20th WORLD CONGRESS OF SOIL SCIENCE
In Commemoration of the 90th Anniversary of the IUSS
Soils Embrace Life and Universe

June 8-13, 2014 Jeju, Korea
www.20wcss.org
## Program at a Glance

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<th>Time</th>
<th>June 8 (Sun)</th>
<th>June 9 (Mon)</th>
<th>June 10 (Tue)</th>
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<td>08:00</td>
<td>Opening Ceremony &amp; Commemoration the 90th Anniversary of IUSS &amp; Congress Symposium 1</td>
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<td>Congress Symposium 2</td>
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**Congress Symposium 2**
- Soil Security
  (Tamna A, 5F)

**Coffee Break**

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**Lunch**
- (Tamna B, 5F)

**Coffee Break & Poster Session 2**
- (3F, 5F Lobby)

**Oral Session 22**
- (WG6)
  Urban Soils-Properties, Functions and Evolution

**Oral Session 23**
- (DS2)
  Modelling of Soil Properties and Processes - Challenges and Opportunities

**Oral Session 24**
- (DS2)
  A Soil Development and Soil Properties and Functions

**Oral Session 25**
- (C25-3)
  A Mechanism Controlling Greenhouse Gas Emissions from Soils

**Oral Session 26**
- (C23-2)
  The Role of Environment on Soil Function - Exploring Soil Hidden Frontiers

**Oral Session 27**
- (C13-1)
  Water Conservation Technologies and Impacts on Sustainable Dry Land Agriculture

**Oral Session 28**
- (C13-4)
  Mechanical Properties and Reactions of Soil Microsites

**Oral Session 29**
- (C13-2)
  Quantification and Application of Uncertainty in Pedometrics

**Oral Session 30**
- (C4.5-1)
  The Soil Underfoot: Infinite Possibilities for a Finite Resource

**Oral Session 31**
- (DS6)
  Soils in the Anthropocene Era: Global Health, Food Security, and Human Health

**Oral Session 32**
- (DS6)
  Techniques to Manage Contaminated Arable Soils

**Oral Session 33**
- (C3.5-2)
  Mechanism Controlling Greenhouse Gas Emissions from Soils

**Oral Session 34**
- (C3.5-1)
  Physical Restoration of Soils

**Oral Session 35**
- (WG4)
  New Approaches in Paddy Soil Management for Food Safety and Environmental Quality

**Oral Session 36**
- (C1.6)
  Paleoecology

**Oral Session 37**
- (C1.3-2)
  Linking Forest Management and Soil Processes to Ecosystem Productivity and Functions

**Oral Session 38**
- (C1.3-1)
  Linking Forest Management and Soil Processes to Ecosystem Productivity and Functions

**Oral Session 39**
- (C1.3-2)
  Linking Forest Management and Soil Processes to Ecosystem Productivity and Functions

**Oral Session 40**
- (C1.3-1)
  Linking Forest Management and Soil Processes to Ecosystem Productivity and Functions

**Oral Session 41**
- (C1.6)
  Paleoecology

**Oral Session 42**
- (C1.6)
  Paleoecology

**Special Film Screening Event**
- (19:00-21:00 / Tamna A, 5F)
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**Tours**

(technical Tours)
Program at a glance

08:30 - 09:00
Congress Symposium 3
Soil-Plant Welfares for Human
(Tamna A, 5F)

10:00
Coffee Break

11:00
Oral Session 43
Biochar Soil Amendment for Environmental and Agronomic Benefits I

Oral Session 44
Nanotechnologies in Environmental Soil Science

Oral Session 45
Soils, Land Use and Heat

Oral Session 46
Soil Information and Food Security

Lunch
(Tamna B, 5F)

14:00 - 15:00
Oral Session 47
Steps made toward a Universal Soil Classification

Oral Session 48
Urine-Sol - Function of Soil Microorganisms in a Changing Environment

Oral Session 49
Soil Organic Carbon: Dynamics, Stabilization, and Environmental Implications

Oral Session 50
Advances in Rhizosphere Regulation and Soil Nutrient Management

Oral Session 51
Salinity Management when Irrigating with Marginal Quality Waters

Oral Session 52
Quantifying Evaporative Fluxes from Terrestrial Surfaces

Oral Session 53
Understanding Acid Sulfate Soils: The Key to Their Proper Management

Oral Session 54
Education and Social Awareness for Soil Science in General Public

Oral Session 55
Soil Data, Spatial Information Systems and Interpretation Procedures

Coffee Break & Poster Session 3
(3F, 5F Lobby)

16:00 - 17:00
Oral Session 56
Agricultural Land Management for Improving Soil Fertility and Irrigation Efficiency of AFACI Pan-Asia Project

Oral Session 57
(WG7)
Soil Data, Spatial Information Systems and Interpretation Procedures

Oral Session 58
(C1.2-1)
Pedodiversity and Ecological Services – Bridging Soil Geography and Land Use

Oral Session 59
(C2.4-3)
Minerals as Regulators of Carbon Flow through Soils

Oral Session 60
(C2.4-2)
Redoximobilization and Ecological Services - Bridging Soil Geography and Land Use

Oral Session 61
Soil Information Systems and Interpretation Procedures

Oral Session 62
Gala Dinner
(18:30 ~ / Tamna B, 5F)
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- For your reference, abstracts of oral sessions are shown as group per symposium, but those of poster presentations are listed individually.

- Those who wish to cite abstracts in the proceedings of 20WCSS may refer as below since the abstract online access system does not specify the page.

  * Author’s Name. 2014. Title of Abstract. Symposium Name. Proceedings of the 20th WCSS (www.20wcss.org), Abstract Online Access System, June 8 to 13, Jeju, Korea.

**Congress Symposium 1**

**Congress Symposium 1:**
"Soil for Peace"

June 9 (Mon), 08:00 - 10:00

**Moderator:** Jeong-Gyu Kim (LOC Secretary General/ Korea University, Korea)

**CG1-1**
09:05 The Soil-Peace Nexus
Rattan Lal
Carbon Management and Sequestration Center, The Ohio State University, USA

**CG1-2**
09:25 Soils for Peace and Security
Magdi Selim
Louisiana State University, USA

**CG1-3**
09:45 Starting Unification in Korean Peninsula from Soil
Ho-Seung Yang
World Vision Korea, Korea

**Congress Symposium 2**

**Congress Symposium 2:**
"Soil Security"

June 10 (Tue), 08:30 - 09:50

**Moderator:** Jae E. Yang (President, IUSS/ Kanwon National University, Korea)

**CG2-1**
08:35 Soil Security Symposium: Introduction
Alex Mcbratney (IUSS Dokuchaev Award Winner)
Department of Environmental Sciences, Faculty of Agriculture and Environment, The University of Sydney, Australia

**CG2-2**
08:45 Reaching out from the Soil Box in Pursuit of Soil Security
Johan Bouma
Soil Science, Wageningen University, The Netherlands

