Laboratories, Univ of Georgia and David E. Kissel, Agricultural and Environmental Services Laboratories, Univ of Georgia.

154-5 1267b Speciation of Phosphorus in Manures and Manure-Amended Soils. Babasola Ajiboye*, Olalekan Akinremi* and Yongfeng Hu2, (1)Univ of Manitoba, (2)Canadian Light Source Inc.


154-7 1268b Changes in Soil P Availability as Affected by Plant Extracts. Paulo S. Pavinato* and Ciro A. Rosolem, College of Agricultural Sciences—Sao Paulo State Univ.


154-9 1269b P-Fertilizer Use Efficiency of Tomato on Two Soil Types in Viet Nam Studied Using 32P Labelled Technique. Tran Kong Tau* Sr., Vietnam National Univ, Hanoi.


154-16 1273a Direct Application of Phosphate Rock in Bangladesh Agriculture. S.A. Haque*, Bangladesh Agricultural Univ.

154-17 1273b The Effect of Different Phosphoric Fertilizers: Fluoride and Strontium in a Soddy-Podzolic Soil-Plant System. Olga V. Shelepyova*, Potatouve Yalta, Karpova Elena, Sidorenkova Nadezhda and Ignatov Vitalij, Dolgoprudnyaya Agrochemical Experimental Station.

154-18 1274a Phosphorus Release and Bioavailability Form Agri-Waste Amended Soils under Chloride and Sulphate Salts. Zahoor Ahmad*, Haytham El Sharkawi, Toshimasa Honna, Sadahero Yamamoto, Muhammad Irshad and Faridullah n/a, Tottori Univ.


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Konuskan1, Boujamaa Amar2, Ebru Karnez1, Gonul Ozgenturk1, Hacer Oguz1 and John Ryan1, (1)Cukurova Univ, (2)Institut Mondial du Phosphate, (3)ICARDA

154-21 1275b Direct and Residual Effects of Phosphorus Fertilization of Rainfed Sorghum (Sorghum vulgare L.) and Its Effect on P Adsorption and Availability in Semi-Arid Tropical Alfisols. Kishori Lal Sharma*, Central Research Institute for Dryland Agriculture

154-22 1276a Drying and Rewetting Cycles and Phosphorus Dynamics. Clayton R. Butterly1, Petra Marschner1, Ann McNeill1 and Jeff Baldock1, (1)The Univ of Adelaide, (2)CSIRO Land and Water

154-23 1276b Evaluation of Differential Phosphorus Uptake and Utilization Efficiency of Brasscia Cultivars to Applied Phosphorus. Akhtar M. Shahbaz#1, Adachi Tadashi1, Oki Yoko1, Khan M.H. Rashid1, Murata Yoshiyuki2 and Kurimoto Hiroyuki1, (1)Dept of Environmental Management and Engineering, Graduate School of Environmental Science, (2)Dept of Biological Resources Chemistry, Graduate School of Natural Science and Technology

154-24 1277a Effects of Soil Management and Fertilization on Phosphorus Accumulation in Andisols of Northern Japan. Chihiro Mizota*, Masayuki Tani, Masanori Kioke and Katsuhisa Kurimoto, Obihiro Univ of Agriculture and Veterinary Medicine

154-25 1277b Residual Effects of Phosphorus and Soybean Crop on Maize in the Guinea Savanna. Iheanyichukwu J. Oqoke*, Federal Univ of Technology and Adeniyi O. Togun, University of Ibadan

154-26 1278a Models Estimating Fertilizer Requirements to Increase Available Soil Phosphorus. Gerardo Rubio1, Maria Julia Cabello and Flavio Gutierrez Boem, Univ Buenos Aires Fac. Agronomia

154-27 1278b Alum WTR Amendments to Field Plots Having Soils with High Soil Phosphorus Test Levels. Lee W. Jacobs1 and Brian J. Teppen, Michigan State Dept of Agriculture

154-28 1366a Phosphorus Runoff Losses from Beef Production Systems as Affected by the Field Slope on a Volcanic Ash Soil. Marta A. Alfaro*, Francisco Salazar, Nolberto Teuber, Sergio Iaira and Luis Ramirez, INIA Remehue


154-30 1367a Relative Availability of Manure Phosphorus Compared to Fertilizer. Carrie A.M. Laboski1, Emily G. Sneller1 and Sarah K. Marshall2, (1)Univ of Wisconsin-Madison, (2)USDA-ARS

154-31 1367b The Use of Industrial Byproducts as Liming Agents and Phosphate Fertilizers. Bait Emielda Yusharini#1 and Bob Gilkes, School of Earth and Geographical Sciences, The Univ of Western Australia

154-32 1368a Biosolid Applications of Phosphorus to Agricultural Soils in the UK. N. J. Flynn#, Univ of Reading, Dept of Geography and Paul Withers, ADAS Consulting UK

154-33 1368b Use of Struvite, a Novel P Source Derived from Wastewater Treatment, in Wheat Cultivation. Sanussi Y. Ahmed1, Robert S. Shiel1 and David A. C. Manning#2, (1)School of Agriculture, Food and Rural Development, Univ of Newcastle, (2)School of Civil Engineering and Geosciences, Univ of Newcastle

154-34 1369a Dynamics of Forms of Phosphorus in an Inceptisol under Long-Term Cultivation with Rice-Wheat-Jute Cropping System. G.C. Hazra*, Sukanta Chakrborty and Biswapati Mandal, Bidhan Chandra Krishi Viswavidyalaya

Wheat-Lentil Cropping System. N. Mathimaran, R Ruh, J Jansa and E. Frossard*, ETH

154-35 1369b Differences in Plant Growth and Phosphorus Uptake Among Three Riparian Grass Species. John Kova#, USDA-ARS Natl. Soil Tillth Lab. and Norbert Claassen, Institute of Agricultural Chemistry

154-36 1370a Relative Efficacy of Graded Levels of Coated Diammonium Phosphate in Groundnut (Arachis hypogaea L.). Gopalakrishnan Mylesamy#, Dept of Soil Science and Agricultural Chemistry, Tamil Nadu Agricultural Univ and Subbiah Karuppan, Agricultural Research Station, Tamil Nadu Agricultural Univ

154-37 1370b Stability of the South Russian Black Soil Phosphorus Stock. Nataliya Kravtsova1, Olga Biryukova1, Vladimir Kryshchenko1 and Ivan Yel’nikov2, (1)Rostov State Univ, (2)Soil Institute after V.V. Dokuchaev


154-39 1371b Impact of Soil Calcium Carbonate Content and Phosphorus Source on Phosphorus Runoff. Adriane L. Elliott1, Ronald Schirrer2, Jessica G. Davis1 and Reagan M. Waskom1, (1)Colorado State Univ, (2)USDA-Natural Resources Conservation Service

154-40 1372a Effects of Phosphorus-Based Manure Compost Applications on Corn Production and Soil Phosphorus Accumulation in Upland Andosol. Toyoaki Ito, Teppei Komiyama1 and Masahiko Saigusa, Field Science Center, Graduate School of Agricultural Science, Tohoku Univ

154-41 1372b Phosphorus-Based Application System of Animal Manure Composts for Environmentally Conscious Paddy Rice Production: Two-Year Estimation. Toyoaki Ito, Norimasa Tanikawa1 and Masahiko Saigusa, Graduate School of Agricultural Science, Tohoku Univ

154-42 1373a Impact of Subsurface Hydrology on Phosphorus Translocation in Karst Topography. Janice Branson1, Tennessee Tech Univ


154-44 1374a Phosphorus Risk Indicators: Correlation with Water Quality in the Eastern Prairie Region of Canada. Esther Salvano and Don N. Flaten4, Dept of Soil Science, Univ of Manitoba

154-45 1374b The Role of Oyster Shell Meal in the Reactions of Phosphate with Soils. Byeong yeon Ha, Chang hoon Lee, Chang oh Hong and Chan Yu5, Division of applied Life Science, Gyeongsang Univ

154-46 1375a Effect of Long-Term Tillage Treatments and P Fertilizer on Arbuscular Mycorrhizal Colonization and Growth of Sunflower. Aiguo Liu*, Shabb-tai Bittman and Tom Forge, Pacific Research Center, AAFC

154-47 1375b Effects of Rock Phosphate and Triple Superphosphate on Orange Trees. Akbar Gandomkar*, Else Bünemann, Petra Marschner and Bob Gilkes, School of Earth and Geographical Sciences, The Univ of Western Australia

154-48 1376a Response of Arbuscular Mycorrhizal Fungi to Phosphorus Fertilization of Soils as Affected by Soil Conditions. N. Mathimaran, R Ruh, J Jansa and E. Frossard*, ETH


154-51 1464b Assessment of Phosphate Release from Agricultural Soils Using a Flow-Through Reactor System. Emmanuel Frossard*, Paolo Demaria and Sokrat Sinaj, Group of Plant Nutrition ETH.


154-54 1466a Soil Phosphorus De-Stratification to Reduce Export of Phosphorus in Surface Runoff from a Sub-Catchment Used for Intensive Grazing. Warwick J. Dougherty*, Phil Davies2, David Chittleborough1, Jim Cox2 and David M. Nash1, (1)Soil and Land Systems, School of Earth and Environmental Sciences, (2)CSIRO Land and Water, (3)Dept of Primary Industries.

154-55 1466b Sequential Fractionation as an Operational Tool to Study P Forms and P Release Potential in Soils and Sediments. Antonio Delgado* and Concepcion Saaveda, Univ of Seville.

154-56 1467a Spatial Variability of Soil Test Phosphorus Across Manure Amended Dairy Soils. Anil K. Somenahally*, David Weindorf2, Landon Dartlek2, James Muir2 and Roger Wittle1, (1)Tarleton State Univ, (2)Tarleton State University, (3)Texas A&M Experiment Station.

154-57 1467b Use of Water Treatment Residues as a Best Management Practice to Bind P in Upland and Wetland Ecosystems. Jeff Novak*, Ariel A. Szgozi, Don Watts1, Nicholas Basta1, Elizabeth Dayton1 and Thecan Caesar2, (1)USDA-ARS, (2)USDA-ARS Coastal Plain Soil, Water and Plant Research Center, (3)The Ohio State Univ, (4)USDA-ARS-NPARD.


154-60 1469a Dynamic and Availability of Potassium in Soils Andisols and Inceptisols Dedicated to the Potato Cultivation in the Highland Cundiboyacense. Francisco Jiménez* Sr., Monomeros.


154-62 1470a Soil Quality. Richard Doe*, Univ of Cape Coast.


154-65 1471b Phosphorus Foraging Root Growth of Brassica Plants in Humus-P-Deficient Soils. Masami Nanzyo*, Hitoshi Kanno and Tadashi Takahashi, Graduate School of Agricultural Science, Tohoku Univ.

154-66 1472a Statewide, County-Based and Whole Farm Phosphorus Balances. Quirine M. Ketterings*, Caroline Rasmussen, Johan C. Mekken and Karl J. Czymmek, Cornell Univ.


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3.3B Nutrient Use Efficiency and Global Agriculture
—Poster

155-1 1609a Varietal Differences in Mineral Nutrition of Corn. Lykashov Aleksei Georgievic*, Rostov State Univ, Dept of Soil Science and Agrichemistry

155-2 1609b Effect of Vermicompost, Inorganic and Bio Fertilizer Application on Fodder Yield and Quality in Maize + Cowpea Intercropping System. M.R. Backiyavathy* and G. Vijayakumar, Tamil Nadu Agricultural Univ

155-3 1610a Mineralization of Crop Residues and the Fate of Residue-Nitrogen as Affected by Tillage Practices and Litter Quality. Martin Potthoff*1, Horst H. Steinmann2, Friedrich Beeße1 and Rainer G. Jorgensen2, (1)Dept of Soil Biology and Plant Nutrition, Univ of Kassel, (2)The Research Centre for Agriculture and the Environment, (3)Institute of Soil Science and Forest Nutrition

155-4 1610b Horticultural Crop Biofertilization with Arbuscular Mycorrhizal Fungi. Cabrera A. Rodriguez* Sr., Instituto Nacional de Ciencias Agrícolas


155-6 1611b The Effect of the Grazing System on Nitrogen Losses, Production and Quality of a Mixture of Pasture in Southern Chile. Rolando Demanet*, Carlos Canseco, Pedro Núñez and María de la Luz Mora, Univ de La Frontera

155-7 1612a Nitrogen and Sulfur Supply to a Degrading Signal Grass Pasture: Soil and Plant Concentrations. Francisco A. Monteiro* and Edna M. Bonfim-Silva, Soils and Plant Nutrition Dept, Luiz de Queiroz College of Agriculture, Univ of São Paulo

155-8 1612b Copper Fertilizer Management for Optimum Crop Yield and Quality in the Canadian Great Plains. Sukhdev S. Malhi*, Agriculture and Agri-Food Canada and Rigas Karamanos, Western Co-operative Fertilizers Limited


155-10 1613a Optimization of Corn Grain Composition with Variable Rate Nitrogen Fertilization. Matta L. Ruffo2*, Matt Wijeber2 and Frederick E. Below3, (1)Univ of Illinois, Dept of Crop Sciences, (2)Mosaic Crop Nutrition

155-11 1613b Sulphur Fertilizer Management for Optimum Seed Yield and Quality of Canola in the Canadian Great Plains. Sukhdev S. Malhi*, Agriculture and Agri-Food Canada, Jeffrey Schoenau, Univ of Saskatchewan and Cynthia Grant, Agriculture & Agri-Food Canada

155-12 1614 Movement of Water, N-forms and Potassium in a Sandy Soil Creviced with Vegetables under Drip Irrigation. Kamal A. Mahmoud*, Peter Nkedizika and Kelly Morgan, Univ of Florida


155-14 1615a Wastewater Re-Use in Soilless Environments. R. Michitsch1, C. Chong2, R.P. Voroney1 and B.E. Holbein1, (1)Dalhousie Univ, (2)Univ of Guelph, (3)SUBBOR

155-15 1615b Yields and Sugar Content in Melon (Cucumis melo) by the Different Nitrogen and Potassium Fertilization Levels in Protected Cultivation. Ju Young Lee3, Jae-Hong Park2, Byung-Choong Jang1, Suck-Kee Jung1, Byung-Koo Ahn1, So-Hyeon Park1, Su-Yeon Lee1, Yang-Heo Park1, Ku-Suk Jung1, Ki-Sang Lee2 and Young-Sang Yoon1, (1)Division of Plant Nutrition, National Institute of Agricultural Science and Technology, RDA, (2)Kochang Watermelon Experiment Station, (3)Kongju National University

155-16 1616a Issues with Re-Using Organic Based Wastewaters in Soilless Applications. R. Michitsch1, C. Chong2, B.E. Holbein1 and R.P. Voroney1, (1)Dalhousie Univ, (2)Univ of Guelph, (3)SUBBOR

155-17 1616b Effect of Steelmaking Slag and Converter Sludge on Some Properties of Acid Soil under Tea Planting. Seyedeh Fatemeh Kiae Jamali1, Akbar Forghani1 and Ahmad Shirinifek2, (1)Guilan Univ, (2)Tea Research Center


155-19 1617b Study on Availability of Phosphorus in Amendment Soils with Different Organic Matters, Akbar Forghani1 and Ebrahim Javanmand, Guilan Univ

155-20 1618a Temporal Change of Soil Phosphorus Fractions Observed by Field Microplot Cylinder Experiments. Zhongqi He*, C. Wayne Honeycutt, Timothy Griffin and Ann-Marie Fortuna, USDA-ARS


155-22 1619a The Study of Effects Zn, Fe and Mn on Quantity and Quality of Grain Wheat. Mohammad Reza Pol Shekane Pahalavan*, Gholam Ali Keykha, Gholam Reza Etesam, Hossein Akbarinamoghadam, Shit Ali Kookhan and Mohammad Reza Naroueirad, Agricultural and Natural Resources Research Center

155-23 1619b Effect of Foliar Application of Iron and Sulphur in Alleviation of Iron Chlorosis in Acid lime (Citrus aurantifolia, Swingle). Pravinchandra C. Patel1, Main Forage Research Station, Anand Agricultural Univ, Anand-388110(Gujarat State)

155-24 1620a Soil Water Micronutrients and Heavy Metals Under Turf. Zhongchun Jiang*, SUNY Cobleskill

155-25 1620b Sulfur and Nitrogen Deficiency Reduces Radiation Interception, Biomass Production and Grain Yield in Wheat. Fernando Salvagiotti*, Univ of Nebraska and Daniel Miralles Sr., Faculty of Agronomy, Univ of Buenos Aires

155-26 1621a Meeting the Rice Production and Consumption Demand Of West Africa with Improved Soil and Water (Sawah) and Nutrient Management Technologies. Kwame Ofosreda Asubonteng1, Benjamin Adiyiah1, Tsugiyuki Masunaga2 and Toshiyuki Nakatsuki2, (1)Soil Research Institute, (2)Faculty of Life and Environmental Science, Shimane Univ, (3)Faculty of Agriculture, Kinki Univ

155-28 1622a Mineralization of C and N from Banana Crop Residues in Soil and Role of N from Residues in Banana Nutrition during a Crop Cycle. Line Thieuleux*, Recous Sylvie1, Sierra Jorge1, Ouzer-Lafontaine Harry1, Andre Lassoudiere1 and Oliver Robert2, (1)Institut National de Recherche Agronomique, centre Antilles-Guyane, Unite Agropedoclimatique, (2)Centre de cooperation International en Recherche Agronomique pour le Développement

155-29 1622b Ammonia Volatilization from Nitrogen Fertilizers in Pampean Agroecosystems of Argentina. Roberto Alvezar* and Haydee Steinbach, Facultad de Agronomía, Univ de Buenos Aires


155-31 1623b Nitrate Nitrogen Production during Fallow Periods in Pampean Soils of Argentina. Roberto Alvarez* and Haydee Steinbach, Facultad de Agronomía, Univ de Buenos Aires

155-32 1624a Advanced Screening Method for the Selection of Salt Tolerant Crops Using Agar Plate. Sei Joon Park1, Myoung Yong Shim1, Ju-Young Lee2, Sang Eun Lee3, Su-Teon Lee4, Sung Yong Yoo5 and Tae Wan Kim6, (1)Institute of Ecological Phytochemistry, Hankyong National Univ, (2)Division of Plant Nutrition, National Institute of Agricultural Science and Technology, (3)Department of Plant Resources Science, Hankyong National Univ

155-33 1624b Effect of Lignite Fly Ash Application on the Amount of Certain Heavy Metals in Lychee Orchard’s Soils of Northern Thailand. Jiraporn Inthasan*, Niwat Hirunburana2, Ludger Herrmann1 and Karl Stahr3, (1)Dept of Soil Resources and Environment laboratory of the Ecole Normale Supérieure continental Environment Laboratory UMR 7618, (2)Geology laboratory of the Ecole Normale Supérieure UMR 8538