**CG2-3**
09:00 Investing in Green Growth Involves Investing in Soil Security
Anna van Paddenburg
Country Representative, Global Green Growth Institute, Indonesia

**CG2-4**
09:15 Soil Security and International Climate Policy
Robert Hill
University of Adelaide, Australia

09:30 Discussion

**Congress Symposium 3**

**Congress Symposium 3:**
"Soil-Plant Welfares for Human"

June 12 (Thu), 08:30 - 09:50

**Moderator:** Pil Joo Kim (Program Committee Chair/ Gyeongsang National University, Korea)

**CG3-1**
08:35 Soil’s Capacity to Meet the National Nutrition Values in Korea
Jae E. Yang1, Kyung Jae Lim2, and Sung Chul Kim3
1 Kangwon National University, Korea; 2 Chungnam National University, Korea

**CG3-2**
08:55 Soil Science in the Anthropocene: Golden Opportunities and Grand Challenges
Donald L. Sparks
S. Hallock du Pont Endowed Chair in Soil and Environmental Chemistry, Director, Delaware Environmental Institute University of Delaware, USA

**CG3-3**
09:15 Soil Biodiversity and Sustainability
Diana H. Wall1, Richard D. Bardgett4, Wim H. van der Putten5, Kelly S. Ramirez1, Johan Six1
1 Colorado State University, USA; 4 University of Manchester, UK; 3 Netherlands Institute of Ecology and Centre for Soil Ecology, The Netherlands; 4 Institute of Agricultural Sciences, ETH, Switzerland

09:35 Discussion

**Congress Symposium 4**

**Congress Symposium 4:**
"IUSS for Global Soils: Future Nexus"

June 13 (Fri), 08:30 - 09:50

**Moderator:** Rainer Horn (IUSS President-Elect/ Christian Albrechts University, Germany)

**CG4-1**
08:35 The IUSS (1924-2014) as a Link to Global Soil Science and Scientists
Alfred Hartemink (IUSS Secretary General)
Department of Soil Science, FD Hole Soils Lab, University of Wisconsin - Madison, USA

**CG4-2**
09:00 Strengthening the Role of Soil and Land in the Sustainable Development Goals: A Proposal to Increase Collaboration between IUSS and the Global Soil Week
Alexander Muller
IASS, Germany

09:20 Panel Discussion:
Luca Montanarella (EU JRC, Italy)
David Lindbo (North Carolina State University, USA)
Irbs Kheoruenromne (Kasetsart University, Thailand)
Julio Alegre Orihuela (President of SLCS, Peru)
Victor Chude (Soil Science Society of Nigeria, Nigeria)
Ronald Vargas (FAO, Italy)
Oral Session No. 1

[ID13] Integrated Management Strategies for As and Cd in Rice Paddy Environments

June 9 (Mon), 10:10 - 12:40

Convener: Rufus L. Chaney (United States Department of Agriculture, USA)/ Won Il Kim (National Academy of Agricultural Science, Korea)

O1-1 10:10 Integrated Management Strategies for Arsenic in Paddy Rice Fields
Ming H. Wong
Hong Kong Institute of Education, Hong Kong

O1-2 10:40 Risks of Metals and Metalloids in Subsistence Farming Systems Peripheral to Metal Mines and Agronomic Interventions
Longbin Huang*
The University of Queensland, Australia

O1-3 11:00 Effects of Soil Amendment on Cadmium and Arsenic Concentration and Arsenic Speciation in Rice Grain
Tomohito Arao1, Akira Kawasaki2, Koji Baba2, Shingo Matsuno2 and Tomoyuki Makino1
1 National Institute of Agro-Environmental Sciences, Japan; 2 Shimane University, Japan

O1-4 11:20 Cadmium Phytoremediation in a Contaminated Paddy Soil: A Field Study in Mae Sot District, Thailand
Sangdoo Khoakae1, Woranan Nakanpbone1, Suchat Leungprasert* and Gautier Landrot*
1 Kasetsart University, Thailand; 2 Mahasarakham University, Thailand

O1-5 11:40 Heavy Metal(lloid) Levels in Paddy Soils and Brown Rice in Korea
Woo-Ri Go1, Won-II Kim2, Anitha Kunhikrishnan1, Ji-Hyock Yoo1, Eun-Jin Huh1, Seon-Hee Jeong2 and Kye-Hoon Kim2
1 National Academy of Agricultural Science, Korea; 2 The University of Seoul, Korea

O1-6 12:00 Cadmium Contamination and its Risk Management
Nanthi Bolan1, Tomoyuki Makino1, Anitha Kunhikrishnan2, Pil-Joo Kim2, Satoru Ishikawa1, Masaharu Murakami3, Ravi Naidu3 and Mary Beth Kirkham3
1 University of South Australia, Australia; 2 National Institute for Agro-Environmental Sciences, Japan; 3 National Academy of Agricultural Science, Korea; 4 Gyeongsang National University, Korea; 5 University of Western Australia, Australia; 6 Kansas State University, USA

O1-7 12:20 Response of Dissolved Arsenic and Cadmium Concentrations in Paddy Soils to Changes in the Air-Filled Porosity: Field Monitoring by TDR and Suction Lysimetry
Ken Nakamura2, Hidetaka Katou1 and Toshimitsu Honma2
1 National Institute for Agro-Environmental Sciences, Japan; 2 Niigata Agricultural Research Institute, Japan

Oral Session No. 2

[ID16] Environmental Risk Management of Geologic Carbon Storage and an Introduction to the K-COSEM Research Center of Korea

June 9 (Mon), 10:10 - 12:30

Convener: Seong-Taek Yun (Korea University, Korea)/ Ho-Young Jo (Korea University, Korea)

O3-1 10:00 Inauguration of K-COSEM (Korea CO2 Storage Environmental Management) Research Center for Geologic Carbon Storage in Korea: Our Mission
Seong-Taek Yun*, Ho-Young Jo, Gayoung Yoo, Kang-Kun Lee, Eungyu Park* and Mun-Hyun Ko
1 Korea University, Korea; 2 Kyung Hee University, Korea; 3 Seoul National University, Korea; 4 Kyungpook National University, Korea; 5 Soongsil University, Korea

Oral Session No. 3

[ID19] Folk Soil Knowledge for Soil Taxonomy and Assessment

June 9 (Mon), 10:10 - 12:40

Convener: Francisco Bautista-Zuniga (Universidad Nacional Autonoma de Mexico, Mexico)/ Yeon Kyu Sonn (National Academy of Agricultural Science, Korea)

O2-1 10:10 Soil Perception by Humans: From Ethnopedology to Neuropedology
Pavel Krashnikov*
Moscow State University and Institute of Biology, Karelian Research Center of RAS, Russia

O2-2 11:00 Indigenous Soil Knowledge and Soil Mapping by Zulu Farmers, Potshini, South Africa
Nkosinomusa Buthelezi*, Jeffrey Hughes3, Pardon Muchonyerwa4, Albert Modii* and Karen Caister*
1 University of Limpopo, South Africa; 2 University of KwaZulu-Natal, South Africa

O2-3 11:20 Use and Management of the Soils; Local Perspective of the Land Decision-Making
Alma Barajas, Francisco Bautista-Zuniga*, Luis Miguel Morales Manilla and Maria Angeles Gallegos Taver*
Universidad Nacional Autonoma de Mexico, Mexico

O2-4 11:40 Ethnopedological Knowledge by Smallholder Farmers for Agriculture Practice - A Case Study in Nanga Machan, Kanowit, Sarawak, Malaysia
Mold Effendi Washi2, Alissie Sherilyn Bagol, Ho Soo Ying and Mugunthan Perumal
Universiti Malaysia Sarawak, Malaysia

O2-5 12:00 State and Regional Soil Maps using Maya Soil Classification
Francisco Bautista
Universidad Nacional Autonoma de Mexico, Mexico

O2-6 12:20 Inventory of Local Knowledge about Buried Soils in the Volcanic Zone of Michoacan, Mexico
Alma Barajas*, Francisco Bautista* and Maria Alcala-De-Jesus1
1 Universidad Nacional Autonoma de Mexico, Mexico; 2 Universidad Michoacana de San Nicolas de Hidalgo, Mexico

Oral Session No. 4

[IDS16] Environmental Risk Management of Geologic Carbon Storage and an Introduction to the K-COSEM Research Center of Korea

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1 Korea University, Korea; 2 Kyung Hee University, Korea; 3 Seoul National University, Korea; 4 Kyungpook National University, Korea; 5 Soongsil University, Korea

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1 Korea University, Korea; 2 Kyung Hee University, Korea; 3 Seoul National University, Korea; 4 Kyungpook National University, Korea; 5 Soongsil University, Korea
O3-2 Effects of CO2 Disturbance on Soil Ecosystems
Haegeun Chung
Konkuk University, Korea

O3-3 Soil CO2 Efflux in Ecological Studies: Current Status and Challenges
Tae Kyung Yoon1, Yoowhan Son, Hyeon Mun Y1, Nam Jin No1, Gayoung Yoo1, Haegeun Chung1, and Seong-Taek Yun1
1Korea University, Korea; 2Gifu University, Japan; 3Kyung Hee University, Korea; 4Konkuk University, Korea

11:00 Break

O3-4 Soil Gas Movement and VOC Concentration Change in Unsaturated Zone with Fluctuating Groundwater Table: Implication for CO2 Monitoring
Kang-Kun Lee*, Won-tak Jeon, Seung Hyun Lee and Seong-soon Lee
Seoul National University, Korea

O3-5 Origin and Hydrochemistry of CO2-Rich Springs in Korea: Implications for Long-Term Environmental Effects and Monitoring of CO2 Leakage
Hyun-Kwon Do, Kyoung-Ho Kim and Seong-Taek Yun*
Korea University, Korea

O3-6 Impact of Near-Surface Heterogeneities on CO2 Leakage and the Implication to the Risk Assessment
Eungyu Park1, and Weon Shik Han2
1Kyungpook National University, Korea; 2University of Wisconsin, USA

Oral Session No. 4
Oral Session No. 4


June 9 (Mon), 10:10 - 12:40

Convenor: Martin H. Gerzabek (University of Natural Resources and Life Sciences Vienna, Austria)/ Kazuyuki Inubushi (Chiba University, Japan)

O4-1 The State of the Art on Remediation after Nuclear Accidents prior to the Fukushima Daiichi Accident
Brenda Howard
Lancaster Environment Centre, United Kingdom

O4-2 Distribution of Radionuclides in the Soil Environment and their Transfer to Vegetation following the Fukushima Nuclear Accident
Yasuyuki Muramatsu1, Takeshi Ohno1, Kazumasa Oda1, Midori Sugiyama2, Tomoyuki Kobayashi1, Mamoru Satou1, Mutsuo Satou2, Shigeto Fujimura3 and Hiroyuki Matsuizaki3
1Gakushuin University, Japan; 2Fukushima Agricultural Technology Centre, Japan; 3The University of Tokyo, Japan

O4-3 Subsurface Reactive Transport of U(vi)
Jaeyoung Choi1, Hongkyun Lee and Young-Taek Park
KIST, Korea

O4-4 Relationship between Radionuclide Interception Potential of Paddy Soil Clays in Fukushima and their Clay Mineralogy
Atsushi Nakao1, Sho Ogasawara2, Oki Sano2, Toyoaki Ito3 and Junta Yani3
1Kyoto Prefectural University, Japan; 2Okayama Prefectural Technology Center for Agriculture, Forestry and Fisheries, Japan; 3Tohoku University, Japan

O4-5 Distribution of Radioactive Cesium in Soil and Its Uptake by Herbaceous Plants in Temperate Pastures with Different Management after Fukushima Dai-Ichi Nuclear Power Plant Accident
Shin-Ichiro Ogura1, Takae Suzuki2 and Masanori Saito2
1Graduate School of Agricultural Science, Tohoku University, Japan; 2Field Science Center, Tohoku University, Japan

O4-6 Layer-To-Layer Variations of 137Cs Content in Soil throughout a Calendar Year within the Alienation Zone of the Chernobyl Npp
Natalia Zarubina
Institute for Nuclear Research of National Academy of Science of Ukraine, Ukraine

O4-7 Estimation of Radiocesium In/out Flows in Paddy Fields in Fukushima, Japan
Seiko Yoshikawa1, Eguchi Sadao1, Itahashi Sunao1, Igura Masato1, Nobuharu Kihou1, Shigeto Fujimura2, Takashi Saito1, Hideshi Fujihar1, Shinichiro Mishima1, Kazunori Kohyama1, Noriko Yamaguchi1 and Ohkishi Satoru1
1National Institute for Agro-environmental Sciences, Japan; 2National Agriculture and Food Research Organization, Japan; 3Fukushima Agricultural Technology Centre, Japan

DS4 [IDS4] The Lifetime Contributions of Professor J. Keith Syers to International Soil Science - A Memorial Symposium

June 9 (Mon), 10:10 - 12:40

Convenor: John Ryan (Carrigataha, Cahir Ireland)/ Tony O’Donnell (University of Western Australia, Australia)

OS-1 Keith Syers: a Champion for Soils and Agricultural Research across the World
Tony O’Donnell, The University of Western Australia, Australia

OS-2 Nutrient Balances, Food Security and Fertilizer Raw Materials
David Manning, Newcastle University, United Kingdom

OS-3 Contributions of Keith Syers to Knowledge of the Sulphur Cycle
Denis Curtin1, Mike Hedley2, Russ Tillman2, Nanthi Bolan3 and Tony O’Donnell1
1Plant & Food Research, New Zealand; 2Massey University, New Zealand; 3University of South Australia, Australia