155-35 1625b Zinc Fractions of Selected Calcareous Soils of Tehran Province, Iran and Their Relations with Soil Properties. Adil Rehyan Tabar*, Najaf Ali Karimian, Mohamad Ardalan and Gholam Reza Savaghebi, Univ of Tehran

155-36 1626a Effect of Long-term Application of FYM and Fertilizer N on Available P, K and S Content of Soil. Ram Phal Narwal* and Manju Chaudhary, Dept of Soil Science


155-38 1627a Evaluation of Nitrogen Status in Japanese Agricultural Soils. Shuji Sano*, Laboratory of Soil Science, Graduate School of Agriculture, Kyoto Univ, Kyoto, Junta Yanai, Kyoto Prefectural Univ and Takashi Kosaki, Kyoto Univ

155-39 1627b Interaction Effect Between Zn and P on the Yield Attributes and Content of Zn in Stevia rebaudiana. Kuntal Das*, St. John’s Pharmacy College and Raman Dang, Al-Ameen College of Pharmacy

155-40 1628a Monitoring Nitrogen Uptake and Mineralization by Brassica Cover Crops in Maryland. Amy Kremen* and Ray R. Weil, Univ of Maryland

155-41 1628b Simulation of Nutrient Requirement and Use Efficiency in Irrigated Wheat Using the QUEFTS Model. Debatnu Maiti*, Dept of Agricultural Chemistry and Soil Science, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya, WB

155-42 1629a A Review of the Green Manuring Work Conducted at the South African Sugarcane Research Institute during the last 20 Years. Ruth Rhodes*, South African Sugarcane Research Institute

155-43 1709a Illite Layer Dynamics in Soils: Evidence and Implications. Pierre Barré1,2, Bruce Veldc2 and Luc Abbadie1, (1)Biogeochemistry and Ecology of Continental Environment Laboratory UMR 7618, (2)Geology laboratory of the Ecole Normale Supérieure UMR 8538

155-44 1709b Potassium Dynamics in Greek Red Mediterranean Soils. A. D. Simonis*, P. H. Koukoulakis and N. Gandisid, NAGREF–Soil Science Institute

155-45 1710a Effects of Vermicompost, Urea and Zinc Sulfate on Zinc Fractions in a Calcareous Soil. Adil Rehyan Tabar*, Mohamad Ardalan, Najaf Ali Karimian and Gholam Reza Savaghebi, Univ of Tehran

155-46 1710b Assessment and Use of Accumulated Fertilizer Phosphorus in a 30-Year Study in Subtropical Region for Sustainable Crop Production and Environmental Safety. Milhka S. Aulakh*, Punjab Agricultural Univ

155-47 1711a A New Buffer that Mimics the SMP Buffer for Determining Lime Requirement of Soil. Frank Sikora*, Univ of Kentucky


155-49 1712a Impact of 10-Year Rice-Wheat Cropping System and Integrated Nutrient Management on Soil Properties and Crop Productivity in a Gypsum Amended Soilic Soils. Anand Swarup* Sr. and N.P.S Yaduvanshi, Central Soil Salinity Research Institute

155-50 1712b Soil Available N: Relationships between PPNT and PSNT Test. Bao-Luo Ma*, Agriculture and Agri-Food Canada

155-51 1713a Can Sorghum Genotypes Avoid Phosphorus Poisoning?: Rafael G. Camacho* Sr.1, Euripesed Mala-volta Sr.2, Jose P. Guerrero Sr.1 and Tomas Camacho Jr., (1)Romulo Gallegos Univ, (2)CENAA/USP

155-52 1713b Sustaining Productivity of Wheat-Soybean Cropping System through Integrated Nutrient Management Practices in the Vertisols of Central India. Uma Kant Behera*, Indian Agricultural Research Institute and Hira Nand Pandey, IARI, Regional Station

155-53 1714a Assessment of Soil Test Based Potassium Requirement for Low Land Rice in Udic Haplustalf under the Influence of Silicon Fertilization. Palamasyam Balasubramaniam* and Sanjeeviraja Subramanian, Tamil Nadu Agricultural Univ


155-55 1714c Mirroring of Soil Salinity and Its Management Relevance in the Long-term Experiment at Bangalore. S. V. N. Hebbal, Department of Soil Sciences, University of Agricultural Sciences, Bangalore University

155-56 1714d Patterns of Phosphorus Storage in Soil of Rice-Based Agriculture of the Western Ghats, India. Uma Kant Behera*, Indian Agricultural Research Institute and Hira Nand Pandey, IARI, Regional Station

155-57 1714e Spatial Analysis of Soil Phosphorus Levels in Rice-Based Agriculture of the Western Ghats, India. Uma Kant Behera*, Indian Agricultural Research Institute and Hira Nand Pandey, IARI, Regional Station

155-58 1714f Crop-Soil Interaction in the Western Ghats, India. Uma Kant Behera*, Indian Agricultural Research Institute and Hira Nand Pandey, IARI, Regional Station

155-59 1714g Soil and Water Conservation and Their Importance in Agriculture. Surekha K and Sudha J, Rama Prasad AS, Meenakshi R and Ameeta S, Central Soil Salinity Research Institute


155-61 1714i Potassium Status of Upland Rice in the Western Ghats, India. Uma Kant Behera*, Indian Agricultural Research Institute and Hira Nand Pandey, IARI, Regional Station

Trying a New Potassium Uptake Model by Wheat. Ghorban Ali Roshani*, G. Narayanasamy2 and S.C. Datta*, (1)Golestani Agricultural Research Center, (2)Indian Agricultural Research Institute

Nutrient Dynamics and Balance in Sole Soybean in a Nigerian Derived Savanna. Vincent O. Aduiramigba-Modupe*, Institute of Agricultural Research and Hassan Tijani-Eniola, Dept of Agronomy, Univ of Ibadan,


Can Potassium Affect Root Influx Parameters of Wheat?. Ghorban Ali Roshani*, G. Narayanasamy2 and S.C. Datta*, (1)Golestani Agricultural Research Center, (2)Indian Agricultural Research Institute

Targeted Yield Concepts for Fertilizer Requirements of Wheat in Vertisols. Kashinath Ragho Sonar*, Retired From Mahatma Phule Agricultural Univ, Rahuri, Maharashtra and Ashok Patal, Mahatma Phule Agricultural Univ

Yield and P-Use Efficiency of Five Maize Cultivars under Two P Levels in a Derived Savanna of Nigeria. Vincent O. Aduaramigba-Modupe*, Institute of Agricultural Research

Optimization of Mineral Nutrition of Plants on the Basis of Information-Logical Models. Elena G Fyovarova* and Lidiya M. Burlakova, Altai State Agricultural Univ

Critical Soil Nutrient Level for Carrot under Targeted Yield Approach in Integrated Plant Nutrition System for Ulitic Hapludalf. Ramar Uma Devi* and Palanimuthu Murugesabobathi, Tamil Nadu Agricultural Univ

Alalfa (Medicago sativa L.) Forage Production under Subsurface Drip Irrigation Interacting with Manure. Cirilo Vazquez*, Enrique Salazar, Jose Dmas Lopez, Rafael Zatiga, Fernando Jasso, Rafael Figueroa, Antonio Gallegos and Salvador Berumen, Durango Univ

Chlorosis in Sugarcane. R. B. Somawanshi*, Mahatma Phule Agricultural Univ, Rahuri

Ecological Monitoring of the South Russian Plants Nutrient Quality. Olga Biryukova*, Natalya Kravtsova1, Ivan Yel’nikov2 and Vladimir Kryshchenko1, (1)Rostov State Univ, (2)Soil Institute after V.V. Dokuchaev

Productivity of Iron Efficient Spanish Bunch Groundnut Genotypes as Influenced by Iron Management in Calcareous Vertisols under Rainfed Farming Situations. Lokanath H. Malligawad* and Narayan S. Heburs, Univ of Agricultural Sciences

Increasing Efficiency of Applied Fertilizer Phosphate Using Tools of Source, Dose and Method of Application: World Phosphate Institute, Morocco Experience at Farmer’S Fields in India. G Dev*, Consultant in India, World Phosphate Institute and A. Nassir, World Phosphate Institute

Fertilizer Optimization for Cassava (India). S. Kamraiz and Palanaiappan Muthuvel*, Tamil Nadu Agricultural Univ

Residual Benefits of Two Cowpea Genotypes and Natural Fallow to Subsequent Maize in the Northern Ghana Savannah of Nigeria. E.N.O. Iwuaforo*, Yusuf A.A.*, Olufajo O.O, R. Abaidoo2 and N. Sangina*, (1)Soil Science Dept, Faculty of Agriculture/Institute for Agricultural Research, Ahmadu Bello Univ, (2)International Institute of Tropical Agriculture, (3)Tropical Soil Biology and Fertility Institute of CIAT(TSID-CIAT)

Utilization Efficiency of Mycorrhizal Glomus fasciculatum Peanut in the Coastal Soils of South India. Panchaksharam Tholkappian* and Muthukumara Deiveekusandaram, Dept of Microbiology, Faculty of Agriculture, Annamalai Univ


The Effects of Integrated Application of Micronutrient on Wheat in Low Organic Carbon Conditions of Alkaline Soils of Western Iran. Reza Soleimani*, Soil and Water Research Institute

Effect of Zinc and Cadmium Concentrations on the Rates of Their Absorption by Rice and on Some Growth Characteristics of the Plant (Oriza sativa L.) Part 2: Yield and Composition. MJ Malakouti*, Tarbiat Modares Univ, Soil and Water Research Institute and A. Charati, Azad Islamic Univ, Science and Research Division

Study of Balanced Fertilization Technology and Nutrient Management for Bamboo Forest. Dekui Niu*, College of Land Resource and Environment, Jiangxi Agricultural Univ and Xiaomin Guo, College of Forestry, Jiangxi Agricultural Univ

Long-term Effects of Fertilizer Application on the Fertility of Paddy Field. Masoud Kavoosi*, Rice Research Institute of Iran

Tillage and Residue Management Effects on Yield and Nitrogen Use Efficiency in Wheat Following Rice in the Indo-Gangetic Plains of India. Yadvinder Singh*, Bijay Singh1, J.K. Ladhia*, Rajiv Gupta1 and Ravinderpal Pannu1, (1)Dept of Soils, Punjab Agricultural Univ, (2)International Rice Research Institute

Nutritional Disorders in Fruit Trees on the Calcareous Soils of Iran. MJ Malakouti*, Tarbiat Modares Univ, Soil and Water Research Institute


Interaction of Potassium with Nitrogen on Rice Plant. Masoud Kavoosi*, Rice Research Institute of Iran


The Effect of Fertilizer Application with Zinc on Yield and Some Yield Components of Chickpea Varieties. Aysen Akay*, Sulcuk Univ Agricultural Faculty, Dept of Soil Science

The Transformation of Nitrogen in Paddy Soil under Different Climatic Conditions and Differ-

Nitrogen and Phosphorus Contributions from Litterfall in Shade Grown Coffee (Coffea arabica) Plantations in the Venezuelan Andes. Arellano Rosalva1, Jorge Paolino1, Miguel Robles1 and Elda Villegas1, (1)Univ de los Andes Núcleo Univ Rangel, (2)Instituto de Investigaciones Científicas (IVIC), (3)Ministry of Agriculture.

Nitrogen and Phosphorus Use Efficiency by Using the Nitrification Inhibitor 3, 4-Dimethylpyrazole Phosphate (Dmp) in Chile. Rodrigo Ortega1, Hideto Ueno1 and Toyoharu Ando1, (1)Univ Farm, Fac. Agr., Ehime Univ, (2)Nishida-Kosan Co. Ltd., (3)National Research Institute of Fisheries, (4)Shibata College of Agriculture and Technology, (5)Japan Agriculture Research Institute.


Effect of Application of Potassium, Magnesium and Sulphur Fertilizers for Yield and Quality on Sugarcane Production in an Acid Red Soil Area. Hongwei Tan*, Liuqiang Zhou, Rulin Xie and Meifu Wang*, (1)CAAS, (2)CAAS, (3)CAAS, (4)CAAS, (5)CAAS.


Nitrogen Management in Lowland Rice by the Use of Leaf Color Chart through Farmer Partici-


155-112 1824a Effect of Gel-Based Controlled Release Fertilizers on Crop Yield and Nutrient Use Efficiency. Ding Hong1 and Zhang Yu-shu, Institute of Soil and Fertilizer, Fujian Academy of Agricultural Sciences


155-114 1825a Nitrate Leaching Pattern from Slow Release Fertilizer under Polyethylene Film Mulching and Non-Mulching in Sesame (Sesamum indicum L.). Dong-Wook Lee1*, Ki-Do Park, Chang-young Park, Il-Soo Son, Ui-Gum Kang and Sung-Tai Park, National Yeongnam Agricultural Research Institute, R.D.A

155-115 1825b Differences in the Temperature Quotients of Ammonia Emission on the Fertilized Soils of Florida and Washington. Guodong Liu1, Yungcong Li1 and Ashok Alva2*, (1)Univ of Florida/TREC, (2)USDA-ARS


155-117 1826b Residual and Cumulative Effect of Boron Use in Rice-Wheat System in Calcareous Soils of Pakistan. Abdul Rashid1*, M. Yasin1, R. Ullah1 and M.A. Ali2, (1)National Agricultural Research Center, (2)Adaptive Research, Agriculture Dept

155-118 1827a In-Season Nitrogen Fertilization to Improve Nutrient Use Efficiency in Maize. M. A. Al-ali* and Thomas Morris, Univ of Connecticut


155-120 1828a Root Growth, Nutrition and Yield of Common Bean as Affected by Surface Application Lime and Gypsum under a No-Tillage System. Carlos A.C. Crusciol*, São Paulo State Univ and Rogério P. Soratto, Mato Grosso do Sul State Univ, College of Agronomy

155-121 1828b Multinutrient Extraction of Soils by EDTA Ion Exchange Resin. Bernardo van Raij1*, Aline R. Coscione, Heitor Cantarella and Monica Ferreira Abreu, INStituto Agronômico


155-123 1901b Long-Term Rye-Ryegrass Forage Yields and Changes in Soil Profile Inorganic Nitrogen as Affected by Rate and Date of Nitrogen Application. Jagadeesh Mosalai*, Keifayem Girma2, Jeffrey B. Ball1 and W.R. Raun2, (1)The Noble Foundation, (2)Oklahoma State Univ

155-124 1902a Corn Yield Response to Spring Applied Controlled-Release Urea vs. Spring Applied Urea. Jeff Moore1, Randy Killorn and Marianela Gonzalez1, Iowa State Univ

155-125 1902b Kinetics of Nitrification in Selected Iowa Soils Treated with Stay-N 2000. D. Rovita* and Randy Killorn, Iowa State Univ

155-126 1903a Nitrogen Management Lessons from Long-Term Agroecological Trials on Alfisols. Sieglinde Snapp1, G. P. Robertson2, Claire McSwinney1 and Brooke Wilke3, (1)Michigan State Univ, (2)Crop and Soil Sciences Dept, Michigan State Univ, (3)Dept Crop and Soil Sciences

155-127 1903b Nebraska Soil Fertility Project Revisits Corn Recommendations under High Yield Environments. Charles Shapiro1*, Achiem Dobermann2, Richard Ferguson3, Gary Herget1, David Tarkelson3, Daniel Walters2 and Charles Wortmann2, (1)Univ of Nebraska, (2)Dept of Agronomy and Horticulture, (3)West Central Research and Extension Center

155-128 1904a Changes in Phosphorus Fractions of a Mediterranean Calcareous Sandy Soil Following Long-Term Application of P Fertilizer. Dang Thanh Vu1, Caixian Tang1 and Roger D. Armstrong2, (1)La Trobe Univ, (2)Primary Industries Research Victoria

155-129 1904b Quantifying the Impact of Subsurface Drip vs. Pivot Irrigation on Nitrogen Leaching to a Shallow Aquifer. Omar R. Harvey* and Christine L.S. Morgan, Texas A&M Univ, Dept of Soil and Crop Sciences

155-130 1905a Enhancing Nitrogen Efficiency of Rice (Oryza sativa L.) by Silicate Application in Korean Paddy Soil. Ki-Won Chang1, Pil Jo KIm1, Chang Hoon Lee1* and Yong Bok Lee2, (1)Chungnam National Univ, (2)Division of Applied Life Science, Gyeongsang Univ

155-131 1905b Effect of Application of Porous Hydrate Calcium Silicate on Rice Growth and Yield. Hironori Heimai1*, Masahiko Saigusa1, Hitoshi Okazaki2 and Kazuo Yoshida3, (1)Field Science Center, Graduate School of Agricultural Science, Tohoku Univ, (2)Residential Systems and Materials Laboratory, Asahi Kasei Corporation

155-132 1906a Effective P Fertilization Increases Yield and Quality of Fruit in High Density Apple. Gerald Neilsen*, Denise Neilsen and Peter Toivonen, Pacific Agri-Food Research Centre


155-134 1907a Sawah System and Power Tiller, Necessities for Sustainable Rice Production in Sub-Saharan Africa—the Case of Nigeria. Oluwarotimi O. Fashola*, International Institute of Tropical Agriculture, Joshua Aliyu, Watershed Initiative in Nigeria
Potassium Fixation in Silt, Sand and Clay Fractions of Soils Derived From Granitic Alluvium of the San Joaquin Valley, California. M. Murashkin, R. J. Southard and G. S. Pettygrove*, Univ of California

Potassium Dynamics in Vertisols Following Potassium Fertilization and Plant Uptake. Kathryn Taylor1, Balwant Singh1 and Graeme Schwenke2, (1)The Univ of Sydney, (2)NSW Department of Primary Industries

Citrus Nitrogen Uptake and Nitrification Rates in Sandy Soils. Kelly Morgan*, Johan M. Scholberg and Thomas Obreza, Univ of Florida

Cation Exchange Capacity and Nutrient Contents in Red-Brown and Brown Soils of Crimea. Saeed Zeraat Kar*, Kharkov National Agrarian Univ

N Transformations of Fresh Poultry Manure Composts. S. Agyenim Boateng*, Soil Research Institute

Development of Leaf Nutrient Diagnosis Standards and its Application to Fertilizer Recommendations for Durian in Thailand. Sumitra Poovarodom* and Nacharee Boonplang, Dept of Soil Science, King Mongkut’s Institute of Technology Ladkrabang

Changes of Nitrate Assimilation and Ascorbic Acid Content in Artificially Wilted Spinach by Nutrient Solution of High Nitrogen and Low Potassium. Yang Ho Park*, National Institute of Agricultural Science and Technology, RDA