OS-4 J.K. Syers a Protagonist for the Direct Application of Reactive Phosphate Rocks to Pasture Soils
Michael Hedley1, Nanthi Bolan3, Alex Mackay2, Paul Gregg1 and Angela Olegario1
1Massey University, New Zealand; 2University of South Australia, Australia; 3AGResearch, New Zealand; 4International Fertiliser Association, France

OS-5 Pedogenesis, Nutrient Dynamics, and Ecosystem Development: the Legacy of Keith Syers and T.W. Walker
Benjamin Turner1 and Leo Condron2
1Smithsonian Tropical Research Institute, Panama; 2Lincoln University, New Zealand
[DS7] African Eco-Efficient Solutions to Food Insecurity and Climate Change

June 9 (Mon), 13:40 - 15:30

Convenor: Rolf Sommer (International Center for Tropical Agriculture (CIAT), Kenya)

O6-1 13:40
Eco-Efficiency of Integrated Soil Fertility Management in Western Kenya
Rolf Sommer*, John Mukalama, Job Khara, Saidou Koala, Isaac Savini, Leigh Winowiecki and Deborah Bossio
International Center for Tropical Agriculture (CIAT), Kenya

O6-2 14:00
Approaches to Buffer Crop Productivity under Variable Soil Fertility and Climatic Conditions in Sub-Saharan Africa
Shamie Zingore1, Regis Chikowo2, Martin Moyo1 and Justice Nyamangara2
1International Plant Nutrition Institute, Kenya; 2Michigan State University, Malawi; 3ICRISAT, Zimbabwe

O6-3 14:15
Predicting Crop Yield and Response to Nutrients from Soil Spectra: Example from Sub-Saharan Africa
Job Khara3*, Leigh Winowiecki1, Lulsegde Desta2 and Rolf Sommer1
1International Center for Tropical Agriculture (CIAT), Kenya; 2CIAT, Malawi

O6-4 14:30
Using an Ecosystems Approach for Securing Water and Resources in the upper Tana Basin
Justine Cordingley1*, Fred Kizito1, Kennedy Ng’ang’a1 and Fred Khara1
1International Center for Tropical Agriculture (CIAT), Kenya; 2The Nature Conservancy (TNC) Kenya Program Office, Kenya

O6-5 14:45
Beyond vs Within the Farm Gate: Nutrient and Organic Matter Solutions to Resource-Constrained Agriculture in Africa
Johannes Lehmann1*, Andrew Simons2, Garrick Blalock1, Worku Chibessa3, Dawit Solomon1, Marie Zwetsloot1, Rachel Hestrin1, David Bluhm1 and Berhanu Belay2
1Cornell University, USA; 2CARE Ethiopia, Ethiopia; 3Jimma University, Ethiopia

O6-6 15:00
Soils, Ecosystem Services and Poverty Alleviation: a Case Study from Sub-Saharan Africa
Helaina Black1*, Anteneh Fekadu2, Bedru Balana1, Jo Smith3, Mike Rivington1, Simon Langan1, Tewodros Tefera1, Charlie Langan3 and Grant Davidson1
1The James Hutton Institute, United Kingdom; 2Southern Agricultural Research Institute, Ethiopia; 3University of Aberdeen, United Kingdom; 4International Water Management Institute, Ethiopia; 5University of Hawassa, Ethiopia; 6Carbon Foundation for East Africa, Uganda

O6-7 15:15
Delivery of Hydrologic and Microbial Services by Indigenous Shrub Rhizospheres to Agroecosystems under a Changing Climate in the Sahel
Ohio State University, USA

Oral Session No. 7

[6C.3.6-1] Saline and Sodic Ecosystems in the Changing World

June 9 (Mon), 13:40 - 15:30

Convenor: Tibor Tóth (Centre for Agricultural Research of the Hungarian Academy of Sciences, Hungary)/ John Triantafilis (The University of New South Wales, Australia)

O7-1 13:40
Soil Salinity Assessment at Landscape Level using Diffuse Reflectance Spectroscopy and Geostatistics
Monika Zovko1*, Claudio Colombo1, Annamaria Castrignano1, Anna Maria Stella1, Davor Romic2, Marija Romic3, Erica Di Iorio2 and Giuseppe Palumbo2
1University of Zagreb Faculty of Agriculture, Croatia; 2University of Molise, Italy; 3Research Unit for Cropping System in Dry Environments, Italy

O7-2 14:10
Spatiotemporal Variability of Soil Salinity and Its Effects on Rice Production in the North Central Coastal Region of Vietnam
Lam Ho Nguyen1*, Tetsuhiro Watanabe1 and Shinya Funakawa2
Kyoto University, Viet Nam; 2Kyoto University, Japan

O7-3 14:30
Ajay Bhaward1, Vinay Kumar Mishra, Yashpal Singh, Suresh Kumar Chaudhari and Dinesh Kumar Sharma
Central Soil Salinity Research Institute, India

O7-4 14:50
Potential Short-term Effect of Cultivation and Crop Rotation Systems on Soil Quality in a Coastal Newly Reclaimed Farmland, Eastern China
Rongjiang Yao, Jingsong Yang*, Shipeng Yu and Xiangping Wang
Chinese Academy of Sciences, China

O7-5 15:10
Hydrostratigraphic Analysis Using Electromagnetic Induction Data and a Spatially-Constrained Algorithm for Quasi-Three-Dimensional Electrical Conductivity Imaging
John Triantafilis
BEES, UNSW, Australia
Oral Session No. 8

[C4.1-3] Soil Ecosystem under Climate Change

June 9 (Mon), 13:40 - 15:30
Convenor: Kijong Cho (Korea University, Korea)/ Seunghun Hyun (Korea University, Korea)

O8-1 13:40 Climate Change Effects on the Suitability of an Agricultural Area to Maize Cultivation: a New Land Evaluation Hybrid System for Maize Antonello Bonifante1, Angelo Basile, Silvia Maria Alfieri, Eugenia Monaco and Francesca De Lorenzi1 1Italian National Research Council - CNR, Italy


O8-3 14:30 The Risk Assessment of Drought for Regional Upland Soil according to RCP8.5 Scenario using Soil Moisture Evaluation Model (afke 0.5) Myung Chul Seo, Hyeon-Suk Cho, Min-Tae Kim, Tae-Seon Park, Hang-Won Kang and Kook Sik Shin National Institute of Crop Science, Korea

O8-4 14:50 Nitrogen Dynamics and Greenhouse Gas Emissions in Cropping Systems under Elevated Co2: Face Experiments and a Meta-analysis Shu Kee Lam1, Deli Chien1, Rob Norton2, Roger Armstrong3, Erda Lin1 and Arvin Mosier1 1The University of Melbourne, Australia; 2International Plant Nutrition Institute, Australia; 3Victorian Department of Environment and Primary Industries, Australia; 4Chinese Academy of Agricultural Sciences, China

O8-5 15:10 Distribution of Photo-assimilated Carbon as Affected by Nutrient Addition to Soil Saukat Chowdhury1, Mark Farrell1 and Nanthi Bolan1 1Centre for Environmental Risk Assessment and Remediation (CERAR), University of South Australia, Australia; 2CSIRO Land and Water / Sustainable Agriculture Flagship, Australia

Oral Session No. 9

[C4.1-1] Advances in Quantifying Forest Soil Processes and Functions

June 9 (Mon), 13:40 - 15:30
Convenor: Zhihong Xu (Griffith University, Australia)

O9-1 13:40 Quantifying Contribution of Ammonia-oxidizing Archaea to Nitrification in Acid Soils Jizheng He1 and Zhihong Xu1 1Chinese Academy of Sciences, China; 2Griffith University, Australia

O9-2 14:10 Innovative Approaches and Technologies to Assess N2O Emissions from Forest Ecosystems, with Examples from South China Jan Mulder1, Jing Zhu2, Peter Dorschi3, Xiaoshan Zhang4, Yanhui Wang5 and Lei Duan6 1Norwegian University of Life Sciences, Norway; 2Research Center for Eco-Environmental Sciences (RCEES-CAS), China; 3Chinese Academy of Forestry, China; 4Tsinghua University, China

O9-3 14:30 The North American Long-term Soil Productivity Experiment: Findings from a Long-term, Large-Scale Study Robert Powers1, Mary Beth Adams2, Robert Fleming3, Andrew Scott4, Deborah Page-Dumroese5, David Morris6 and Shannon Berch7 1USDA Forest Service, retired, USA; 2USDA Forest Service, USA; 3Canadian Forest Service, Canada; 4Ontario Ministry of Natural Resources, Canada; 5British Columbia Ministry of Forests and Range, Canada

O9-4 14:50 Continuous Measurement of Vertical Distribution of CO2 Concentration and Its Isotopic Signature in a Beech and a Pine Forest Soil Stephan Wirth1 and Hubert Jochheim Leibniz-Centre for Agricultural Landscape Research (ZALF), Germany

O9-5 15:10 Stress Distribution under Forest Machinery and Consequences on Physical Soil Functions Roland Riggert1, Heiner Fleige and Rainer Horn Institute of Plant Nutrition and Soil Science, Germany

Oral Session No. 10

[C3.3-1] Mobilization of Essential Micronutrients by Exudates

June 9 (Mon), 13:40 - 15:30
Convenor: Owen Duckworth (North Carolina State University, USA)/ Sara Holmström (University of Stockholm, Sweden)

O10-1 13:40 Biogeochemistry of Fe Acquisition by Phytosiderophores in the Rhizosphere Walter Schenkel1, Eva Oburger2, Yvonne Schindlger3, Stephan Hann4, Markus Puschenreiter5 and Stephan Kraemer6 1University of Vienna, Austria; 2University of Natural Resources and Life Sciences, Austria

O10-2 14:10 Siderophore Production by Soil Microorganisms Engy Ahmed7 and Sara Holmström Stockholm University, Sweden

O10-3 14:30 The Role of Root Exudates Released by Monocots and Dicots in Mobilizing Fe from Soil Minerals Rebeka Fijan1, Roberto Terzano2, Concetta Eliana Gattullo3, Fabio Valentinuzzi3, Youyi Pi1, Roberto Finton1, Nicola Tomasi1, Luca Medici2, Stefano Cesco1 and Tania Mimmo4 1Free University of Bolzano, Italy; 2University of Udine, Italy; 3University of Udine, Italy; 4CNR, Italy

O10-4 14:50 The Mechanisms of High Al Tolerance in Rhodotorula Taiwanesensis RS1 Xue Qiang Zhao, Chao Wang and Ren Fang Shen* Chinese Academy of Sciences, China
O10-5
15:10
Effect of Nitrogen Fertilization on Zinc and Iron Uptake and Yield Components of Wheat
Yadu Nath Timsina1, Bal Ram Singh1 and Espen Goavsmark2
1 Norwegian University of Life Sciences, Norway; 2 Oslo Kommune, Norway

O11-1
13:40
Spatial Stratification in Design-based Sampling for Soil Carbon Auditing
Jaap De Grujiter1, Alex Mcbratney2 and Budiman Minasny2
1 Wageningen University, Netherlands; 2 The University of Sydney, Australia

O11-2
14:10
Soil Carbon Sequestration in the Carbon Richest Region in the Conterminous USA
Xiong Xiong1, Sabine Grunwald1, D. Brenton Myers2, Willie G. Harris1 and Nicolas B. Comerford1
1 University of Florida, USA; 2 University of Missouri, USA

O11-3
14:30
Quantification and Mapping of Vertical Soil Organic Carbon Distribution as a Function of Land Use and Soil Form, with a View to Carbon Accounting
Liesel Wiese1, Ignacio Ros1, Andrei Rozanov2, Adriana Boshoff1, Willem De Clercq1 and Thomas Seifert1
1 Agricultural Research Council - Institute for Soil, Climate and Water, South Africa; 2 Stellenbosch University, South Africa

O11-4
14:50
Soil Organic Carbon Stocks under Pasture Atlantic Forest in Rio de Janeiro State, Brazil
Joyce Monteiro1, Mauricio Coelho1, Ademir Fontana1, Helga Hissa2, Ana Carolina Goulart1 and Marcelo Costa2
1 Embrapa, Brazil; 2 Secretary of agriculture and livestock of the state of Rio de Janeiro (SEAPEC), Brazil; 3 Federal Rural University of Rio de Janeiro (UFRJ), Brazil

O11-5
15:10
Soil Carbon and Nutrient Status of Soils under Secondary Forest Transformations in Leyte Island, Philippines
Pearl Aphrodite Carnice and Suzette Lina*
Eastern Visayas State University, Philippines

Oral Session No. 11

202 (2F)

[C1.5-1] Validation of Soil Carbon Sequestration
June 9 (Mon), 13:40 - 15:30
Convenor: Sabine Grunwald (University of Florida, USA)/ A-Xing Zhu (University of Wisconsin-Madison, USA)

Oral Session No. 12

Halla A (3F)

[C2.2-1] Biogeochemical Reactivity of Soils and Sediments: Molecular Process Control over Material Flux at Field Scales
June 9 (Mon), 13:40 - 15:50
Convenor: Steven A. Banwart (The University of Sheffield, United Kingdom)/ Jon Charover (University of Arizona, USA)

O12-2
14:10
Hierarchy of Two Drivers of Soil Organic Matter Biodegradation: Microbial Habitat Properties Versus Microbial Communities
Sabrina Juarez*, Naoise Nunan*, Valerie Pouteau*, Thomas Lerch* and Claire Chenu*
1 Upmc, France; 2 Cnrs, France; 3 Inra, France; 4 Upec, France; 5 AgroParisTech, France

O12-3
14:30
Shedding Light on Soil Organic Matter-mineral Associations: Their Role in Carbon Cycling and Sequestration in the Terrestrial Environment
Donald Sparks and Chunmei Chen
University of Delaware, USA