Determination of Optimum Application Rates of Nitrogen Fertilizer for Head Rice Yield in Korea. Yo-Sung Song*, Ki-Sang Lee*, Beung-Gan Jung1, Hee-Joong Jun1 and Young-Sang Yoon2, (1)National Institute of Agricultural Science and Technology, RDA, (2)Kongju National Univ

Diagnosis of Leaf-wilting Symptoms of Melon (Cucumis melo) Caused by an Excess Salinity in Protected Farming System. Byoung Choon Jang*, National Institute of Agricultural Science and Technology, RDA

Diagnosis of Leaf-wilt Symptoms of Watermelon (Cucurbita citrullus L.) in Protected Cultivation Caused by Different Factors. Byoung Choon Jang*, National Institute of Agricultural Science and Technology, RDA

Nitrate Reductase Activity in the Coffee Tree Affected by Levels and Nitrogen Application Systems. Enes Furlani* Jr., Andre Rodrigues dos Reis and Kuniko Iwamoto Haga, São Paulo State Univ


Boron Soil Test and Leaf Analysis Correlate with Fruit Yield of Sweet Oranges, Dirceu Mattos Jr.*, José A. Quaggio1, Heitor Cantarella2 and Eduardo S. Stuchi3, (1)Instituto Agronômico (IAC), (2)Instituto Agronômico, (3)Embrapa Mandioca e Fruticultura (WIN 2001) and Toshiyuki Wakatsuki, Faculty of Agriculture, Kinki University

Sewage Sludge Application Treated by N-Viro Process in No-Till Soils. Agronomic and Environment Effects. Jetro Turan Salvador1, Luiz Antonio Corrêa Lucchesi1, Tereza Cristina de Carvalho1, Uéliton Trindade de Oliveira1 and Antonio Carlos Lacerda2, (1)Univ Federal do Paraná, (2)Alto Iguacu Engenharia, Agronomia e Ambiente Ltda

Physiological Adaptability of Seeding Tomato Cultivars Under Low Phosphorus Stress. Han Xiaorui*, Wang Jing, Zhan Xiumei, Geng Liang, Yu Chengguang and Yin Hongbin, College of Land and Environment Science, Shenyang Agricultural Univ

Emissions of Nutrients on Alpine Cropping Area of Korea. Kwang Lai Park*, Myung Chul Seo, Kee Kyung Kang, Deog Bae Lee and Pil Kyun Jung, National Institute of Agricultural Science and Technology

Fertilizer Application Methods for Cotton. Enes Furlani* Jr., Nelson Machado da Silva1, Luiz Henrique Carvalho1 and Marcelo Andreottii2, (1)São Paulo State Univ, (2)Instituto Agronômico

Soil Fertility Impact on Sandy Soil of Kuwait. Mahdi Abdal* and Majda Suleiman, Kuwait Institute for Scientific Research

Nitrogen Deficiency Diagnostic by the Chlorophyll Meter Evaluation. Enes Furlani* Jr., Andre Rodrigues dos Reis and Marcelo Andreotti, São Paulo State Univ

Site Specific Nutrient Management for Rice in Alkaline Soils of India. Abdul Rahim Mohammed Haqoon*, R Nagarajan, S Marimuthu, Nagappan Bhuvaneswari, Arumugham Bhaskaran, S Pazhanivevan, S Ravichandiran and M Sheik Dawood, Anbil Dharmalingam Agricultural College and Research Institute (TNAU)

Dynamics of Nitrogen, Phosphorus and Potassium Availability in Soils Amended with Banana-Trash Compost. Venecio U. Ultra* Jr.1, Danilo A. Mendonça1 and Angelina Briones1, (1)Univ of Eastern Philippines, (2)Univ of the Philippines Los Banos


Use of Indigenous Indian Rock Phosphates as a Cheap Source of P to Increase Rice Production. C.A Srinivasamurthy*, Sunil Kumar, M.V. Ravi, S. Bhaskar and R. Siddaramappa, Univ of Agricultural Sciences

Soil and Crop Nitrogen as Influenced by Tillage, Cover Crops, and Nitrogen Fertilization. Upendra Sainju1, Bharat Singh1, Wayne Whitehead1 and Shirley Wang1, (1)USDA-ARS-NPARRL, (2)Fort Valley State Univ

Soil Test Based Fertilizer Recommendation for Carrot on Ulicic Haplustalf of Tamil Nadu,India. Palanimuthu Murugesaboopathi*, Ramesamy Natesan and Subramaniam Thiyageswari, Tamilnadu Agricultural Univ

Assessing Optimum Management for Nitrogen and Fungicides in High Yielding Cultivars of No-Till Wheat. Adriana García Lamothe* and Martha Diaz de Ackermann, Instituto Nacional de Investigacion Agropecuaria, INIA Uruguay

Responses of Maize-Bean Intercrops to Minjingó Phosphate Rock and Lime in Terms of Nutrient Use Efficiency and Economic Benefits on Acid Soils of Western Kenya. Abigail O. Nekesa1,1, John Robert Okalebo1, Caleb O. Othieno1, Ruth Njorge1, Mary Kipsat1, Moses Thuita1 and André Batimo1, (1)Moi Univ, (2)Tropical Soil Biology and Fertility Institute of CIAT
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155-162 1921b Micronutrients Uptake by Wheat as Affected by Genotypes, N and P. Deepak Kumar*, M.L. Dixit and Kuldeep Singh, Dept of Soil Science


155-164 1922b Combining Field and Simulation Studies to Improve Fertilizer Recommendations for Irrigated Rice in Burkina Faso. Zacharie Segda*, Sr., Institut de l’environnement et des recherches agricoles (INERA), Stephan M. Haefele, International Rice Research Institute, Marco C.S. Wopereis, Cirad, Abdoulaye Mando, IFDC and Michel P. Sedogo, INERA

155-165 1923a Survey, Modelling, Diagnosis of Nutrient Constraints and their Validation in Nagpur Mandarin Orchards of Central India. Anup Kumar Srivastava*, Sr., National Research Centre for Citrus

155-166 1923b Split Application and Levels of K on the Yield of Maize and Different Fractions of K in Soil. Santh P. Bala*, Sr., Tamil Nadu Agricultural Univ

155-167 1924a Role of Potassium in Crop Production in India. N.S. Parsicha* and S.K. Bansal, Potash Research Institute of India, Gurgaon, Haryana, India


155-169 1925a Efficient Use of Fertilizer Phosphorus in Crops in India. Rayappan Kumaresan*, Nasser, A. Abderrahim Nasser* and Tayub Tayub Mrabet*, (1)Tamil Nadu Agricultural Univ, (2)World Phosphate Institute. IMPHOS


155-172 1926b Nitrogen Isotope Signatures in Grain Crops Treated with Organic and Chemical Fertilizers in a Four-Year Canola-Barley-Wheat-Canola Rotation. Woo-Jung Choi, Dept of Biosystems and Agricultural Engineering, Institute of Agricultural Science and Technology, Chonnam National Univ, Muhammad Arshad, Dept of Renewable Resources, Univ of Alberta and Scott X. Chang*, Univ of Alberta

155-173 1927a Aggregate Associated Sulphur Fractions in Soils under Long-Term Fertilization Experiment. Balk Ram Singh*, Zhihua Yang* and Sissel Hansen*, (1)Norwegian Univ of Life Sciences, (2)Norwegian Centre for Ecological Agriculture


155-175 1928b The Effects of Organic Resource Quality on Soil Profile N Dynamics and Maize Yields on Sandy Soils in Zimbabwe. Florence Mtumbanengwe*, Univ of Zimbabwe

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3.4A Combating Global Soil & Land Degradation I. Agroecosystems: Processes & Assessment—Poster

156-1 1636a Evaluation of the Enzymatic Activity of the Deshidrogenase, Urease and B-Glucosidase in a Submit Soil to Different Agricultural Uses. Mariela J. Navas*, Instuto Nacional de Investigaciones Agricolas (INIA-Venezuela) and Marta Benito, Univ Politecnica de Madrid

156-2 1636b Long-Term Human and Biophysical Dynamics of Soil Degradation in the Kenyan Highlands. S. J. Rihale*, C. B. Barrett1, L.E. Blume1, J.M. Kinyangi1, C.J. Lehmann1, P.P. Marena1, David M. Mbugua2, C.F. Nicholson1, S.O. Ngoze1, D. Parsons1, L.V. Verchot1 and A.N. Pell1, (1)Cornell Univ, (2)World Agroforestry Centre

156-3 1637a Transformation Processes of Soil Formation and Fertility of Chernozems of the Steppe Zone of the Altai Region. Gennady G Morkovkin* and Tina B. Maksimova, Altai State Agricultural Univ


156-6 1736b Influence of Land Use on Soil Nutrient Recovery in Previously Shifting Cultivation Areas in Lower Northern Thailand. Jarutporn Boonyanuphap*, The United Graduate School of Agricultural Science, Ehime Univ and Katsutoshi Sakurai, Faculty of Agriculture, Kochi Univ

156-7 1737a Effects of Upland Rice Cultivation on Soil Characteristics in the Arid Region of Iran. Hossein Torabi-Golsefidi*, Faculty of Agriculture, Shahed Univ

156-8 1737b Temporal-Spatial Distributions and Variabilities of Soil Cd, Pb and Zn in Szia, China. Lina Sun*, Shenyang Key Laboratory of Environmental Engineering and Yaohua Zhang, Liaoning Research Institute of Geology and Mineral Resources

156-9 1834a Geomatics Based Soil Mapping and Hazard Assessment of Cultivated Land in El-Fayoum Depression, Egypt. Rafat Ramadan Ali*, Soils and Water Use Dept, National Research Centre and Fouad H. Soliman, Cairo Univ

156-10 1834b Relationships between Extractable Al and Properties of Soil in the Wheatbelt of Western Australia. Tania Liaghati*, Robert Gilkes1 and Chris Gazezy*, (1)Univ of Western Australia, (2)Dept of Agriculture, Western Australia

156-11 1835a Penetration Resistance under Zone and Strip-Tillage for Vegetable Cultivation in New York State. Omololu J. Idowu*, Amusuya Rangarajan* and Donald E. Halseth*, (1)Dept of Crop and Soil Sciences, (2)Cornell Univ

156-12 1835b Geographic Information System to Monitor the Development of Negative Soil Processes in the Russian Federation. Natalya V. Kalinina*, Lud-
mila Kolesnikova and Elena Birukova, V.V.


156-14  1836b  Towards a Better Understanding of the Long-Term Yield Response of Corn to the Repeated and Random Seasonal Effects of Fertilizer Nitrogen and Tillage, J. H. Grove*, Plant and Soil Science Dept and Eugenia Pena-Yewdikhwiw, West Virginia Univ

156-15  1837a  Effects of Application Fertilization Organic on Soil Organic Matter, P. K; Tissues N, P, K and Yield of Corn, Isabel Arrieches and Orlando Mora, Instituto Nacional de Investigaciones Agrícolas de Venezuela

156-16  1837b  Soil Compaction and Fertilization Effects on Spring Barley (Hordeum vulgare L.) and Weeds Nutrition. Juan Kuh*1, Endla Reintam, Katrin Trükmann, Liina Edesi and Virgo Rääts, Estonian Univ of Life Sciences

156-17  1934b  Erosion, Nutrient Loss and their Effects on the Landscape on Hungarian Sites. Csaba Centeri1, Marton Vonás2, Akos Malatinsky1 and Akos Potyondi1, (1)Szent Istvan Univ, Dept of Nature Conservation, (2)Szent Istvan Univ, Dept of Landscape Ecology

156-18  1935a  Land Degradation and Agricultural Productivity in Bangladesh. S. A. Haque*, Bangladesh Agricultural Univ

156-19  1935b  Impact of Soil Typology and Land Use on Micro-fungal Communities in the Alma – Kerem-Benzimra Area, Upper Galilee, Israel. Isabella Grishkan1, Alexander Tsatskin1 and Evitaro Nevo1, (1)Institute of Evolution Univ of Haifa, (2)Zinman Institute of Archaeology Univ of Haifa


156-22  1937a  Diversity of Biological Forest Ecosystem and their Impact in Semi-Arid Land, Analysis and followed by Remote Sensing (ALSAT-1 Data, Steppe of Algeria), Ahmed Zegzra*, National Center of Spaces Technics

156-23  1937b  Copper-Chromium-Arsenic Leaching from Treated Vineyard Posts. Siva (Sivalingam) Sivakumar*1, Iris Vogeler, Steve Green, Carlo Van Den Dijssel, Marc Greven, Brent Clothier, Rob Agnew, Sue Neal and Rogerio Chichota, HortResearch

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3.4B Combating Global Soil & Land Degradation II. Agroecosystems: Reclamation Strategies—Poster

157-1  1638a  Indigenous Farming System for Soil Conservation on Sloping Farmland in Sichuan, China. Xiu-hua He Sr., Xinbao Zhang and Anbang Wen, Institute of Mountain Hazards and Environment

157-2  1639a  Effects of Arsenic Contaminated Irrigation Water, Zinc and Organic Matter on the Mobilization of Arsenic in Soils in Relation to Rice (Oryza sativa L.), Dilip Kumar Das*, Dept of Agricultural Chemistry and Soil Science, Bidhan Chandra Krishi Viswavidyalaya

157-3  1639b  Managing Soils in the Hills of Nepal through Site-Specific Integrated Plant Nutrition Systems, Basu D. Regmi* Sr., Neeranjit P. Rajbhandari1, Chhabi L. Paudel1, Bishnu K. Dhati1, Juerg Merz2 and Juerg Merz*, (1)Sustainable Soil Management Programme, (2)Sustainable Soil Management Programme

157-4  1640a  Using Adaptive Cluster Sampling Based on Both the First Sampling Density and the Regulation Thresholds for Delineating Contaminated Soils with Kriging. Dar-Yuan Lee*, Kai-Wei Jiang2 and Wan-Jun Liao1, (1)Dept of Agricultural Chemistry, National Taiwan Univ, (2)Dept of Post-modern Agriculture, Mingdao Univ

157-5  1640b  Ethn-Ngagement of Plinich and Ironpan Soils in the Savanna Regions of West Africa. Rexford D. Asemah* and Owusu Dwomo, Soil Research Institute

157-6  1641a  Degradation of Farmers’ Plots and Indigenous Soil and Water Conservation in Western Ethiopian Agro-Ecosystems: Evidence and Lessons Learned from the Field. Negm Emiru*, Oronia Agricultural Research Institute

157-7  1641b  Agroforestry and Soil Sustainability. P. K. R. Nair*, Univ of Florida

157-8  1738a  A New Approach of Soil Structure Characterization in Field-Condition Based on Soil Electrical Resistivity Measurements. Guy Richard*1, Arlene Besson2, Philippe Cosenza1 and Isabelle Cousin1, (1)INRA, (2)geocarta, (3)UMR 7619 SISYPHE

157-9  1738b  Ph Buffer Capacity and Lime Requirement for Korean Acid Soils. Yoo-hak Kim* and Han-Kang Kwak, National Institute of Agricultural Science and Technology

157-10  1739b  Plant Response to Salinity in Gypsum-Saturated Solutions. Juan Felipe Martinez-Montoya* and Victor M. Ruiz-Vera, Colegio de Postgraduados

157-11  1740b  Coal-Fines as a Potential Amendment for Subsoil Acidic in Western Australia. Y. Palm1, M. T. F. Wong2 and R. W. Bell1, (1)Murdoch Univ, (2)CSIRO

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3.5C Combating Global Soil & Land Degradation III. Agro- and Forest Ecosystems: Physical, Chemical and Biological Processes—Poster

158-1  1642a  Relationship between the Agricultural Management of Broccoli Crop and Microbial Activity of a Semi-Arid Soil. José Luis Moreno*, Felipe Bastida, Teresa Hernández and Carlos García, Centro de Edafología y Biología Aplicada del Segura, CEBAS-CSIC.
158-2 1642b Pollution of Soils and Vegetation by Restroforestation of Exotic Conifers in Plembera. Maziar Razavi* Sr., Ph.D. Student of Azad Univ

158-3 1643a Assessment of Copper Biototoxicity in Agricultural Soils of the Aconcagua River Basin (Chile). Alexander Neuman*1, Marco Cisternas1, Gonzalo Avila* and Hernán Gaete2, (1)Catholic Univ of Valparaiso, (2)Univ of Valparaiso

158-4 1643b Development of Biofertilizer Package for Reclamation of Degraded Forestland and Enhancement of Soil Organic Carbon in North India. Prity Sagar* Sr. and Ravindranath N.H., Indian Institute of Science

158-5 1644a Fate and Transport of Biosolids-Borne Triclocarban. Elizabeth A. Hodges* and George A. O’Connor, Soil and Water Science Dept, Univ of Florida

158-6 1644b Improvement of Low Fertility Soils (Oxisols) for High Productivity and Sustainability of Crop-Livestock Systems in Tropical Savannas of Colombia. Edgar AMEZQUITA*1, Idupulapati Rao2, Marco Rondon1, Edmundo Barrios2, Miguel Ayarza Sr.2, Phanow HOYS1 and Diego Molina1, (1)Centro Internacional de Agricultura Tropical (CIAT), (2)Tropical Soil Biology and Fertility Institute of the International Center for Tropical Agriculture, CIAT, (3)Centro Internacional de Agricultura Tropical–CIAT

158-7 1645a Fate of Fecal Coliforms and Salmonella in Class B Biosolids-Amended Farmlands. Lakhwinder S. Hundal*, Albert Cox, Richard Gore, Geeta Rijal, James Zmuda and Thomas Granato, Metropolitan Water Reclamation District of Greater Chicago


158-9 1740a Phytostabilization of a Industrial Residue Contaminated with Zn and Cd. Fabiana S. Santos*, Mario O.L. Magalhaes, Nelson Mazur and Nelson M.B. Amaral Sobrinho, Soil Department, Federal Rural Univ of Rio de Janeiro

158-10 1741a Reduction of Cd Uptake by Rice in the Winter-flooded Paddy Fields. Tadao Aoda*, Niigata Univ

158-11 1741b Heap Leaching of Heavy Metal Contaminated Soil Using Advanced Oxidation Processes for Treatment of Extractants in a Closed Loop. Domen Lestan*, and Neza Finzgar, Biotechnical Faculty, Univ of Ljubljana

158-12 1742a Efficacy of Organic Amendments Integrated with Gypsum on Amelioration and Crop Productivity of Sodic Land. Dr. B.R. Gupta* Sr., CSA Univ of Agriculture and Technology