O12-4
14:50
Mercury and Sulfur Cycling in a Peatland Soil Warming and Carbon Dioxide Enhancement Study: Sulfur Speciation at Time-zero
Brandy Toner, Olha Furman, Randall Kolka, Edward Nater and Stephen Sebestyen
1 University of Minnesota, USA; 2 USDA Forest Service, USA

O12-5
15:10
The Effect of Microbial Diversity on Soil Organic Carbon Fractionation Highlighted by a 13C-Labelling Technique
Julien Guigue*, Olivier Mathieu, Pierre-Alain Maron*, Lionel Ranjard, Aurelie Kaisermann and Jean Leveque
1 Universite de Bourgogne, France; 2 University of Manchester, United Kingdom

O12-6
15:30
Fe/Al Oxides Can Act as Natural Anti-acidification Agents in Variable Charge Soils
Jiuyu Li and Renkou Xu*
Chinese Academy of Sciences, China

Oral Session No. 13

Halla B (3F)

[C1.1-2] Interactions between Soil Structure, Living Organism and Organic Matter
June 9 (Mon), 13:40 - 15:30
Convenor: Farhad Khormali (Gorgan University of Agricultural Sciences and Natural Resources, Iran)/ Rosa M Poch (Universitat de Lleida, Spain)

O13-1
13:40
Fertilisation with Pig Slurry Affects the Pore Size Distribution of Soils
Angela-D. Bosch-Serra*, Merce Molner and Rosa Maria Poch
Universitat de Lleida, Spain

O13-2
14:10
The Use of Pb Labelling and Sem to Investigate Organic Matter in Thai Soil Microaggregates
Punyisa Trakoonyingcharoen1, Robert J. Gilkes2 and Kumut Sangkhlas1
1 Kamphaeng Saen Kasetsart University, Thailand; 2 The University of Western Australia, Australia

O13-3
14:30
Interactions between Soil Structure and Soil Organic Matter: Contribution of Pedofauna Activity
Laura Gardigulo*, Giacomo Mele*, Gilda Buscemi*, Ottavio Soppelsa* and Fabio Teribile*
1 National Research Council (CNR), Italy; 2 University of Naples ‘Federico II’, Italy
Oral Session No. 14
Samda (3F)

[IDS12] Development of Agricultural Technology and Contribution for World Food Welfare

June 9 (Mon), 13:30 - 18:30
Moderator: Kangho Jung (National Academy of Agricultural Science, Korea)

13:30 Introduction

O14-1 14:00 The Critical Role of Soils in Preserving and Enhancing a Sustainable World
Donald Sparks
University of Delaware, USA

O14-2 14:20 Earth Observation for Monitoring Agriculture: FAO’s Global Information and Early Warning System (GIEWS)
Oscar Rojas
Climate Impact, Adaptation & Environmental Sustainability Team, FAO-UN, Italy

O14-3 14:40 The Role of Soil Scientists in Addressing Global Issues of the Anthropocene and Climate Strategic Agroecosystems
Rattan Lal
The Ohio State University, USA

O14-4 15:00 Strategy of Land Utilization for Environmentally Sustainable Agriculture
Winfried Blum
BOKU University Vienna, Austria

O14-5 15:40 Development and Utilization of Indicators to Manage Soil and Environmental Resources
Chia-Hsing Lee, Chun-Chi Tsui, Hong-Yuh Guo and Zueng-Sang Chen
National Taiwan University, Taiwan; Taiwan Agricultural Research Institute, Council of Agriculture, Taiwan

O14-6 16:00 Strategies to Prevent Soil from Pollution and Degradation
Owen Duckworth
North Carolina State University, USA

O14-7 16:20 Reinforcing Agro-material Industries to Maintain Soil Fertility and Crop Production
Mizuhiko Nishida
NARO Tohoku Agricultural Research Center, Japan

O14-8 16:40 Management of Soil and Nutrients Considering Soil Spatial Variation
Jeff Novak
USDA-ARS-CPRC, USA

17:00 Utilization of Korean Soil Information System-heulg-to-ram for Research-extension-network in Agriculture
Deogbae Lee* and Kangho Jung
National Academy of Agricultural Science (NAAS), RDA, Korea

17:30 Discussion

Oral Session No. 15
401 (4F)

[C4.1-2] Environmental Management of Post-Epidemic Carcass Burial Sites

June 9 (Mon), 13:40 - 15:30
Convenor: Geonha Kim (Hannam University, Korea)/Kwon-Rae Kim (Gyeongnam National University, Korea)

O15-1 13:40 Disinfection Effects of Calcium Oxide (cao) on Pathogenic Microorganisms in Leachate from Infected Livestock Carcass Burial Sites
Seungho Yu*, Jiyoung Seo, Seok Mun Cha and Taehun Kim
Korea Atomic Energy Research Institute, Korea

O15-2 14:10 Determining Leaching Possibility of Carcass Leachate in Groundwater
So Hee Jung, Young Gyu Hong, Gun Ha Kim and Sung Chul Kim
1Chungnam National University, Daedeon, Korea; 2Hannam University, Korea

O15-3 14:30 Invasive Plant-derived Biochar Inhibits Sulfamethazine Uptake by Lettuce in Soil
Anushika Upamali Rajapaksha1, Methithika Vithanage2, Jung Eun Lim1, Mohamed Bedair Ahmed2, Ming Zhang3, Sang Soo Lee1 and Yong Sik Ok4
1Kangwon National University, Korea; 2Institute of Fundamental Studies, Sri Lanka; 3National Research Center, Egypt; 4China Jiliang University, China

O15-4 14:50 Application of Woody Tree based Phyto remediation Technique to Remove N and P from Soil: Implication for Cleaning up the Livestock Burial Sites
Byoung-Hwan Seo1, Junsik Bae2, Kye-Hoon Kim3 and Kwon-Rae Kim4
1Gyeongnam National University of Science and Technology, Korea; 2University of Seoul, Korea

O15-5 15:10 Characteristics of Some Technosols Developed on Oil Refinery Waste Materials
Ahmad Heidari* and Paria Asadi
University of Tehran, Iran

Oral Session No. 16
402 (4F)

[C2.3-1] Modern Soil Biology for N and C Transformation: From Genes to Ecosystems

June 9 (Mon), 13:40 - 15:30
Convenor: Kiwamu Minamisawa (Tohoku University, Japan)

O16-1 13:40 Denitrifying Microbial Community in Agricultural Soil: Key Players involved in N2O Generation and Elimination
Keishi Senoo*, The University of Tokyo, Japan
Oral Session No. 20

[IDS2] Global Soil Partnership
June 10 (Tue), 10:10 - 12:40
Convenor: Ronald Vargas (Food and Agriculture Organization of the United Nations - FAO, Italy)

O20-1 10:10 The Intergovernmental Technical Panel on Soils (ITPS)
Luca Montanarella* European Commission, Italy

Liesl Wiese* and Ronald Vargas1
1Agricultural Research Council - Institute for Soil, Climate and Water, South Africa; 2Global Soil Partnership Secretariat, FAO (Food and Agriculture Organization), Italy

O20-3 11:00 Changing Soil Science Education for Confronting Challenges
Milhka Aulakh*
MSK University of Agriculture & Technology, India

O20-4 11:20 Pillar Two of the Global Soil Partnership, from Concept to Endorsement
Willie Towers*, Arwyn Jones1 and Gabriele Broll1
1The James Hutton Institute, United Kingdom; 2European Commission, DG Joint Research Centre, Institute for Environment & Sustainability, Italy; 3University of Osnabrueck, Germany

O20-5 11:40 The Challenges for the Eurasian Soil Partnership
Pavel Krasilnikov*, Moscow State University, Russia

O20-6 12:00 Globalsoilmap’s Oceania Node: Towards the First Node Version of a Finescale Soil Grid
Mike Grundy*, Allan Hewitt, Alex McBratney1, Muhrizal Sarwani2 and Inoke Ratukalou3
1CSIRO, Australia; 2Landcare Research, New Zealand; 3The University of Sydney, Australia; 4Indonesian Centre for Agricultural Land Resources Research and Development, Indonesia; 5Secretariat of Pacific Community, Fiji

Oral Session No. 21

[IDS7] The Soil Health: Human Health Nexus
June 10 (Tue), 10:10 - 12:40
Convenor: Ian Pepper (University of Arizona, USA)/ Sally Brawn (University of Washington, USA)

O21-1 10:10 The Soil Health-human Health Nexus
Ian L. Pepper*
University of Arizona, USA
O21-2 10:40 Urban Agriculture-ground Zero for Soils and Human Health
Sally Brown* University of Washington, USA

O21-3 11:00 Relevance of Soil Climate Variations and Microclimate for the Distribution of Ticks and Tick borne Diseases in South-West Germany
Stefan Norra1*, Denise Bohnke1, Reiner Gebhardt1, Martin Kull1, Benjamin Jondroko1, Michael Wandler1, Trevor Petney2, Patrick Sebastian2, Nina Littwin2, Miriam Paffle1, Florian Hogewind1 and Reiner Oehme2
1 Karlsruhe Institute of Technology, Germany; 2 Federal State Health Authority of Baden-Wurttemberg, Germany

O21-4 11:20 Relationship of Soil Cadmium Content and Wheat Grain Cadmium Concentration in Some Wheat Cultivated Regions of Iran
Ali Cherati3*, Jahanbakhsh Mirzavand3, Saed Rezaeian1 and Malieheh Khanlarian4
3 Soil and Water Research Institute, Iran; 4 Mazandaran School Training and Education Organization, Iran

Peng Cai*
Huazhong Agricultural University, China

O21-6 12:00 Current Status of Soil Contamination in E-waste Recycling Sites in South China
Yinxin Wu, Qingqi Lin, Yan Wu, Xiongfei Huang and Rongliang Qiu*
Sun Yat-sen University, China

O21-7 12:20 Influence of Environmental Factors on Ecology of Soils of Shivan Region of Azerbaijan
Tubukhanim Gasizmazde
Azerbaijan National Academy of Science, Azerbaijan

12:40-13:40 Lunch (Tamna B)

O22-1 13:40 The Economics of Soil in European Urban and Peri-urban Contexts
Geertrui Louwagie1*, Mark Kibblewhite2 and Joe Morris3
1 European Environment Agency, Denmark; 2 MK Soil Science, United Kingdom; 3 Morris Resource Economics Ltd, United Kingdom

O22-2 14:10 Assessment and Monetization of Ecosystem Services of Soils in Urban Regions for the Example of Karlsruhe
Stefan Norra1, Rongliang Qiu*, Yingxin Wu, Qingqi Lin, Yan Wu, Xiongfei Huang and Fengjie Wang1
1 Karlsruhe Institute of Technology, Germany

O22-3 14:30 Carbon Capture in Urban Soils
Carla-Leanne Washbourne1, Phil Renforth1, Elisa Lopez-Capel1 and David Manning2
1 University College, United Kingdom; 2 Oxford University, United Kingdom; 3 Newcastle University, United Kingdom

O22-4 14:50 Features of Soils of Abandoned Industrial and Mining Areas for Forestry
Wolfgang Burghardt and Sibylle Herrmann
University Duisburg-Essen, Germany

O22-5 15:10 Ekranic and Urbic Technosols of Debrecen
Przemyslaw Charynski1*, Renata Bednarek2, Emilia Szynkowska2 and Gabor Sandor2
1 Nicolaus Copernicus University, Poland; 2 University of Debrecen, Hungary

O23-1 13:40 Molecular Simulation Techniques for Complex Soil Systems
Chris Oostenbrink* University of Natural Resources and Life Sciences, Austria

O23-2 14:10 Visualisation and Validation of the Water Release Curve using X-ray Computed Tomography
Saoirse Tracy1*, Keith Daly1, Neil Crout1, Malcolm Bennett1, Tony Pridmore1, Ian Sinclair1, Tiina Roose1 and Sacha Mooney1
1 University of Nottingham, United Kingdom; 2 University of Southampton, United Kingdom

O23-3 14:30 Building 3D Soil Models Combining X-ray Ct and 3D Printing Technology. First Applications to a Loamy Soil
Nicola Dal Ferro and Francesco Morari*
University of Padova, Italy

O23-4 14:50 A Computerized Model of Soil Structure Integrating Biological and Physical Processes to Assess the Impact of Reduced Tillage
Alexis Le Couteux*, Guenola Peres, Cedric Wolf and Vincent Hallaire
INRA, France

O23-5 15:10 Does the Fractal Behavior of Surface Soil Water Storage Holds at Multiple Depths?
Asim Biswas
Mcgill University, Canada

[DS3] Modelling of Soil Properties and Processes - Challenges and Opportunities
June 10 (Tue), 13:40 - 15:30
Convenor: Kai Uwe Totsche (Institute for Geosciences, Germany) / Daniel Tunega (University of Natural Resources and Life Sciences, Austria)

O32-1 13:40 Molecular Simulation Techniques for Complex Soil Systems
Chris Oostenbrink* University of Natural Resources and Life Sciences, Austria

O32-2 14:10 Visualisation and Validation of the Water Release Curve using X-ray Computed Tomography
Saoirse Tracy1*, Keith Daly1, Neil Crout1, Malcolm Bennett1, Tony Pridmore1, Ian Sinclair1, Tiina Roose1 and Sacha Mooney1
1 University of Nottingham, United Kingdom; 2 University of Southampton, United Kingdom

O32-3 14:30 Building 3D Soil Models Combining X-ray Ct and 3D Printing Technology. First Applications to a Loamy Soil
Nicola Dal Ferro and Francesco Morari*
University of Padova, Italy

O32-4 14:50 A Computerized Model of Soil Structure Integrating Biological and Physical Processes to Assess the Impact of Reduced Tillage
Alexis Le Couteux*, Guenola Peres, Cedric Wolf and Vincent Hallaire
INRA, France