158-13 1742b Effects of Arbuscular Mycorrhizal Fungi Inoculation on Arsenic and Phosphorus Uptake by Trifolium repens and Oenothera odorata Jacq. in Arsenic Contaminated Soil. Dae-Yeon Kim*,1, Yun-Jeong Lee*, Nam-In Goo1, Jinho Jung* and Jeong-Gyu Kim1, (1)Division of Environmental Science and Ecological Engineering, Korea Univ, (2)National Institute of Agricultural Science and Technology, (3)Chungbuk National Univ

158-14 1743a Application of Cupriavidus metallidurans CH34 and Escherichia coli to Bio-Remediated Zinc, Cadmium and Copper Contaminated Soils. Jean M. F. MARTINS* and Veronique Guiné, CNRS–LTHE

158-15 1743b Soil Microbial Biomass and Activity under Different Soil Management in a Brazilian Oxisol. Elcio L. Balota*, Agrominie Institute of Paraná (IAPAR) and Richard P. Dick, The Ohio State Univ

158-16 1744a Greenhouse Gas Fluxes from Three Ecosystems in Tropical Peatland of Sarawak, Malaysia. Lulie Melling1, Ryusuke Hatano2, Kah Joo Goh3 and Takashi Inoue2, (1)Dept of Agriculture, (2)Graduate School of Agriculture, Hokkaido Univ, (3)Advanced Agroecological Research Sdn Bhd

158-17 1744b Toxicities of Soil Cadmium towards Wheat Triticum aestivum and Its Bioremediation Potential. JUN GONG*, CK Life Sciences Limited and Siu-Wai Chiu, Dept of Biology, The Chinese Univ of Hong Kong

158-18 1745a Impact of Phosphate on Iron Oxide Bioreducibility and Mineralization, Thomas Borch*1, Yoko Masue* and Scott Fendorf2, (1)Colorado State Univ, (2)Stanford Univ

158-19 1745b Nutrient Leaching from Coal Refuse Amended with Reclamation Rates of Composted or Fresh Poultry Layer Manure. Richard Stehauwer*, Pennsylvania State Univ


158-21 1840b Reclamation of Coal Mine Wastes Using Lime Cake By-Products in Korea. Jae E. Yang*, Ki-Cheol Eom2, Jai Jung Kim3, Kyung-Yoal Yoo1 and Yong-Sik Ok1, (1)Kangwon National Univ, (2)National Institute of Agricultural Science and Technology, (3)Chungbuk National Univ

158-22 1841a Microbial Effects on the Fractionation of Cu and Zn in the Rhizosphere of Forest Soils. Benoit Cloutier-Hurteau*, Dépt de Géographie, Univ de Montréal, Sébastien Sauvé, Dépt de Chimie, Univ de Montréal and François Courchesne, Dépt de Géographie, Univ de Montréal

158-23 1841b Carbon Dynamics Following the Conversion of Pasture to Rubber-Tree (Hevea brasiliensis) Plantations in Brazil. Maren Oelbermann*1, Dalziva Oliveira2, Claudia Wagner-Riddle3, Julio H. Caramori* and Monique Leclerc4, (1)Univ of Waterloo, (2)Instituto Agronomico do Parana (IAPAR), (3)Univ of Guelph, (4)Univ of Georgia

158-24 1842a Deposition of Naphthalene-Benzene-Ul-14c in a Brazilian Diesel-Contaminated Oxisol. Miriam A. Albuquerque*, Centro Univ Caratinga, Bruno M.G. Alves, UNEC and Carlos E.G.R. Schaefer, Dpto do Solo, Univ Federal de Vitoria

158-25 1842b The Fate and Bioavailability of Heavy Metals in the Solution Phase of Biosolids during Phytoextraction Using Salix reichardtii and Populus balsamifera. Trang T. Huynh*, Alan J.M. Baker1, W. Scott Laidlaw1, Balwant Singh2 and David Gregory3, (1)Univ of Melbourne, (2)Univ of Sydney, (3)Melbourne Water

158-26 1844a Excess Phosphorus Loading in Soils Receiving Swine Waste Inputs. Paul Smithsonian*, Berea College

158-27 1844b Enhancing Petroleum Hydrocarbon Biodegradation Efficiency by Indigenous Microbial Consortia in Semi-Arid Australian Soils. Sunan J. George*, Mark Tibbett, Alyssa Barron and Alexis Davie, Centre for Land Rehabilitation, School of Earth and Geographical Sciences, Univ of Western Australia

158-28 1845a Distribution and Relocation of Manure Born Natural Estrogens in Agricultural Soils. Josefine Beck1, Kai Totsche2 and Ingrid Kögel-Knabner1, (1)Technische Universität München, Lehrstuhl für Bodenkunde, (2)Universität Jena, Fachgruppe Hydrogeologie
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158-29 1845b Soil Reclamation and Surface Stabilization at Owens Dry Lake Using Irrigated Saltgrass. John B. Dickey, Mica H. Heilmann, Jason K. Smersrud, Jim L. Jordahl, Richard Coles and Richard Harasis. (1)CH2M HILL, INC, (2)LADWP


158-31 1942a Nitrate Leaching from Gorse – A Study from New Zealand. Guna Magesan, Hai-long Wang, Peter Clinton and John McIntosh. (1)Ensis, (2)Environment Bay of Plenty


158-33 1943a Soil Pollution Assessment by Spectroscopic Analysis. Fawkia Labib Bahna, A.B. Bishay and M.S. Abdel Aal. National Research Centre


158-35 1944a The Role of Scattered Agroforestry Trees in Soil Fertility Management in Ethiopia: Synthesis of Research Results on Indigenous Tree Species. Abebe Yadessa, Tadesse Woldemariam, Mohammed Adilo and Shimeles Tadesse. (1)Center for Development Research (ZEF), Univ of Bonn, (2)Ethiopian Agricultural Research Organization, Forestry Research Center


158-37 1945a Belowground/Overground Biodiversity Relationships in the Humid Forest Zone of Southern Cameroon. Madong A. Birang, Institut de Recherche Agricole pour le Développement (IRD) and Liibert Brussaard, Wageningen Univ and Research Centre, Dept of Soil Quality


158-39 1946a The Research on Dynamic Variations of Soil Nutrient Content of Young Chinese Fir (Cunninghamia Lanceolata) Plantation of Second Rotation. Chengdong Yang, Xingnan Tu and Ruzhen Jiao, Research Institute of Forestry, Chinese Academy of Forestry


SESSION NO. 159

Convection Center, Exhibit Hall A, Second Floor

3.5D Combating Global Soil & Land Degradation IV. Salinization, Sodicification and Other Forms of Degradation in Agricultural and Native Ecosystems—Poster

159-1 1646a Elemental Sulfur and Broadleaf-4 Effects on Physical and Chemical Properties of Arid Soils. Abdurrazag Falatash, King Saud Univ, College of Food and Agricultural Sciences

159-2 1646b Genesis of a Saline-Sodic Soil in Tucupido (Guarico, Venezuela). Jose P. Guererro, Idefonso Pla, Rafael G. Camacho and Angel Valera. (1)Romulo Gallegos Univ, (2)Lleida Univ

159-3 1647a Irrigation by Salt Waters & Controlling Soil Salinity: A New Approach. Alireza Guiti, Islamic Azad Univ, Karaj Branch

159-4 1647b Evaluating Management-Induced Changes from Drainage Water Reuse Using ECA-Directed Sampling: Salinity, Sodicity, and Trace Elements. Dennis Corwin, USDA-ARS, George E. Brown Jr. Salinity Laboratory, Scott M. Lesch, Univ of California, Riverside, James Oster, Univ of California, Riverside and Stephen Kafka, Univ of California, Davis

159-5 1648a Soil Salinity Control: a New Approach. Alireza Guiti, Islamic Azad Univ, Karaj Branch

159-6 1648b Verification of Annual Irrigation Requirements by Means of Assessment of Indirect Impact on Soil Quality. Iourii Nikolski Gavrilov, Oktobra Bakhlaeva, Adolfo Exebio Garcia and Ma. Eugenia Delgadillo Pinon, Colegio de Postgraduados, Mexico

159-7 1649a Salt-Affected Soils in the Baikal Region, Russian Federation. Galina I. Chernousenko, V.V.Dokuchaev Soil Science Institute

159-8 1649b Structural Aggregates’ Stability in Soils Irrigated with Sodic-Saline Water and Subsequently Reclaimed. Giovanna Cucci, Angelo Caliandro and Giovanni Lacolla, Università di Bari–Dipartimento di Scienze delle Produzioni Vegetali

159-9 1746a The Spatial Distribution of Soil Salinity: Detection and Prediction. Akmal Akramhov, CIMMYT, Christopher Martius, Center for Development Research (ZEF) and Paul L.G. Vlek, Center for Development Research

159-10 1746b Black Carbon from Rice Residues as Soil Amendment and for Carbon Sequestration. Stephan M. Haeckle, J.K. Ladha and Yothin Konboon. (1)International Rice Research Institute, (2)UBon Rice Research Center

159-11 1747a Assessment of the Origin of Surface Soil Salinity Problems in the Surroundings of Evaporation Ponds in a Semi-Arid Environment. Thomas Baumgardt, Kate Scombe, Mansour Edraki and David Mulligan, Centre for mined Land Rehabilitation
159-26 1948b **Halophytic Shrub Plantations and Their Role in Rehabilitation of Salt-Affected Soils at the Coast of the Aral Sea.** Nina I. Shevyakova¹, Lev O. Karpachevskiy², S. Lutts¹ and Vladimir V. Kuznetsov¹. (1)Timiriazev Institute of Plant Physiology, (2)Moscow State Univ, Faculty of Soil Science, (3)Univ Catholique de Louvain

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**SESSION NO. 159**

159-12 1747b **Evaluating the Effects of Tailwater Irrigation on Soil Salinity and Discharge Water Quality.** Heather V. Graham*¹, Nigel W.T. Quinn² and Kate Hucklebridge². (1)Occidental College, (2)Lawrence Berkeley National Laboratory

159-13 1748a **Soils of Taiga and Their Evolution in the Course of Forest Successions.** Lev O. Karpachevskiy*, Moscow State Univ, Faculty of Soil Science, Mikhail L. Karpachevskiy, Moscow State Univ and Tatiana A. Zaikova, Moscow State Univ, Faculty of Soil Science

159-14 1748b **Effect of Flooding Treatment to Desalinate Greenhouse Soil after Vegetable Cropping.** Minkyeong Kim*, Kean Roh, Myungchul Seo, Yeonkyu Sonn, Namjong Lee and Munhwan Koh, Division of Agricultural Environment and Ecology, National Institute of Agricultural Science and Technology

159-15 1749a **Soil Genetics as Affected by Topography and Depth of Saline and Alkali Ground Water under Semi-Arid Condition in Southern Iran.** MK Kianian*, Univ of Tehran

159-16 1749b **Soil Salinity in the Gobi (Mongolia).** Ye.I. Pankova*, V.V.Dokuchaev Soil Science Institute

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**SESSION NO. 160**

160-1 1650a **Anthropogenic Soil Contamination on Large Scale: Methods of Investigation, Assessment and Rehabilitation by Examples of Eastern Germany.** Karsten Grunewald* Sr., Univ of Technologies Dresden

160-2 1650b **Thermal Conductivity in Clayey and Sandy Materials.** Juana Pérez Arias*¹, Manuel Antonio Henriquez Rodríguez², Ana M. Tarquis¹ and José María Gascó Montes¹. (1)ETS1 Agrónomos-UPM, (2)UCLA-agronomía

160-3 1651a **NIR Spectroscopy for Large Area Assessment of Ecosystem Responses to Everglades Restoration.** Matthew Cohen*, Sabine Grunwald, Mark Clark and Ramesh Reddy, Soil and Water Science, Univ of Florida

160-4 1651b **Spatial Modelling of Soil Organic Carbon in a Tropical Agricultural Landscape of Western Kenya.** Tom Owiyo*¹, Keith Shepherd² and Stephen D. DeGloria¹. (1)Cornell Univ, (2)World Agroforestry Centre (ICRAF)

160-5 1652b **Instruments to Evaluate the Agroecological and Environmental Deterioration in Motatan River Basin, Venezuela.** José Mendoza¹, Edgar James¹, Neida Pineda¹, Yalitza Ramos² and Juana Linares³. (1)Soil and Water Research Group, Los Andes Univ, (2)Univ Bolivariana de Venezuela, (3)Univ de Los Andes

160-6 1653a **Mapping Soil Salinity Using a Combined Spectral Response Index for Bare Soil and Vegetation: A Case Study in the Former Lake Texcoco, Mexico.** Norma Fernandez-Buces*¹, Christina Siebe Grabach, Instituto de Geología, Univ Nacional Autónoma de México

160-7 1653b **VNIR (350-2500 nm) and MIR (2500-25000 nm) Diffuse Reflectance of Soil Organic Matter for Calcareous Soils in North Central Montana.** David J. Brown*, Montana State Univ, Genevieve Steward, Montana State Univ–Bozeman and Keith D. Shepherd, World Agroforestry Centre (ICRAF)

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**SESSION NO. 159**

159-24 1846b **Effect of Flooding Treatment to Desalinate Greenhouse Soil after Vegetable Cropping.** Minkyeong Kim*, Kean Roh, Myungchul Seo, Yeonkyu Sonn, Namjong Lee and Munhwan Koh, Division of Agricultural Environment and Ecology, National Institute of Agricultural Science and Technology

159-23 1849b **Spatial Variability of Soil Salinity Due to the Presence of Atriplex spp. (saltbush).** Reza Soleimani¹, Soil and Water Research Institute

159-22 1848b **Effect of Irrigation-Induced Salinity and Sodicity, and Clay Mineralogy on Soil Physical and Hydraulic Properties.** Victor M. Ruiz Vera, Colegio de Postgraduados, Campus San Luis Potosi and Laosheng Wu*, Univ of California-Riverside

159-21 1848a **Chemical Properties of Soil and Yield of Sunflower as Influenced by Application of Saline Water and Gypsum.** J.R. Kadam*, Mahatma Phule Krishi Vidyaapeeth and AM Deokar, Dept of Agri Chem & Soil Sciences

159-20 1848b **Soil Quality Classification of Salt Affected Sites Using Two Combined Multivariate Analysis Methods and Vegetation Associations: A Case Study at the Former Tecxoco Lake, Mexico.** Norma Fernandez-Buces* and Cristina Siebe Grabach, Instituto de Geología, Univ Nacional Autónoma de México

159-19 1847a **Effects of Salinity, Sodicity, and Clay Mineralogy on Soil Physical and Hydraulic Properties.** Victor M. Ruiz Vera, Colegio de Postgraduados, Campus San Luis Potosi and Laosheng Wu*, Univ of California-Riverside

159-18 1846b **Weeds and Wildfires: Soil Temperature and CO₂ Affect Plant Diversity at a Mine Fire.** Daniel Ressler* and Erin Markel, Susquehanna Univ


159-16 1849b **Soil Salinity in the Gobi (Mongolia).** Ye.I. Pankova*, V.V.Dokuchaev Soil Science Institute

159-15 1849a **Soil Genetics as Affected by Topography and Depth of Saline and Alkali Ground Water under Semi-Arid Condition in Southern Iran.** MK Kianian*, Univ of Tehran

159-14 1848b **Effect of Flooding Treatment to Desalinate Greenhouse Soil after Vegetable Cropping.** Minkyeong Kim*, Kean Roh, Myungchul Seo, Yeonkyu Sonn, Namjong Lee and Munhwan Koh, Division of Agricultural Environment and Ecology, National Institute of Agricultural Science and Technology

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160-6 1653a **Mapping Soil Salinity Using a Combined Spectral Response Index for Bare Soil and Vegetation: A Case Study in the Former Lake Texcoco, Mexico.** Norma Fernandez-Buces*¹, Christina Siebe Grabach, Instituto de Geología, Univ Nacional Autónoma de México

160-7 1653b **VNIR (350-2500 nm) and MIR (2500-25000 nm) Diffuse Reflectance of Soil Organic Matter for Calcareous Soils in North Central Montana.** David J. Brown*, Montana State Univ, Genevieve Steward, Montana State Univ–Bozeman and Keith D. Shepherd, World Agroforestry Centre (ICRAF)

160-8 1750a **Land Degradation Surveillance: A Spatial Framework for Characterization, Research and Development.** Markus Walsh*, K. D. Shepherd, A. Awiti and T-G Vagen, World Agroforestry Centre (ICRAF)

160-9 1750b **Apparent Soil Electrical Conductivity: Past, Present, and Future Trends in Application.** Dennis and Somsak Sukchan Sr.², (1)Khonkaen Univ, (2)LDD-Office of Soil Survey
SESSION NO. 162
Convention Center, Exhibit Hall A, Second Floor

4.1A Organic Farming – Advantages and Disadvantages for Soils, Water Quality and Sustainability—Poster

162-1 1656a Effect of Organics on the Productivity of Spanish Bunch Groundnut under Rainfed Farming Situations. Lokanath H. Malligawad and Parameshwarappa K.G., Univ. of Agricultural Sciences

162-2 1656b Organic Approach to Soil and Crop Management for Eco-Friendly Green Chilli Production. Kalpana Rengabashyam, Kaleswari, Kutralingam Ramaiyah, and Devasenapathy Palanisamy, (1) Dept. of Agronomy, Tamil Nadu Agricultural Univ, (2) Tamil Nadu Agricultural Univ

162-3 1657a Functional Diversity of Soil Microbial Communities Estimated by Biolog GN Substrate Utilization Patterns under Organic Land Use in Korea. Yun-Jeong Lee, Jae-Hong Ro, Sung-Beom Lee, Yong-Hwan Lee, and Hyo-Jin Lim, (1) National Institute of Agricultural Science and Technology, (2) Hankyong National Univ

162-4 1657b Impact of Organic and Inorganic Sources of Nutrients on Quality and Yield of French Bean (Phaseolus vulgaris L.). Veerabhadraiah, Chamegowda, Badrinath, UAS, GKV, Bangalore-560065

162-5 1658a The Effects of Hairy-Vetch and Rye, as Green Manure Crops, on Biomass Production and Nitrogen Utilization of Red Pepper. Jwa-Kyung Sung, Organic Farming Division, National Institute of Agricultural Science and Technology

162-6 1658b Application of Innovative Biotechnology in Composting Fish Waste and Improving Nutrient Value. Fu-Hsian Chang, Bemidji State Univ

162-7 1659a Evolution of Soil-Crop system after Three Year of Application the Pig Slurry with Fertilizer Organic in Crop of Broccoli. Miriam Llona, Angel Faz, Univ Politecnica de Cartagena

162-8 1659b Effect of Enriched Compost on Crop Growth and Soil Properties. K. Srikanth, Gopalan organics, Gopalan Enterprises International Pvt. Ltd

162-9 1660a Organic Farming Increases Nitrate Leaching from Soils under Cold-Temperate Conditions. Gunnar Torstensson, Lars Bergström, Lennart Mattson and Holger Kirchmann, Swedish Univ of Agricultural Sciences, Dept of Soil Sciences

162-10 1660b How Will an Increase in Ecological Agriculture Affect Soil Carbon Balances in Sweden?. Olof Andrén, Thomas Kätterer and Holger Kirchmann, SLU, Dept of Soil Sciences, Sweden Univ of Agricultural Sciences, Dept of Soil Sciences

162-11 1661a Influence on Agricultural Environment by Application of Food Waste Compost. Kyu Ho So, Jong Sik Lee, Ki Seog Seong and Myung Chul Seo, National Institute of Agricultural Science and Technology


162-13 1756a Influence of Plant Litter and Animal Excreta on Leaching of Dissolved Organic Nitrogen and Carbon in Pastoral Soil. Anwar Ghani, Moira Dexter, Martin Kear, Stuart Lindsey and Stewart Ledgard, AgResearch, Ruakura Research Centre

162-14 1756b Correlation of Land Management Practices to the Incidence of Fusarium Wilt of Tomato. Dan O. Chellemi, Erin N. Rosskopf and Jim H. Graham, USHRL, USDA-ARS, CREC, Univ of Florida

162-15 1757a Assessing the Quality of Plant Residues and Managing their Breakdown Rate to Enhance the Sustainability of Lowland Rice Cropping Systems. Gini Villegas Pangga, Farming Systems and Soil Resources Institute and Graeme Blair, Dept of Agronomy and Soil Science, Univ of New England


162-17 1758a Effect of Organic Farming on the Soil Quality, Nutrient Uptake, Yield and Quality of Indian Spice. Sadanandan A, K Dr and S. Hamza, Indian Institute of Spices Research

162-18 1758b Effects of Organic Farming on the Labile Carbon Pool in Soils. Katia Liburdi, Dept Agrobiology and Agrochemistry, Univ of Tuscia, Karsten Kalbitz, Univ of Bayreuth, Dept of Soil Ecology, Sara Marinari, Dept Agrobiology and Agrochemistry, Univ of Tuscia and Stefano Grego, Dept Agrobiology and Agrochemistry, University of Tuscia

162-19 1759a Effect of Pre-Treated and Enriched Coir dust Compost on the Yield and Uptake of Major and Micronutrients by Corn Crop. Anand H. S., Susela Devi L, and Pardhasaradhi V, Advisus Therapeutics Private Limited, (2) Univ of Agricultural Sciences

162-20 1759b Soil Physical and Chemical Properties in Age Chronosequence of Organic Farms. Yoshiaki Iekuma and Manoy K. Shukla, Dept of Agronomy and Horticulture

162-21 1856a Fungal/Bacterial Ratios in Grasslands with Contrasting Nitrogen Management. Franciska T. De Vries, Ellis Hoffland, Jaap Bloem, Nick van Eekeren and Lijbert Brussaard, (1) Wageningen Univ and Research Centre, Dept Soil Quality, (2) Wageningen Univ and Research Centre, Alterra, (3) Louis Bolk Institute, Dept Organic Agriculture

162-22 1856b Study on the Utilization of Food Waste Slurry. KYU HO SO, Jong-Sik Lee, Ki-Seog Seong and Gun-yeob Kim, National Institute of Agricultural Science and Technology


162-25 1858a The Effects of Phosphate Solublizing Bacteria (PSB) on Potato Yield at Iran Environment. Hamid Madani*, Islamic Azad Univ Arak Branch


162-27 1859a Cow Manure Biodegradation in Corn Under Drip Sub-Irrigation System. Enrique Salazar*, Jose Dimas, Cirilo Vazquez, Manlio Ramirez, Manuel Fortiz and Rafael Zuniga. Durango Univ


162-29 1953b Tillage Systems and Organic Fertilization in Maize Forage. Jose Dimas Lopez1, Enrique Salazar2, Alfonso Avalos Jr.3, Cirilo Vazquez Jr.4 and Rafael Zuniga Jr.5. (1)Univ Juarez del estado de Durango, (2)Durango Univ.

162-30 1954a Ragi Crop Yield and Physical Properties of the Vertisols as Influenced by Residual Effect of Coir Pith Based Compost with other Organics and Inorganics. A. R. Sushma1, Basavaraja P.K.2, M. S. Badrinath1 and S. Sridhara2. (1)Univ of Agricultural Sciences, (2)AICRP on STCR, (3)College of Agriculture and Zonal Agricultural Research Station

162-31 1954b Potassium Balances and Changes of Exchangeable Potassium in Swedish Long-Term Soil Fertility Experiments on Different Soil Types. Stefan Andersson5, Magnus Simonsson1, Lennart Mattson1, Anthony Edwards2 and Ingrid Oborn1. (1)Dept of Soil Sciences, Swedish Univ of Agricultural Sciences (SLU), (2)The Macaulay Institute


162-33 1955b Comparing Phosphorus Budgets under Biodynamic and Conventionally Managed Irrigated Dairy Farms. Lucy L. Burkitt*, Tasmanian Institute of Agricultural Research, Univ of Tasmania, Doug R. Small, Environmental & Agricultural Consulting Pty Ltd, John W. McDonald, Veterinary & Nutrition Consultant and William J. Wales, Dept of Primary Industries

162-34 1956b Production of Plant Growth Hormones and Subtilin from Organic-Biodynamic Manures. Karuppan Perumal* V and Varadarajan Stalin, Shri Amin Murugappa Chettiar Research Center

162-35 1957a Impact of Air-jection™ on Yield and Quality of Vegetables Grown in California. Dave Goorahoo2, Diganta Adhikari1, David Zoldoske1, Angelo Mazzer2 and Richard Fannuchi1. (1)California State Univ-Fresno, (2) Mazzei Injector Corporation, (3) Mazzei Injector Corporation

162-36 1957b Soil Fertility Status of Ultisols as Influenced by Arecaanut Based Cropping System and Nutrient Management through Organic Matter Recycling. Ravi Bhat* and Sujatha S. Central Plantation Crops Research Institute, Regional Station

162-37 1958a Productivity and Quality of Wheat and Basmati Rice as Influenced by Organics. Ajit S. Khurb*. Directorate of Wheat Research (ICAR)

162-38 1958b Germination of Maize as Affected by Rates and Time of Poultry Manure Application. S. Agyenim Boateng*, Soil Research Institute

162-39 1959a Composting of Rice Straw and Hardwood Bark with Oilseed Sesame Cake and Rice Bran. Sang-Beom Lee*, National Institute of Agricultural Science and Technology

162-40 1959b Effect of Inoculation of Trichoderma harzianum on the Rate of Sugarcane Bagasse Decomposition and Produced Compost Enrichment. Iadan Razikormahalleh*, Dept of the Environment
163-7 2504a Dynamics of Macro and Micronutrients in Lowland Rice as Affected by the Continuous Adoption of STCR-IPNS Technology in Typic Haplustalf. Subramaniam Thiyyageshwarir, P. Murugesab Boopathi and R. Natesan, Tamil Nadu Agricultural Univ

163-8 2504b Sustaining Soil Health Using Biodigested Organic Manures and Inorganic Manure in a Rice-Based Cropping System. Maragatham Narayanan, Tamil Nadu Agricultural Univ

163-9 2505a Soil Specific Surface Area After 40 Years of Different Organic and Mineral Fertilizer Use. Francesco Morari and Chiara Paglierin, DAAPV, Univ of Padova

163-10 2505b Soil Pore Size Distribution after 40 Years of Different Organic and Mineral Fertilizer Use. Francesco Morari, Chiara Paglierin and Luigi Giardini, DAAPV, Univ of Padova


163-13 2602a CO2 emission from agricultural soil after green manuring. Roberto Mancinelli, Sara Marinarini, Alessandra Di Tizio and Enzo Campiglia, (1)Dept. Crop Production, (2)Dept. Agrobiology and Agrochemistry–University of Tuscia

163-14 2602b Interactions of recPrP with organic matter of soil aggregates. Luigi P. D’Acqui, Amaranta Pucci and Luca Calamari, (1)Istituto per lo Studio degli Ecosistemi CNR–ISE, (2)Università di Firenze

163-15 2603a Maturity and stability parameters of composts prepared from farm wastes. Devraj Chauhan, V.S. Mor and C.P. Singh, CCS, HAU, HISAR, HARYANA

163-16 2603b Influence of Selected Organic Mulches on Soil Temperatures, Soil Moisture and Pineapple (Ananas comosus) Production under Tropical Monsoon Climate. (None) Komariah, (1)Kengou Itou, (2)Senge Masateru and (None) Afandri, (1)United Graduate School of Gifu University, (2)Agriculture Faculty, Gifu University, (3)Agriculture Faculty, Lampung University

163-17 2604a Soil Organic Matter quality after 40 years of different organic and mineral fertilizations in three soils. Francesco Morari, Serenella Nardi, Antonio Berti, Emanuele Lugato, Paolo Carletti and Luigi Giardini, (1)DAAPV, University of Padova, (2)DipTo Biotecnologie Agrarie

163-18 2604b Response Of Cmic-To-Corg To Land Use And Fertilization In Subtropical Region Of China. Lu Shoulong, Wu Jinshu, Su Yirong, Huang Daoyou, Xiao Hea and Tong Chengli, (1)Huzhong Agricultural Univ, (2)Chinese Academy of Sciences


163-20 2605b Cossequences of Organic and Inorganic Sources of Nutrients on Physico-Chemical Properties of Soil under French Bean Land Use Cover. Veerabhadriah, T.N. Chamegowda, T.C Badrinath, Agriculture college, UAS, GKVK, Bangalore-560 065

163-21 2606a Effect of Lignite Humic Acid and Fertilizers on the Yield of Onion and Nutrient Availability. Mani Sangeetha, Tamil Nadu Agricultural Univ


163-23 2701a Heavy Metal Content in Humic Acids by PIXE of Hyposaline Calcareous Phaeozems and Rendzic Leptosols Irrigated with Wastewater, DDR-063, Mexico. Iván E. Reyes Solís, Norma E. García Calderón, Diana E. Servín Ruiz and Corina Solís, (1)Facultad de Ciencias, UNAM, (2)Instituto de Fisica, UNAM

163-24 2701b Rotation and Tillage Affects on Soil Organic Carbon and Management of No-Till Acid Soils. Chad W. Lindsey, David Mengel and Ray Lamond, Kansas State Univ

163-25 2702a Optimum Broiler Litter Application Date on Bermudagrass in Southeastern U.S. K. R. Sistani, A. Adeli, Haile Tewodols and Geoff Brink, (1)USA-ARS, (2)USDA-Agricultural Research Service

163-26 2702b Influence of Lignite Humic Acid on the Micronutrient Availability and Yield of Blackgram in an Alfisol. Ramasay Natesan, S. Kandasamy, S. Thiyyageshwar and P. Murugesab Boopathi, Tamil Nadu Agricultural Univ


163-29 2704a Soil Carbon Mineralization in Mediterranean Environment: Effects of Land Use and Management Practices. M. Cristina Moscatelli, Sara Marinarini, Alessandra Di Tizio and Stefano Grego, Dept Agrobiology and Agrochemistry–University of Tuscia

163-30 2704b Refining Algorithms in the Phosphorus Loss Assessment Tool for the Lower Coastal Plain of North Carolina. Laura A. Dell’Olio, Rory Maguire and Deanna Osmund, North Carolina State Univ, Dept of Soil Science

163-31 2705a The Organic Carbon stock in the Soils and Forests of Lombardy (North Italy). Stefano Brenna and Silvia Solaro, ERSAF


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and Andrea Cavaliere1, (1)Dept. Crop Production, (2)Dept Agrobiology and Agrochemistry—Univ of Tuscia

163-34 2706b Corn Residue Incorporation and Manure Application History Influence Soil Enzyme Activities and Inorganic Nitrogen Dynamic. Farshid Nourbakhsh*1, Nazila Khorsandi1 and Richard Dick2, (1)Isfahan Univ of Technology, (2)Ohio State Univ

163-35 2801a Study on soil use and management effects on soil property in different areas of Italy. rosella Papini2, Experimental Institute for Soil and Study Conservation, C.R.A.,

163-36 2801b Biochemical, enzymatic and humic fraction transformations during composting of urban and agricultural residues. Bhargavi M.V*1, University of Agricultural Sciences

163-37 2802a Effects of Long-Term Nitrogen Fertilization and Crop Rotation on Soil Quality in Westcentral Illinois. Sindhu Jagadamma*1, Rattan Lal2, Robert G. Hoefl1 and Eric A. Ade2, (1)Ohio State Univ, School of Natural Resources, (2)Carbon Management and Sequestration Centre, School of Environment and Natural Resources, FAES/OARDC, The Ohio State Univ, (3)Univ of Illinois


163-39 2803a Geochemistry, Microstructure and Micromorphology of Brown Isohumic Soils and Calcimagnesic Soils Amended by Organic Residue Composts and Manure (Sfax and Nabeul Regions, Tunisia). Hafedh Rigane*1, Imen Ben Mahmoud1, Mourir Medihioub1, Tahar Gallali2 and Khaled Medihioub2, (1)Earth Sciences Dept, (2)Laboratory of Pedology, (3)Preparatory Institute of Engineering Studies


163-42 2804b Evaluation of Greenhouse Gases Emissions from Soils Amended with Sewage Sludge. Paramasivam Sivapatham*1, Kenneth Sajwan1, Gamola Fortenberry2, Eric Stidum3, LaShasta Robinson1, Adeniyi Moses1, Ashok Alva1 and Ali Fares2, (1)Savannah State Univ, (2)Florida Agricultural and Mechanical Univ, (3)Rust College, (4)USDA-ARS, (5)Natural Resources and Environmental Management Dept

163-43 2805a Study of Organic Amendments Effect on Chemical and Biological Degradation of Atrazine in Soil. Gholam Hosain Hagninia1, Ehsan Ranjabar, Amir Lakzian and Amir Fotovat, Ferdowsi Univ

163-44 2805b The Effect of Organic Materials on the Uptake of Heavy Metals by Maize (Zea mays) in Heavy Metals Polluted Soil. Jolanta Kwiatkowska1 and Alina Maciejewska, Warsaw Univ of Technology

163-45 2806b Duration of Continuous No-Tillage Management and Soil Nitrogen Status in the Virginia Coastal Plain. John Spargo1 and Marcus Alley, Virginia Tech
Soil Influence on the Ripening and Chemical-Organoleptic Characteristics of “Frantoio” and “Moraio” Monocultivar Oils. Antonio Cimato1, Edoardo A.C. Costantini1, Pietro Franchini1, Roberto Barbetti2, (1)CNR-IVALSA, (2)CRA-SSDS


Soil Characteristics for Qualitative Sangiovese Wine Production in Tuscany (Italy). From the Experimental Vineyard to the Land Evaluation. Edoardo A.C. Costantini1, Pierluigi Bucelli1, Sergio Pellegrini1, Paolo Storchii1 and Roberto Barbet1, (1)CRA-ISSDS, (2)CRA-ISV

Effect of Soil Properties on the Quality and Productivity of Rice Yields, Nutrient Response, Nutrient Uptake and Soil Quality Parameters in Rainfed Rice Cropping Sequence. T. J. Ghose* and A. K. Pathak, Assam Agricultural Univ

166-12 1669b Quality Indices and Optimum Levels of Nutrient in Fruits Grown on the Calcareous Soils of Iran. MJ Malakouti*, Tarbati Modares Univ, Soil and Water Research Institute


166-14 1670b Alternative Analytical Technique for Determination of Soil Fertility. Karuppan Perumal*, V. Shei Amm Murugappa Chettiar Research Center and Jayaraman Arunkumar, Shri Amm Murugappa Chettiar Research Center


166-17 1672a The Changes of Soil Quality of the Successive Chinese Fir Plantation. Qiwu Sun*, Sr. and Chengdong Yang, Research Institute of Forestry, CAF

166-18 1672b Soil Degradation and Sustainability on Humid Tropical Islands–Palau. Robert T. Gavenda*, USDA Natural Resources Conservation Service


166-20 1673b Integrated Nutrient Management for Rice. Poli Raghava Reddy* and Alluri Padma Raju, Acharya N.G. Ranga Agricultural Univ

166-21 1673a Effect of Annual Wormwood (Artemisia annua) Crude Extracts on the Biological and Chemical Properties of Alfisol Soils. M.G. Solomon*, Dept of Soil Science, Univ of Calabar and O.S. Bello, Dept of Soil Science, Univ of Calabar

166-22 1673b Test of Active Organic Matter as a Measure of Soil Quality. K. R. Islam*, Soil and Water Resources, The Ohio State Univ South Centers

166-23 1700a Biosolids-Amended Pasture and Cattle Grazing Impacts on Soil Solution and Water Quality. Gueorgui Anguelov* and Ivanaka Angelouela, Florida A&M Univ

166-24 1700b Restoring the Productivity of Sandy Soils by the Application of Bio-Solids in Saudi Arabia. Ali A. Al-Jaloud* and Ghulam Hussain, King Abdulaziz City for Science and Technology (KACST)

166-25 1711b Residual Effect of Long-Term Cattle Manure Application on Soil Nitrogen and Phosphorus. Xiyiing Hao* and Chi Chang, Agriculture & Agri-Food Canada

166-26 1721b The Effect of Sugar Industry Wastes on Extractable Heavy Metals in Soil. Bhanooduth Lalljee*, Faculty of Agriculture, Univ of Mauritius


166-28 1867a Effect Tillage and Soil Type on Weed Seed Bank. Zohir Yaghobi Ashrafi*, Tehran Univ

166-29 1867b Assessment of Crop Residue and N Management for Sustainability of Rice-Wheat Rotation by DSSAT3.5. Reshmi Sarkar*, Dept of Agriculture and Food and Sandipta Kar, Department of Agriculture and Food

166-30 1868a The Study of the Characteristics of Hard Pan in Fluvaequatic Endoaquepts (Jeonbug series) in Korea. Jae-Duk Kim*, Chul-Hyun Yoo1, Chang-Hyu Yang2 and kwang-Yong Jung2, (1)Honam Agricultural Research Institute NICS, RDA, (2)Honam Agricultural Reasearch Institute NICS, RDA

166-31 1868b High Fertilizer Input Resulted in High Yield and Improved Soil Fertility as Well. Fengrong Zhang*, Sr., Yan Xu and Xiangbin Kong, Dept of Land Resource Science, China Agricultural Univ

166-32 1869a Features and Properties of Chernozemic Soils and Humic Substances in the Eurasian Steppe. Masayuki Tani*, Hitoshi Shinjyo*, Nobuhide Fujitake*, Hiroaki Sumida1 and Takashi Kosaki1, (1)Obhiro Univ of Agriculture and Veterinary Medicine, (2)Kyoto Univ, (3)Kobe Univ, (4)Nihon Univ

166-33 1869b Nutrient Release from Petrofertilizer (Khondalite) in an Acidic Laterite Soil of South Kerala, India. Rehana Cottage Soudamini Shehana*, Kerala Agricultural Univ, College of Agriculture

166-34 1870a Kinetics and Phosphorus Solubilization during Composting of Rice Straw with Rock Phosphate and Industrial Effluents. Singh Kuldeeps* If and Ram Singh Dhalwal, CCS Haryana Agricultural Univ

166-35 1870b Physiological Mechanism on Interspecific Facilitation for N, P and Fe Utilization in Intercropping Systems. Long Li* and Fu-Suo Zhang, College of Resources and Environmental Sciences, China Agricultural Univ

166-36 1871a Study the Effect of Calcium on Salt and Cold Resistance During Seed Germination Stage of Medicago polymorpha. Zohir Yaghobi Ashrafi*, Kazem Postini and Mohamad Bagher Hoseini, Tehran Univ

166-37 1871b Distribution of Some Micronutrients in Four Pedons of Madhupur Tract in Bangladesh. Md. Hasibur Rahman* and Syed Elahi, Dhaka Univ

166-38 1872a Sustainable Agricultural Production. Peter A. Kramer*, Biological Design

166-39 1872b Organic Amendment Based on Wheat Straw: Influence on Soil Biological Properties. Manuel Tejada1, José Luis Moreno*2, Felipe Bastida*, Teresa Hernández* and Carlos Garcia*, (1)EUTIA-Univ de Sevilla, (2)Centro de Edafología y Biología Aplicada del Segura. CEBAS-CSIC

166-40 1966a A Study of the Effects of Land Disposal of a Water Treatment Residue on Soil Chemical Properties and Growth of Pasture Grass under Field Conditions. Jeffrey C. Hughes*, Univ of KwaZulu-Natal and Sicelo M. Buyeye, Mangosuthu Technikon

166-41 1966b Sorption and Transformation of Phosphorus and Heavy Metals in Soils following Addition of a Water Treatment Residue. Sicelo M. Buyeye*, Mangosuthu Technikon and Jeffrey C. Hughes, Univ of KwaZulu-Natal


langa G. Jezile*1, Dwayne G. Westfall1, David P. Turner2 and Wim Van Averbeke3, (1)Colorado State Univ, (2)ARC-Institute for Soil, Climate and Water, (3)Tshwane Univ of Technology

166-44 1968a Development of Heavy Metal Adsorbed by Granulation of Natural Zeolite. Yong-Seon Zhang*, Jae-E Yang, Gye-Jun Lee and Seon-Woong Hwang, National Institute of Highland Agriculture, RDA


166-46 1969a Pencycuron Application to Flooded Tropical Soils with or without Cow Manure: Degradation and Effect on Microbiological Parameters. Raktim Pal*, Institute of Environmental Studies and Wetland Management

166-47 1969b Effect of High Levels of Viscasse Application on Soil Fertility and Potash Leaching. Damla Dal Poz Gonzalez6, Jose Casagrande, Marcio Soares and Ernesto Mouta, Federal Univ of São Carlos

166-48 1970a Micronutrient Soil Testing by Electro-Ultrafiltration (EUF). Diedrich Steffens* Sr., Justus Liebig Univ and Diemtar Horn Sr., EUF Working Group of Soil Fertility, South Sugar Beet Co.


166-50 1971b How are Soil Nitrogen Dynamics in an Irrigated Maize System Impacted on by Nitrogen and Stubble Management?. Robert Edis*, Delli Chen1, Debra Turner1, Gailing Wang1, Mick Meyer2 and Clive Kirkby3, (1)The Univ of Melbourne, (2)CSIRO Atmospheric Research, (3)CSIRO Land and Water

166-51 1972a Characterization, In Situ Treatment of Sewage Effluents and their Impact on Soil Micronutrient and Heavy Metal Concentrations. Gopi Ramesh*, Acharya N.G Ranga Agricultural Univ

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Convention Center, Exhibit Hall A, Second Floor

4.2B Biologically Intensive Agriculture: an Approach to Combating Hunger for the Poor—Poster

167-1 1572b Sawah Hypothesis for Green Revolution in West Africa. Toshiyuki Wakatsuki*, Faculty of Agriculture, Kinki Univ, Moro M. Buri, Soil Research Institute and Oluwarotimi O. Fashola, International Institute of Tropical Agriculture

167-2 1573a Use of Leguminous Shrubs for Improved Soil and Crop Productivity in the Central Highlands of Kenya. Daniel N. Mugendi*, Kenyatta Univ

167-3 1573b Economic Evaluation of Locally Available Inputs for Soil Fertility Replenishment in the Smallholder Farming Systems of Meru South District, Kenya. Monica W. Mucheru-Muna* and Daniel N. Mugendi, Kenyatta Univ

167-4 1574a Role of Potato in Biologically Intensive Agriculture for Food Security and Management of Soil and Environment in Developing Countries. J. P. Singh*, Central Potato Research Station and S.S. Lal, Central Potato Research Institute

167-5 1574b Treat the Earth Well. Nanga Mady Kaye*, Univ of Nebraska


167-8 1576a Biologically Intensive Agriculture—Renewing Earth and Its People. John Beeby*, Molecular Diagnostics Lab, Cornell Univ, John W. Doran, Univ of Nebraska and USDA-ARS cooperator and John Jeavons, Ecology Action


167-10 1577a Intensive Agriculture and Precision Farming for Poverty Alleviation in India. Subhash Chandra*, D. K. Singh and A. K. Singh, Indian Agricultural Research Institute

167-11 1577b Organic Rice Production for Export by Integrated Management under Sustainable Agriculture Concept. Niyomtham B. and Niyomtham V.*, Rajamangala University of Technology Essan, Kalasin Campus and Kalasin Pithayasarn School


167-14 1674a Toward Sustainable Farming Systems in the Republic of Moldova. Boris P. Boinceanu*, Resursh Institute of Field Crops ”Selectia” and John W. Doran, Univ of Nebraska and USDA-ARS Cooperator

167-15 1674b Organic Matter for Improving Nutrient Use Efficiency in Cereal/Legume Cropping Systems in the West Africa Savanna. Generose Nzigueheba*, Chike Nwoke1, Gerd Dercon2 and Jan Diels3, (1)International Institute of Tropical Agriculture, (2)Univ of Hohenheim, (3)Catholic University Leuven Faculty of Bioscience Engineering

167-16 1675a Integrating Multiple Soil Quality Impacts from Brassica Cover Crops. Ray R. Weil*1, Guihua Chen1, Jill Dean1, Amy Kremer1, Lisa Stocking3, Yvonne Lawely1, Bahram Momen1, Sandra Sardaneli1, Inga Zasada2, John Teasdale2 and Stacy Williams3, (1)Univ of Maryland, (2)U.S. Dept. of Agriculture- Agricultural Research Service


167-18 1676a Nitrogen Transfer between Clover and Wheat in an Intercropping Experiment. Agathi-Valentini Pappa*1, Robert M. Rees1 and Christine A. Wat-
Green Manure Impacts on Nematodes, Arbuscular Mycorrhizal and Pathogenic Fungi in Tropical Soils Planted to Common Beans. Edmundo Barrios*1, George Mahuku2, Jorge Navia3, Lorena Cortés4, Neuz A. Asakawa5, Carlos Jara2 and Jenny Quintero6, (1)Tropical Soil Biology and Fertility Institute of Centro Internacional de Agricultura Tropical (CIAT), (2)Beau Project, Centro Internacional de Agricultura Tropical (CIAT), (3)Facultad de Ciencias Agrícolas, Universidad de Nariño, (4)Departamento de Biología, Universidad del Valle

Denitrification and Nitrate Ammonification by a Rhizobial Agrobacterium Strain in the Presence of C2H2 and C2H4. Gero E. Benckiser*5 Sr., Institute of Applied Microbiology, Justus-Liebig Univ Giessen

Growth of Six Pistachio Cultivars with Respect to their Mycorrhizal Status, Soil Types and Phosphorus Uptake. Narges Rohani1 and Ali Ahmadi-Moghadam, Shahid Bahonar Univ of Kerman

N P & K Balance in Swell-Shrink Soil (Vertisol) as Affected by IPNM in Pigeonpea + Soybean (2:4) Intercropping System under Rainfed Conditions in Central India. Ramesh Chandra Jain*, R.A.K. College of Agriculture

Soil Quality as it Affects Nutrients in Food Crops and Human Health—Poster

Investigating the Fate of Residual Organophosphonate Nerve Agent in Soil. Ronald T. Checkai1, Mark V. Haley1, Michael Simini1, Carlton T. Phillips1, Charles L. Crouse3 and Kathy L. Matson4, (1)U.S. Army Edgewood Chemical Biological Center, (2)Geo-Centers, Inc., Virginia, (3)Reed Hastings Environmental Research Group, Department of Interior

Effects of season and daily changes in nitrate (NO3-? ) contaminant levels of lettuce. Mohammad reza Momayez1 Sr., agriculture college, Varamin un


Soil Type and Precipitation as Lyme Disease Risk Indicators. Joseph E. Bunnell1, USGS, US Dept. of Interior

Using by-products of steelmaking industry as soil pH corrective and their effects on Zn, Cu and Cd of soil and tea plant. Seyyede Fatemeh Kiaeae Jamali1 and Akbar Forghni, Guilan University

Influence of land use change on soil nutrients in southern Beijing Municipality following land reform. xiangbin Kong*, China Agricultural University

Human Health Risk Due to Food Produced from Soil Contaminated with Urban Industrial Toxic Wastes. Asim K. Bhattacharyya1*, Sudarshana Chandrayan2 and Sutapa Bose3, (1)Jawaharlal Nehru University / School of Environmental Sciences, New Delhi-110067, (India ), (2)Jawaharlal Nehru University / School of Environmental Sciences

Cancer and Non-Cancer Health Risk from Eating Cassava Grown in Some Mining Communities in Ghana. Samuel Obiri1 and David R Kodoo, Environmental Research Group, Department of Interior

Carcinogenic factors in soil-plant-water system of some areas from Romania. Radu LACATUSU*, Mihaela Lungu, Beatrice Kovacovscics, Doina Plaixtenco and Carolina Constantin, Research and Development National Institute for Soil Science, Agrochemistry and Environment Protection-RISSA

Improving zinc availability in rice grains: the role of the soil-plant system in the food chain. Xiao-peng Gao1, Chunjin Zou2, Fusuo Zhang3, Wen Jiang1, Kai Chen1, Sjoerd Van Der Zee4 and Ellis Hoffland5, (1)China Agricultural University, Dept. Plant Nutrition; Wageningen University, Dept. Soil Quality, Netherlands, (2)China Agricultural University, Dept. Plant Nutrition, Beijing, PR China, (3)Wageningen University, Dept. Soil Quality

Antioxidative and Growth-promoting Effects of Selenium on Soybean Varieties Under Water Deficit, Davood Habibi1*, Masoud Mashadi Akbar Boojar2, Mohammad Reza Ardakani3, Ali Mahmoudi4 and Siamak Shafer4, (1)Islamic Azad University-Karaj Branch, (2)University of Tarbiat Moallem, (3)Islamic azad university-karaj branch

Epidemiological study of coccidioidomycosis (valley fever). Joseph Tabor1, Mary Kay O’Rourke5, Marc Orbach1, Lisa Shubitz1 and Bridget Barker1, (1)University of Arizona, (2)Mel and Enid Zuckerman College of Public Health

Crop Cadmium Concentration as Affected by Cadmium Addition in Phosphorus Fertilizers, Across Soil Types, Cynthia Grant*, Agriculture & AgriFood Canada, Don Flaten, Department of Soil Science, University of Manitoba and Eugene Gowalko, Canadian Grain Commission

Reduction of cadmium content in Eggplant (Solanum melongena) by grafting onto root stock Solanum torvum. Tomohito Arao1*, Hiroyuki Takeda2, Eiji Nishihara2 and Takashi Nakano3, (1)National Institute for Agro-Environmental Sciences, (2)Nagata Horticultural Research Center


Study on Nutrition Absorption Pattern of Vegetable Crops with the Height above Sea Level in Korean Highland. Jeong-Tae Lee*, Gye-Jun Lee, Yong-Ik Jin, Chol-Soo Park and Choon-Soo Lee, National Institute of Highland Agriculture, RDA

Cadmium in Austrian wheat and potatoes—an inventory of sites and varieties. Heide Spiegel*, Georg Derich, Michael Oberforster, Clemens Mechtler and Andreas Baumgarten, Austrian Agency for Health and Food Safety

Seed priming with molybdenum alleviates molybdenum deficiency and poor nitrogen fixation of chickpea in acid soils of Bangladesh and India. C. Johansen1, A.M. Musa1, J.V.D.K. Kumar Rao2, D.

168-20 1974a Some Aspects of Soil Enzyme Activity Applica-

168-21 1974b Aluminum concentration and forms in tea (Camellia sinensis L.), Masanori Okazaki1, Arata Okuyama, Naoya Nakagawa and Shojo Matsumura, Tokyo University of Agriculture and Technology.

168-22 1975a Some Aspects of Soil Enzyme Activity Applica-

168-23 1975b Chemical extraction methods for various K pools in a dynamic soil K model. A case study in intensive rice cropping in the Mekong Delta, Vietnam. My Hoa Nguyen1, Cantho University, Vietnam, Bert H. Jansen, Wageningen University, Oene Oenema, Wageningen University and Research Centre and Achim Dobermann, Department of Agronomy and Horticulture, University of Nebraska-Lincoln

168-24 1976a Effect of Nitrogen, Potassium and Magnesium on Tuber Yield, Grade and Quality of Potato Cv.Kufri Giriraj. Sharmila Banu Santhu Mohamm1, Salma Sarker2, Malarvizhi Palaniappa Pillai3, Thiyagarajan T.M.1 and T. Nagendra Rao3, (1)Dept. of SS&AC, Tamil Nadu Agricultural University, (2)Potash and Phosphate Institute of Canada-India Programme

168-25 1976b Native Nutrient Supplying Capacity of Potato grown Acid Soils of Nilgiri Hills in South India. Sharmila Banu Santhu Mohamed1, Malarvizhi Palaniappa Pillai2, Thiyagarajan T.M.1 and T. Nagendra Rao2, (1)Dept. of SS&AC, Tamil Nadu Agricultural University, (2)Potash and Phosphate Institute of Canada-India Programme

169-2 2002a How does the upland settlement program restrain land degradation? Experience from Chittagong Hill Tracts, Bangladesh. Tapan Kumar Nath1, Doctoral Candidate, Department of Forest Science, Graduate School of Agricultural and Life Sciences, The University of Tokyo and Makoto INOUE, Department of Global Agricultural Sciences, Graduate School of Agricultural and Life Sciences, The University of Tokyo

170-1 2002b Effect of Industrial, Municipal and Agricultural Wastes on Peanut Production. Sumana Sarkar1, Young Collaborator, ICTP, Trieste, Italy; Export-Import Bank of India and Anisur Rahman Khan, ICAR Research Complex For Eastern Region

170-2 2003a Soil Erosion Risk in Croatia. Stjepan Husnjak1, Bogunovic Matko, Vidacek Zeljko, Sraka Mario and Bensa Aleksandra, Faculty of Agriculture

170-3 2003b Subsurface Drain Losses of N03-N from Stagnosolos Fertilized with Different Nitrogen Rates. Milan Mesic1, Faculty of Agriculture


170-5 2004b Earthworm Communities along a Gradient of Land Use Intensification in Southern Cameroon. Madong A. Birang1, Institut de Recherche Agricole pour le Développement (IRAD), Stefan Hauser, International Institute of Tropical Agriculture, Humid Forest Ecoregional Centre (IITA), Csaba Csuzdi, Systematic Zoology Research Group, Hungarian Academy of Sciences, ELTE Univ and Lijbert Brussaard, Wageningen Univ and Research Centre, Dept Soil Quality

170-6 2005a Phosphorous Sequestration Ability of Soil in the Upper North Bosque River Watershed. Landon Danilek1, David Weindorf and Anil Kumar Somenahally, Tarleton State Univ

170-7 2005b The Risk of Ground Water Contamination by Chlorate Leaching from Longan Plantations. Somchait Ongrprasert1 and Winai Wiriya-alongkorn, Mae Jo Univ

170-8 2006a Cause-Effect Analysis of the Agroecological and Environmental Deterioration in High Motatan Subbasin, Miranda Municipality, Merida State, Venezuela. Jose Mendoza1, Edgar Jaime2, Neida Pineda3, Yalitza Ramos2 and Juana Linares1, (1)Soil and Water Research Group, Los Andes Univ, (2)Univ Bolivariana de Venezuela, (3)Univ de Los Andes

170-9 2006b Evaluation of Waste from a Brazilian Siderurgy Industry as Alternative for Soil Acidity Correction. Renildes Fontes1, Univ Federal de Viçosa

170-10 2007a Nutrient Movement below Concentrated Animal Feeding Operations. Gary Pierzynski1, Thomas M. DeSutter2, Grace Vaillant3 and J. Ham4, (1)Kansas State Univ, (2)USDA-ARS National Soil Tilth Laboratory

170-11 2007b Measured and Simulated Soil Carbon Content after 50+ Years of Management. Kenneth N. Potter1, USDA-ARS

170-12 2008a Effect of N Inhibitors on Urine Patches in Grazed Pasture System. M. Zaman1 and J.D Blennerhassett2, Summit-Quinphos NZ (Ltd)
Assessing River Water Quality in Watersheds of Different Agricultural Land Use and Soil Types. Krishna Prasad Woli1, Atsushi Hayakawa2, Kanta Kuramochi2, Ryusuke Hatano1 and Toshiyuki Nagumo3, (1)Laboratory of Soil Science, Graduate School of Agriculture, Hokkaido Univ, (2)Graduate School of Agriculture, Hokkaido Univ, (3)Field Science Center for Northern Biosphere, Graduate School of Agriculture, Hokkaido Univ, (4)Faculty of Agriculture, Shizuoka Univ

Monitoring the Application of Sewage Sludge to Agricultural Fields Using Spectral Reflectance and Remote Sensing. Maruthi Sridhar Balaji Bhaskar1 and Robert K. Vincent, Bowling Green State Univ

Indicators for a Sustainable Agriculture: A Farmstead Approach to Model N-Trace Gas Emissions from Agricultural Crop Production Systems in Germany. Brigitta Szyksa1, Martin Bach1, Lutz Breuer1, Hans-Georg Frede1 and Changsheng Li2, (1)Institute of Landscape Ecology and Resources Management (ILR), (2)Complex Systems Research Center–Institute for the Study of Earth, Oceans and Space

Land Disposal of Urban Industrial Solid Waste of Wazirpur, Delhi: Effect of pH on Plant Available Sulfur. Gurmeet Singh1 and Asim Kumar Bhattacharyya, Jawaharlal Nehru Univ

Soil Microbial Biomass and Diversity Associated with Crops Genetically Modified for Pesticide Resistance. Newton Z. Lupwayi1, Agriculture and Agri-Food Canada and Robert E. Blackshaw, Agriculture and Agri-Food Canada

Modeling Nitrous Oxide Emission from Farm Dairy Effluent Irrigation in Grazed Pasture Soils Using NZ-DNDC Model. Rita Bhandral1, Institute of Natural Resources

The Effect of Water-Field Pore Space on N-Losses from Arable Soils. Irina N. Kurganova1, Valentin Lopes de Gerenyu2, Reinhard Weil3, Norman Loft2 and Heiner Flessa2, (1)Institute of Physicochemical and Biological Problems in Soil Science, (2)Institute of Soil Science and Forest Nutrition, Univ of Göttingen

Experimental Results and Practical Experiences with the Fluid Fertilizers Point Injection Fertilization in Europe and Potentials to Optimize Fertilization and to Minimize Environmental Pollution. Martin Kücke and Joerg-Michael Gref, Institute of Crop and Grassland Science, Federal Agricultural Research Center

Zn and Pb Solibility in Soil at Various Ameliorants Applying. Tatiana Minkina1, Alexei Samokhin and Saglara Mandzhieva, Rostov State Univ

Emerging Resource Conservation Technology through Zero Tillage in Eastern Indo Gangetic Plains. Ansur Rahman Khan2, Alok Kumar Sikka2, S.S. Singh1 and Raj K. Gupta1, (1)ICAR Research Complex For Eastern Region, (2)ICAR Research Complex For Eastern Region, (3)RWC-CIMMYT, India

Plant Water Status and Root Dynamics of Winter Corn under Varying Natural Resource Management. Abdhesh K. Singh1, J.P. Singh1, S.S. Singh1 and Ansur Rahman Khan2, (1)Rajendra Agricultural Univ, (2)RWC-CIMMYT, India, (3)ICAR Research Complex For Eastern Region

Soil Test Crop Response Studies on Carrot under Integrated Plant Nutrition System in Ultrapludalf of Tamil Nadu (India). Rama Uma devi1, Palanimuthu Murugesu Boopathi and Mani Sanjeetha, Tamil Nadu Agricultural Univ

Dinitrotoluene (DNT) Transport and Fate in a Field Controlled Soil Ecosystem. Fawzy M. Hashem1 and Arthur L. Allen, Univ of Maryland Eastern Shore

Driving Factor Analysis of Typical Salination Area Land Use Changes in Northeast of China. Xin Lin1, Tieheng Sun, Lina Sun and Haibo Li, Shenyang Key Laboratory of Environmental Engineering

Effectiveness of Liming Material to Amend Acidic Upland Soil and Wheat Productivity. Keshav Raj Adhikari1, Tribhuvan Univ, Institute of Agriculture and Animal Science (IAAS), Sangam Shrestha, Center of Excellence, Univ of Yamanashi, Padam Prasad Adhikari, Dept of Agriculture, Regional Soil Testing Laboratory, HMG/Nepal and Zueng-Sang Chen, National Taiwan Univ, Dept of Agricultural Chemistry

Influence of Steam-Treated Plant Residues on Soil Properties, Plant Growth and Drainage Water Quality. Silvio Yoshiharu Ushiwata1, Graduate School of Science and Technology, Chiba Univ, Kazuyuki Inubushi, Faculty of Horticulture, Chiba Univ and Hiromi Sasa, Ishikawajima-Harima Heavy Industries Co., Ltd.

Uncertainty Analysis of Human and Environmental Factors on Nitrogen Flow at Different Spatial Scales. Sonoko D. Kimura1, Graduate School of Bio-Application and Systems Engineering, Tokyo Univ of Agriculture and Technology and Ryusuke Hatano, Graduate School of Agriculture, Hokkaido Univ

Residual and Contact Herbicide Losses in Surface Runoff from Conservation Tilled Watersheds Planted with Transgenic, Herbicide-Tolerant, Corn and Soybean. Martin J. Shipitalo1, R. Malone1 and Lloyd Owens1, (1)USDA-Agricultural Research Service, (2)USDA-ARS, National Soil Tilth Laboratory


Nitrogen Transformation in Soils Amended with Urban Industrial Waste and Crop Response. Sutapa Bose1, S. Chandrayan2 and A. K. Bhattacharyya2, (1)Jawaharlal Nehru Univ / School of Environmental Sciences, (2)Jawaharlal Nehru Univ / School of Environmental Sciences
SESSION NO. 171
Convention Center, Room 105AB, First Floor

4.4A Case Histories of the Relationships Among Soils and Societies—Poster

171-1 2201a Marketing Soil Survey Information. Jon Hempel*, USDA-NRCS-National Geospatial Development Center and Lynn Betts, Valadis Corporation

171-2 2201b The Use of Sustainable Green Wastewater Treatment Technology Across the Andes, Ecuador. South America. Ronald L. Lavigne*, University of Massachusetts

171-3 2202a Finding Common Ground: A New College Course Examines the Intersection of Soil Science and Public Health. Elizabeth A. Hodges* and George A. O’Connor, Soil and Water Science Department, University of Florida

171-4 2202b A Pilot Project: Initiating Production of Upland Rice in Virgin Inland Swamps of Sierra Leone, Africa. Eugene Brans*, Texas AM/Prairie View AM

171-5 2203a Soil and Art—the Aesthetic of Dirt. Gerd Wesolet*, Technical University Berlin

171-6 2203b The Status of Soil Science. Gordon J. Churchman*, University of Adelaide


171-8 2204b Cartoon As a Teaching Aid for Soil Sciences. Hae-Nam Hyun*, Cheju National University, Yi Nam, National Agricultural Cooperative Federation (Nonghyup) and Jae E. Yang, Div. of Biol. Environ. Coll. of Agr. & Life Sciences, Kangwon National University

171-9 2205b The ‘Cycle of Life’ in Soil Science. Lloyd Ackert*, Yale University

SESSION NO. 172
Convention Center, Room 105AB, First Floor

4.4P Soil Science and International Organizations—Poster


172-3 2302b Dr. Elena Grigorieva. Elena E. GRIGORIEVA*, Russian Trade Mission in Canada

172-4 2303a ACSAD Experiences in Desertification Combating and Rehabilitation of Degraded lands. Farouk Saleh Fares*, Gilani Mhimed Abdelgawad and Abdul Rahim Loulou, ACSAD


172-6 2304a Soil Science Issues in International Organizations. Elena E. GRIGORIEVA*, Russian Trade Mission in Canada

172-7 2304b Is there a link between soil properties and anthrax outbreaks?. Mabel Pazos*, Nuria Roca, Ramón Noseda* and Gustavo Combesseis, (1)Facultad de Agronomía–UNCPBA, (2)Laboratorio Azul Diagnóstico S.A.

172-8 2305a The Food and Agriculture Organization of the United Nations (FAO) and Soil Issues. Freddy O. Nachtergaele*, Rudi Dudaal and Louise Fresco, Food and Agriculture Organization of the United Nations (FAO)

172-9 2305b Simplified Delivery System for Internet-based Soil Science Lessons. George Van Scyocoe*, John G. Gravel and William W. McFee, Purdue University


172-11 2306b Historic and Future Perspectives of 1890 Universities and National Cooperative Soil Survey. Leslie Glover* II, Natural Resource Conservation Service

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Convention Center, Room 105AB, First Floor

4.5A History of Soil Science in Developing Countries—Poster


173-2 2401b The main moments in the development of soil classification in Romania. Ioan M. Muntecanu*, RISSA–Research Institute of Soil Science and Agrochemistry


173-4 2402b Historical development of soil science in Malaysia. Selliah Paramananthan*, Lah J. Uyo and Lulie Melling, (1)Param Agricultural Soil Surveys (M) Sdn. Bhd., (2)Soil Division, Department of Agriculture Kuching

173-5 2403a The Soil Management Support Services: training the trainers overseas. Richard Arnold*, USDA-NRCS (retired)

173-6 2403b Colonial Soil Science in the Former British West Indies. Benno Warkentin*, Oregon State University


173-8 2404b The History of Soil Science in the Caucasus. Tengiz Urushadze*, Georgian State Agricultural University
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Convention Center, Room 103ABC, First Floor

AS Acid Sulfate Soils: Technological Advances Enabling Better Management—Poster

174-1 2901a Formation of Fe oxides from K-jarosite: effect of temperature, pH, phosphate, and salt concentration. Vidal Bárro zo5 and José Torrent, Universidad de Córdoba

174-2 2901b Acidification of groundwater caused by a falling water table in a sandy aquifer in the Perth Region, Western Australia. Troy JF Cook1, Ron Watkins1, Steve Appleyard2 and Ryan J. Vogwill3, (1)Curtin University of Technology, (2)Department of Environmental Protection, Perth, Western Australia., (3)Department of Environment

174-3 2902a The influence of metal leakage from acid sulphate soils on estuarine sediments in western Finland. Linda Nordmyr1, Mats Åström2, Peter Österholm3 and Pasi Peijälä2, (1)Department of Geology and Mineralogy, Åbo Akademi University, (2)Department of Biology and Environmental Science, Kalmar University

174-4 2902b Effect of toxic metals mobilised from Finnish acid sulphate soils on terrestrial and aquatic biota and human health: a literature review. Rasmus Fältmarsh6, Department of Geology and Mineralogy at Åbo Akademi University and Mats Åström, Department of Biology and Environmental Science, Kalmar University

Session No. 175

Convention Center, Room 103ABC, First Floor

CR Soils of Northern, Southern Polar Region and Soils of High Elevations and Their Relationship to Global Climate Change—Poster


175-2 2910b The project “Carbon Pools in Permafrost Regions” (CAPP) and the Cryosol Working Group (CWG): International Platforms for Soil related Topics of the International Permafrost Association (IPA). Eva-Maria Pfeiffer4, University of Hamburg, Institute of Soil Science, Peter Kuhry, University of Stockholm and Sergey V. Goryachkin, Institute of Geography, Russian Academy of Sciences
SESSION NO. 175

175-3 2911a Soil organic carbon content and its distribution in Northern Canada database and overview. MF Hossain*, CCRS, Natural Resources Canada

175-4 2911b Soils Developed from Volcanics in Keller Peninsula, King George Island, Antarctica: Formation and Mapping. Marcio R. Francelino*, Sr.1, Carlos E.G.R. Schaefer2, Elpidio I. Fernandes Filho2, Felipe N.B. Simas2 and Manoel Ricardo Albuquerque1, (1)Universidade Federal Rural do Rio de Janeiro, (2)Departamento do Solos-Universidade Federal de Viçosa, (3)EMBRAPA

175-5 2912a Micromorphology and microprobe study of phosphate reaction in ornithogenic cryosols from Antarctica. Carlos E.G.R. Schaefer*1, Felipe N.B. Simas1 and Bob Gilkes2, (1)Departamento do Solos-Universidade Federal de Viçosa, (2)School of Earth and Geographical Sciences, The University of Western Australia

175-6 2912b Cambisols and Luvisols—“Zonal” Soils of East-European Tundra. Valentine D. Tonkonogov*, Dokuchaev Soil Institute, Russian Agricultural Academy and Sergey V. Goryachkin, Institute of Geography, Russian Academy of Sciences

175-7 2913a Are Cryosols on the move? A reflection on the classification of permafrost-affected soils during the development of the World Reference Base for Soil Resources (WRB). Otto Spaargaren*, ISRIC—World Soil Information

175-8 3009b Problem of Gley Diagnostics: Color and Iron Chemistry in Cryosols of Kolyma Lowland. Yuri N. Vodyanitskii, V.V. Dokuchaev Soil Science Institute and Nikita S. Mergelov*, Institute of Geography, Russian Academy of Sciences

175-9 3010a Frost Action in the Mountain Soils of Central Europe (Tatra Mts.)—Relict or Contemporary Processes. Marek Drewnik* Sr., Jagiellonian University

175-10 3010b Maps of Cryogenic Conditions and Phenomena in Soils of Russia. Tatiana V. Ananko, Dmitry Ye. Konyushkov*, Yevgeny M. Naumov, Iliu A. Sokolov and Tatiana Ye. Yakusheva, V.V. Dokuchaev Soil Science Institute

175-11 3011a Phosphate minerals in ornithogenic Cryosols of Maritime Antarctica. Felipe N.B. Simas*, Carlos E.G.R. Schaefer1, Martin Saunders2, Vander Freitas de Melo2, Marcelo B. Guerra3 and Robert Gilkes2, (1)Departamento do Solos-Universidade Federal de Viçosa, (2)University of Western Australia, (3)Universidade Federal do Paraná, (4)Universidad de Federal de Viçosa, (5)School of Earth and Geographical Sciences The University of Western Australia

175-12 3011b Quantitative Mineralogical Indices to Diagnose Cryogenic and Pedogenic Weathering in Soils of the Northern Part of the East European Plain. Victor V. Rogov and Dmitri L. Golovanov*, Geographical Faculty, Moscow State University

175-13 3012a Methane and Carbon Dioxide Release from Eroding Coastline of North Slope, Alaska. Gary J. Michaelson*, Ping Chien-Lu1, M. Torre Jorgenson2, Fugen Dou2, Yurii Shur2 and Laodong Guo1, (1)University of Alaska Fairbanks, (2)Alaska Biological Research Inc

175-14 3012b Use of Paleo-Cryosols in Reconstructing Late Pleistocene Full Glacial Environments of Central Yukon, Canada. C.A. Scott Smith*, Agriculture and Agri-Food Canada, Paul Sunborn, University of Northern British Columbia, Duane G. Froese, University of Alberta, Grant D. Zazula, Simon Fraser University and John A. Westgate, University of Toronto

SESSION NO. 176

Convention Center, Room 103ABC, First Floor

LD Soil Degradation: Processes, Control, and Politics
—Poster

176-1 3101a Comparative Estimation of Influence of a Variable Magnetic Field by Induction of 1500 and 6000 MkT on Number of Microflora of Chernozem Ordinary, Brown Forest Soil and Grey Forest Soil. Elena U. Starovoitova*, Marina A. Repyah and Tatiana V. Denisova1, (1)Rostov State University, (2)Rostov state University


176-3 3102a Effect of Anthropogenic Wastes on Heavy Metal Mobility after 6 Months of Stabilization. Andrea Zanuzzi and Angel Faz*, Universidade Politecnica de Cartagena

176-4 3102b Soil chemistry and mineralogy changes induced by calcium peroxide injection. Michael J. Kirby*, Shaw Environmental, Inc.

176-5 3201a Heavy Metal Leaching in an Alluvial Mining Soil Amended with Pig Manure: Soil Column Tests. DM Carmona G. Sr., Universidad Politecnica de Cartagena and Angel Faz Cano*, Departamento de Ciencia y Tecnologia Agraria, Universidad Politecnica de Cartagena

176-6 3201b The use of rainfall simulators in the quantification of infiltration, run-off and soil losses. Alberto Sleir1, Marcelo Varni2, Marcela Piscitelli1, Roberto J. Crespo*3, Guadalupe Ares3 and Eduardo Usunoff2, (1)Facultad de Agronomía. Universidad Nacional del Centro de la Provincia de Buenos Aires, (2)IHL-LA–Universidad Nacional del Centro de la Provincia de Buenos Aires, (3)Becario CIC–Facultad de Agronomía. Universidad Nacional del Centro de la Provincia de Buenos Aires

176-7 3202b Biodegradation of the Soil Caused by the Man in River Basin Amajac, Hidalgo, Mexico. Enrique Rubinos* Sr.1, Carmen Gutierres Castorena1, Patricia Sanchez Guzman1, Jesus Amado Alvarez2 and Rafael Zuñiga Sr.2, (1)Instituto de Educacion, investigacion en Ciencias Agricolas del Esddato de Mexico, (2)Durango University

SESSION NO. 177

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SCE Evaluating Management Impacts on Forest Soils
—Poster

177-1 3014a Water Quality Originating from Forest Roads in Southern Brazil. Carla M. Camargo Corra*1 Glauco Rosolff2 and Jorge R. Malinowski1, (1)Forest Science Dept.–Federal University of Paraná, (2)Soil Science and Agricultural Engineering Dept.–Federal University of Paraná

177-2 3015a Micronutrient Status in a Dry Deciduous Tropical Forest of the scrub Jungle of Mettupalayam, Coimbatore, India, Subramanian Thyageshwar1, Duraisamy Selvi and Sundarajan Amutha, Tamil Nadu Agricultural University
177-3 3015b Determining relationship between energy and C/N during leaf litter decomposition of Fagus orientalis in north of Iran under laboratory conditions. vahid Hosseini*, Kurdistan University

177-4 3113a Atmospheric deposition and soil solution monitoring in the National parks of Croatia. Boris Vrbeć* and Ivan Pilaš, Forest Research Institute, Jastrebarsko

177-5 3113b Participatory Assessment of Soil Properties and Ecological Diversity across Mt. Malindang Landscape, Southern Philippines. Renato D. Boniao*, Mindanao State University-Naawan, Rosa Villa B. Estoista, MSU-Mindanao State University-Marawi, Ron De Goede, Wageningen University & Research Centre and Sam James, Kansas University Natural History Museum and Biodiversity Research Center

177-6 3114a Study on Spatial Variance of Soil Nutrients for Moso Bamboo Forest of fertilization. Xiaomin Guo*, Dekui Niu2, Xi Guo2, Guoshu Zhang1, Bin Zhang1, Dongnan Hu1 and Fang Chen (Corresponding Author)3, (1) College of Forestry, Jiangxi Agricultural University, (2) College of Land Resource & Environment, Jiangxi Agricultural University, (3) Wuhuan Botanical Garden, Chinese Academy of Sciences.

177-7 3114b Forest Management Effects on Extreme Flooding Events: Evaluating Hydrologic Modeling Approaches. Mary B. Adams1,2, Mark H. Eisenbeis2, W. Michael Aust1 and James A. Burger2, (1) USDA Forest Service, (2) Virginia Tech, Department of Forestry

177-8 3115b Changes in soil nutrient availability following land application of biosolids to forest in Virginia. Eduardo C. Arellano* and Thomas R. Fox, Virginia Polytechnic Institute and State University

177-10 3116a Soil Properties along a Toposequence in Mountainous Cloud Forests in Sierra Juárez, Southern Mexico. Pavel Krasilnikov1,2, Norma Eugenia García Calderón2,3, Noé Velázquez Rosas3 and Elizabeth Fuentes Romero3, (1) Institute of Biology, KarRC, RAS (2) Faculty of Ciencias, UNAM, (3) Institute of Ecologia, UNAM

177-11 3116b Soil Properties Influencing Compactionability of Forest Soils in British Columbia, Canada. Maja Kruzic1, Chuck Bulmer2, Francois Teste3, Lesley Dampier4, Margaret Schmidt5 and Yihai Zhao1, (1) University of British Columbia, (2) BC Ministry of Forests, Research Branch, (3) Simon Fraser University

177-12 3213a Evolution of phosphorus forms, phosphatase activity, and the relationship between soil nutrition and tree growth in Larch plantations in northeastern China. Lixin Chen*, College of Forestry, Northeast Forestry University, Harbin, 150040, China; Research Institute of Forestry, CAF, Beijing, 100091, China and Wenbiao Duan, College of Forestry, Northeast Forestry University, Harbin, 150040, China

177-13 3213b Sediment Yield from Secondary Forest Roads on Pinus taeda Commercial Plantation in Southern Brazil. Carla M. Camargo Corra1, Renato A. Dedek2 and Jorge R. Malinovski3, (1) Forest Science Dept.–Federal University of Paraná, (2) Embrapa CNP Florestas

177-14 3214a Pine Straw Harvesting Effects on Water Content of the Soil Vadose Zone. Daniel H. Pote* and David M. Burner, USDA-ARS

177-15 3214b Using Δ15N to trace biosolids-derived nitrogen in a forest ecosystem. Hai long Wang* and Guna Magesan, Ensis

177-16 3215a Clay mineralogical characterization of a toposequence of perhumid subalpine forest soils in northeastern Taiwan. Chuanweng Pai*, The experimental forest, college of bioresource and agriculture, National Taiwan University, Ming Wang, National Taiwan University and Chih-Yu Chiu, Research Center for Biodiversity

177-17 3215b Free oxides properties of Japanese forest soils developed from volcanic ash and other parent materials. Akhiro Imaya*, Kyusyu research center, Forestry and Forest Products Research Institute, Seichi Ohta, Kyoto University, Yoshiyuki Inagaki, Shikoku research center, Forestry and Forest Products Research Institute and Nagaharu Tanaka, Hokkaido research center, Forestry and Forest Products Research Institute

177-18 3311a Carbon sequestration and SOM decomposition depending on land use change of gray forest and podzolic soils. Alla A. Lariounova*, Sergey S. Bykhovets, Ilya V. Yevdokimov and Alexandr M. Yermolayev, Institute of Physico-Chemical and Biological Problems in Soil Science RAS

177-19 3311b Soil Losses from Fire Breaks and Pinus taeda Commercial Plantation in Southern Brazil. Carla M. Camargo Corra1, Renato A. Dedek2 and Jorge R. Malinovski3, (1) Forest Science Dept.–Federal University of Paraná, (2) Embrapa CNP Florestas

177-20 3312a Changes in soil quality indicators, in adjacent protected forest and deforested lands in central Iran. Mohammad A. Hajabbsaei1, Mehdi Shariff2 and Mohsen Sheklabadi3, (1) Isfahan University of Technology, (2) Agriculture and Agri-Food Canada

177-21 3312b Impact of prescribed management treatments on selected soil properties in a disturbed forest ecosystem of Northern Alabama. Maria Nobles*, Wallace Dillon and Monday Mbilila, Alabama A&M University

177-22 3313a Sulfate Adsorption in Forest Soils Affected by Acid Deposition. Autumn L. Bryson* and Louis M. McDonal, West Virginia University


177-24 3314a The long-term effects of a single phosphorus fertilizer application on phosphorus availability in forest soils. Bradley W. Miller*, Virginia Tech and Thomas Fox, Virginia Tech University

177-25 3314b The relationship between soil conditions and declining growth rate of famous aged Pinus tabuliformis at Jietai temple in Beijing China. Lishui Nie*, Michigan State University

177-26 3315a Influence of different tree species on the chemical properties in rhizosphere and bulk soils. Pura Marcet Sr., J. Carlos Souto, Saleta Gonzalez* and Dolores Baamonde, Universidad de Vigo. Escuela de Ingeniería Técnica Forestal.

177-27 3315b Soil C, N, 813C and 815N within Size Fractions Along an Experimental Forest Disturbance Regime in Atlantic Canada. Asfaw Bekele*, Lisa Kellman and Hugo Beltrami, Environmental Sciences Research Center, St. Francis Xavier University


177-29 3410b Stimulation of microorganisms in a Mediterranean litter after sewage sludge addition. Sylvie Noble*, Lionel Ranjard, Virginie Nowak, Jean Le Petit and Steven Criquelion, Laboratory of Mi-
Nitrogen Mineralization Rates as a Function of the Free Organic Matter in Highly Saturated Chilean Rain Forest Soils. Francisco Matus*, Private, Christopher Lusk, Department of Biological Sciences, Macquarie University and Christian Maire, Centro Tecnologico de Suelos y Cultivos, Departamento de Produccion Agricola, Universidad de Talca

Nitrogen Mineralization Rates as a Function of Soil NO₃ and NH₄ over 14 years on a Long Term Litter decomposition study in young and old forest by chemical and structural analyses. Ormella Francescò1, Paola Gioacchini1, Daniela Montecch1, Claudio Giavatta1, Andrea Masià2 and Giustino Tonon2, (1) Dipartimento di Scienze e Tecnologie Agroambientali Università di Bologna, (2) Dipartimento di Coltura Arborea Università di Bologna

Soil NO₃ and NH₄ over 14 years on a Long Term Soil Productivity study on the Lower Coastal Plain of North Carolina. Robert J. Eaton* and Kim Ludovici, USDA-Forest Service, Southern Research Station


Modeling the spatial variability of soil organic matter in a deeply dissected landscape—Bisley Watershed, Puerto Rico. Kristofer Johnson* and Fred Scatena, University of Pennsylvania

Soil Organic Matter Stabilization in a Transect of Forest Types on Soils with Diverse Mineralogy and Environmental Conditions in the Pacific Northwest USA. Mark G. Johnson*, U.S. Environmental Protection Agency and Christopher Swanston, Center for Accelerator Mass Spectrometry

CH₄ uptake and N₂O emission from the forest soils in Japan. Tomoaki Morishita*, Shigejiro Ishizuka, Tadashi Sakata and Masamichi Takahashi, Forestry and Forest Products Research Institute

Organic Profiles of Forest Soils in Northern Europe: Characteristic Features and Classification Problems. Olga Bakhmet*, Forest Research Institute, Karelian Research Centre, Russian Academy of Sciences

Assessing Forest Soil Productivity in Northern Europe. Natalia Fedorets* and Rozalia Morozova, Forest Research Institute, Karelian Research Centre, Russian Academy of Sciences

Do Presences of a Ground Flora Affect Variations in Soil Chemistry in a Fagus Sylvatica Forest Soil?. Frida Andreasson*, Bo Bergkvist and Anna-Maj Balsberg-Pahlson, Lund University

Assessment and studying micromorphological and mineralogical characteristics of some forest soils of nowshahr kheyruddin(mazandaran province). Iran. m.k kianiam*, university of tehran

Deforestation effects on soil bacterial population: A case study of Guilan province. Amir Bahrami*,1, Maryam Ranbar Atashi2 and Mahmood Shabanpour2, (1) Guilan University, (2) Iran-Rasht- Guilan University- Agricultural Faculty- Soil Sci. Group

Mapping of soil environmental hazards in urban areas. Jaroslava Sobocka* and Marian Jaduda, Soil Science and Conservation Research Institute

Soils of New York City. Luis A. Hernandez*, Richard K. Shaw1, Steven Fischer1 and John Galbraith1, (1) USDA-NRCS, (2) Virginia Tech


Urbanization Leading to Alteration of Soil Function of the Zhengzhou City in China. Ke-ning Wu*, Department of Land Science and Technology, China University of Geoscience

Impact of Soil Degradation on Water and Life in a Tropical Region. Shadanamann K. Nair*, Centre for Earth Research & Environment Management

Effect of Copper in Soil on Bioaccumulated Copper in Earthworm. Kye-Hoon Kim*, Youn-Seok Choi1, Ho-Jin Kim2 and Hyun-Haeng Lee2, (1) The University of Seoul, (2) National Institute of Agricultural Science and Technology

Measures of body size and body condition in the black-striped mouse (Apodemus agrarius) as indicators of chronically disturbed environment. Miroslava V. Velickovic*, Institute for Biological Research “Sinisa Stankovic”

Gaseous Losses From Nitrogen Fertilizers Applied to Vegetable Fields in Nanjing Suburb. Bing Cao1, Fayun He1, Qiuning Xu2, Bin Yin1 and Guixin Cai1,1, (1) State Key Laboratory of Soil and Sustainable Agriculture, (2) Beijing Academy of Agricultural and Forestry Sciences

Importance of historical and present-day land use for the lability of soil C and N. David Lewis*, Jason Kaye1, Charles Redman1 and Ann Kinzig1, (1) Arizona State University, (2) The Pennsylvania State University

Legacies of agriculture in carbon and nutrient pools of arid urban soils. David Lewis1, Jason Kaye2, Corinna Gries1, Ann Kinzig1 and Charles Redman1, (1) Arizona State University, (2) The Pennsylvania State University

Bihourly Soil Moisture Depletion Patterns in an Urban Ecosystem. Charles Kome*, East National Technology Support Center, USDA/NRCS

Soil and Site Assessment Card for Connecticut Rain Gardens. Marjorie Faber*, USDA NRCS

Lead Distribution in Urban Residential Soils of Portland, Maine. Samantha Langley-Turnbaugh* and Travis Wagner, University of Southern Maine
178-16 3308a Heavy Metals in Murcia City (Spain): Preliminary Data. Jose A. Acosta*, Angel Faz Cano and Silvia Martinez-Martinez, Technical University of Cartagena

178-17 3308b Magnetic Properties of Urban Topsoil in Shanghai and Their Environmental Implications. Xue-feng Hu*, Xiao-qing Li, Rong Ye, Yun Pan and Yu Su, Department of Environmental Science and Engineering, Shanghai University

178-18 3309a Mineralogy and Geochemistry of urban soils of different age and land use in Qindao, China. Stefan Norra*, Nabil Fier1, Thomas Neumann1, Doris Stüben1, Fanwei Lee2 and Xiangfeng Shu2, (1)Institute of Mineralogy and Geochemistry, University of Karlsruhe, (2)Qingdao Environmental Protection Bureau

178-19 3309b Contribution of technologic materials to the metal bioavailable fraction of urban soils in Marrakech (Morocco). Hicham El Khalili*, Christophe Shwartz1, Ali Boularbà2 and Jean Louis Morel1, (1)Laboratoire Sols et Environnement, INPL (ENSAIA)/INRA, (2)Laboratoire de Biosurveillance de l’Environnement

178-20 3310b Methodology to study contaminant transport in variably saturated soils at the bench scale. Marie-Odile Simonnot*, Valérie Gujisait1, Stéphanie Ouvrard1 and Jean-Louis MOREL2, (1)Laboratory of Chemical Engineering Science (CNRS-INPL), (2)Laboratory of Soils and Environment (INRA-ENSAIA-INPL)

178-21 3405a Degradation of phenanthrene and pyrene in soil: Fenton’s reagent versus potassium permanganate. Marie-Odile Simonnot*, Paula Tereza De Souza e Silva1, Marie-Noëlle Pons1, Benicio Barros Neto2, Valdinei Lins Da Silva1, Maurício Motta3 and Michel Sardin4, (1)Laboratory of Chemical Engineering Science (CNRS-INPL), (2)Departamento de Quimica Fundamental, Universidade Federal de Pernambuco, (3)Departamento de Engenharia Química, Universidade Federal de Pernambuco

178-22 3405b Alteration of secondary minerals along a time series in alkaline soils derived from carbonatic wastes of soda production. Reinhold Jahn*, Gitta Grünewald1, Klaus Kaiser1 and Herbert Pöllmann1, (1)Institute of Soil Science and Plant Nutrition, Martin Luther University, (2)Institute of Geo Sciences

178-23 3406a Total and Extractable Lead and Arsenic Concentrations in US Long-Term Orchard Soils. EJon E. Codling1, Carrie E. Green1, R. L. Chaney2 and Andy K. Piri3, (1)USDA-ARS, (2)USDA-ARS-ANRI, (3)USDA-NRCS

178-24 3406b Decontamination of two contaminated soils using chelating agents applied to leaching cells. D. Kh. Naghipour*, H. R. Thomas2 and R. Franciss2, (1)Guilan University of Medical Sciences, (2)Cardiff University

178-25 3407a Metal Contamination in Urban Soil-Water Environment and Remediation Strategies. Palamisandam Singaram*, K Lalsuna and Santiago Mahimairaja, Tamil Nadu Agricultural University

178-26 3407b Ecological assessment of a constructed soil on degraded sites. Geoffroy Séré*1, Stéphanie Ouvrard1, Christophe Schwartz2, Jean-Christophe RENAT*1 and Jean Louis MOREL*1, (1)Laboratoire des ENSAIA/INRA, Laboratoire Sols et Environnement, (2)TV-D-Groupe PE

178-27 3408a Distribution and Abundance of Chironomidae (Diptera) in Tropical Rice Agroecosystem. Salman Abdo Al-Shami*1, Che Salmah Rawi2, Siti Aziah Noor1 and Abu Hassan Ahmad1, (1)Universiti Sains Malaysia, (2)School of Biological Science, University of Liverpool


178-29 3409a Effectiveness of Biosolids Amendments in Enhancing Soil Fertility and Microbial Ecology in Golf Course Greens. Guanglong Tian*, Thomas Granato1, Dan Dinelli2 and Albert Cox1, (1)Environmental Monitoring and Research Division, R & D Dept, Metro Water Reclamation District of Greater Chicago (MWRD-Chicago), (2)North Shore Country Club

178-30 3409b A Comparative Study of Soil and Other Adsorbents on Decolorizing Livestock Wastewater. Xin Chen*, Kuniaki Sato1, Toshiyuki Wakuiski2 and Masunaga Tsugiyuki3, (1)Faculty of Life and Environmental Science, Shimane University, (2)Faculty of Agriculture, Kinki University, Japan

SESSION No. 179

Convention Center, Room 103ABC, First Floor

RB Developments in the World Reference Base (WRB), Soil Taxonomy (ST) and Other National Soil Classification Systems for Soil Resources—Poster


179-2 3108b Genesis and Classification of Soils in Alborz region in the north of Iran. Hossein Torabi-Golsefidî*, Faculty of Agriculture, Shahed University

179-3 3109a Albic Soil Classification Reference in the Northern Subtropical Region of China. Ke-ning Wu*, Department of Land Science and Technology, China University of Geoscience

179-4 3109b Principles, structure and suggestions for modernization of the Hungarian Soil Classification System. Erika Micheli*, Peter Hegymege1, Gabriella Sz. Kele1 and Zsofia Bakacs1, (1)Szent Istvan University, Soil Science and Agrochemistry Department, (2)Plant Protection and Soil Conservation Service, Hungary, (3)Research Institute for Soil Science and Ag. Chemistry of the Hungarian Academy of Sciences

179-5 3110b National Classification of “Hydromorphic” and Salt affected soils and their correlation with the WRB. Marta Fuchs*, Erika Micheli1, Peter Hegyemge1 and Tibor Töth1, (1)Szent Istvan University, Soil Science and Agrochemistry Department, (2)Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences

179-6 3208a National Classification of “Chernozem like” (steppe) soils and their correlation with the WRB. Gabriella Sz Kele1, Plant Protection and Soil Conservation Service, Erika Micheli, Szent Istvan University, Soil Science and Agrochemistry Department and Judit Berényi Üveges, Central Service for Plant Protection and Soil Conservation

179-7 3208b Wrb Explained. Otto Spaargaren*, ISRIC—World Soil Information

179-8 3209a National Classification of forest soils and their
correlation with the WRB. Tamas Szegi*, Pal Stefanovits and Erika Micheli, Szent Istvan University, Soil Science and Agrochemistry Department

179-9 3209b WRB activities 2002-2006. Erika Micheli*, Szent Istvan University, Soil Science and Agrochemistry Department, Otto Spaargaren, ISRIC and Peter Schad, Lehrstuhl für Bodenkunde (Soil Science), Department of Ecology, Technische Universität München
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Lifestream

The virid land was lush and wild
The unkempt beauty of a tousled child
Its people nestled the red rocked land
And ate the fruits from its dusty hand

They drank the drams of ancient stores
Primeval rains that soils did leach
Through crusts of earth to hidden wells
So deep that only time could reach

From the roaring river underneath
Surfaced a salt-savored flood
The people drank and the ancient stream
Became their briny blood

White flames of fire may scorch the bush
Tractors and scythes may hew
But the deep dark stream will wash the roots
And force the buds anew

Sprinkle sculptured buildings
On the scene that is erased
But see who walks among them
With dignity and grace

The earth supports their barefoot steps
Babes bulge on their backs
Ancient streams pulse through their veins
They walk the ancestral track

Patricia Brams, Ph.D.

Dr. Brams is an International Educator who has served as Professor in Communications at Njala University College Sierra Leone.

IUSS Anthem

We Call It Soil

Chorus
It is our life! We call it soil
It is the stuff, in which we toil
From soil we’ve sprung, to soil we’ll go
Protect the soil of this earth so we can grow

Verse I
From podsol beneath snow drifts
To aridisols where few crops live
Soil is as varied, as the rainbow
And is as precious as a rainbow’s pot of gold

Chorus

Verse II
Some soils are dry, some soils are wet
Some soils are fertile, and from them high yields you get
But if you don’t, give to the soil
Then you will not reap a thing for all your toil

Chorus

Verse III
We study chelates, leachates and porosity
We learn our muck and peat and mineralogy
Some study urban, some are in rural
And we can tell, just by the smell, who’s in manural

Chorus

Verse IV
Soils are just like humanity
With yellow, brown, red, black and white—You’ll see
That some are dull, and some are gray
And can fall prey to greed of man, that’s our decay

Chorus (LEAD)

Verse V
A living world beneath our feet
It even lives, beneath our streets
With flora and fauna so complete
It can save us from the brownfields of defeat

Chorus (OUT)

Music: “Boxturtle Bob” Chirnside
Lyrics: “Boxturtle Bob” Chirnside and A.E. Hartemink
Sponsoring Organizations

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19th World Congress of Soil Science

1–6 August 2010
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