O32-5 15:10 Does the Fractal Behavior of Surface Soil Water Storage Holds at Multiple Depths?
Asim Biswas
Mcgill University, Canada

[DS2] A: Soil Development and Soil Properties and Functions
June 10 (Tue), 13:40 - 15:30
O24-1  13:40  Evolution of Soil Functionality in Natural and Artificial Soil Systems  
Ingrid Koegel-Knabner*, Cordula Vogel, Geertje Johanna Pronk, Katja Heister, Carsten W. Mueller and Carmen Hoeschen  
Technische Universitaet Muenchen, TUM, Germany

O24-2  14:10  Changes in Soil Properties due to Afforestation of Former Agricultural Lands in the Boreal-nemoral Zone  
Raimonds Kasparinsks*, Olgers Nikodemus, Nauris Rolavs and Anda Ruskule  
University of Latvia, Latvia

O24-3  14:30  Effects of the Mound-building Termite (Macrotermes bellicosus) on Iron (Oxyhydr) oxide Mineralogy in Highly Weathered Tropical Soils  
Shin Abe  
Kinki University, Japan

O24-4  14:50  Initial Stage Processes of Soil Development  
Processes observed by a Field Experiment  
Bin Zhang, Na Li, Shuahong Yao*, Yanli Lu and Xiaoxing Han  
1 CAAS, CAS, China; 2 CAS, China; 3 CAAS, China; 4 Shandong Agricultural University, China

O24-5  15:10  The Parental Source of the Terra Rossa like Soils on the Liuchiyu Island, Taiwan  
Heng Tsai**, Wen-Shu Huang1, Shiu-Hsuan Huang2 and Zeng-Yi Hseu3  
1 National Chianghua University of Education, Taiwan; 2 National Taichung University of Education, Taiwan; 3 National Pingtung University of Science and Technology, Taiwan

O25-1  13:40  Management Options to Control Methane Emissions from Rice Paddy Soils  
Kazuyuki Yagi  
National Institute for Agro-Environmental Sciences, Japan

Ramya Thangarajan*, Nanthi S Bolan, Guanglong Tian1, Ravi Naidu1 and Anitha Kunhirishnan1  
1 University of South Australia, Australia; 2 Metropolitan Water Reclamation District of Greater Chicago, USA; 3 National Academy of Agricultural Science, Korea

O25-3  14:30  Life-cycle Analysis of Dryland Greenhouse Gases Affected by Cropping Sequence and Nitrogen Fertilization  
Upendra Sainju*, William Stevens and Thcan Caesar-Tonthat  
USDA, Agricultural Research Service, USA

O25-4  14:50  Eddy-covariance Measurements of CH4 and CO2 Fluxes from a Reed-covered Fen in Southwest Germany  
Thilo Streck  
University of Hohenheim, Stuttgart, Germany

O25-5  15:10  Carbon Dioxide Emissions and Soil Properties in Intact and Disturbed Tropical Peatlands of Indonesia  
Louis Pierre Comeau*, Kristell Hergoulach1, Jo Smith, Louis Verchoit and Jodie Hartill1  
1 University of Aberdeen; Center for International Forestry Research, Canada; 2 Center for International Forestry Research, Indonesia; 3 University of Aberdeen, United Kingdom

Oral Session No. 25

[C2.5-3] A: Mechanism Controlling Greenhouse Gas Emissions from Soils  
* Co-organized by Systems & Synthetic Agrobiotech Center

June 10 (Tue), 13:40 - 15:30  
Convenor: Pil Joo Kim (Gyeongsang National University, Korea)/ Paul Bodelier (Netherlands Institute of Ecology, Netherlands)

O25-1  13:40  Understanding Emergent Responses of Soils to Environmental Change: What Do We Know about Upscaling?  
Philippe Baveye1, Wilfred Otten2, Ruth Falconer2, Simona Hapca3 and Edith Perrier4  
1 Rensselaer Polytechnic Institute, Troy, USA; 2 Abertay University, United Kingdom; 3 IDR, Bondy, France

O25-2  14:10  Mechanism of Increase in Hydrophobicity of a Forest Andisol by Thermal Impact  
Taku Nishimura*, Hiromi Imoto and Masaru Mizoguchi  
The University of Tokyo, Japan

O25-3  14:30  Effect of Soil Type and Bulk Density on the Stem and Root Lodging Resistance of Wheat  
Nyaz Sulaiman* and Mitch Crook*  
Harper Adams University, United Kingdom

O25-4  14:50  Spatial Variability of Crop Yield on an Eroded Silt Loam Soil with Varying Depth to Root Restrictive Layer  
Francisco Arriaga and Birl Lowery  
1 University of Wisconsin-Madison, USA; 2 Federal University of Santa Maria, Brazil

O25-5  15:10  Soil Structure and Its Functions in Ecosystems: Scale Matter & Phase Matter  
Xinhua Peng* and Hu Zhou  
Institute of Soil Science, China

Oral Session No. 27

[C1.1-1] The Role of Environment on Soil Formation: Morphological Indicators

June 10 (Tue), 13:40 - 15:30  
Convenor: Daniela Sauer (Dresden University of Technology, Germany)/ Curtis Monger (New Mexico State University, USA)
Oral Session No. 29

Halla B (3F)

[C2.4-1] Mineralogy and Reactivity of Soil Microsites

June 10 (Tue), 13:40 - 15:50
Convenor: Dean Hesterberg (NC State University, USA) / Markus Grafe (Universidad de las Americas, Ecuador)

O28-1
13:40
Droughts and Climate Change in Bulgaria: Assessing Maize Crop Risk and Irrigation Requirements in Relation to Soil and Climate Region

Zornitsa Popova*, Maria Ivanova, Vesselin Alexandrov, Luis Pereira, Milena Kercheva, Katerina Doneva and Diogo Martins

Institute of Soil Science Agrotechnology and Plant Protection N.Poushkarov, Bulgaria; National Institute of Meteorology and Hydrology, Bulgaria; 1 Technical University of Lisbon, Portugal

O28-2
14:10
Effect of Mulching on Dryland Soil Water, Winter Wheat Yield, and Water Use Efficiency

Jun Wang*, Wenzhao Liu, Quanquan Liu and Upendra M. Sainju

Northwest University, China; 2 CAS & MWR, China; 3 Northern Plains Agricultural Research Lab, USDA-ARS, USA

O28-3
14:30
"Fallow Band System", a Do-nothing Practice for Controlling Desertification and Improving Crop Production in the Sahel, West Africa

Kenta Ikazaki*, Hitoshi Shinojo, Ueet Tanaka, Satoshi Tobita, Shinya Funakawa and Takashi Kosaki

Tokyo Metropolitan University, Japan; Tokyo University, Japan; Research Institute for Humanity and Nature, Japan; Japan International Research Center for Agricultural Sciences, Japan

O28-4
14:50
Soil Infrastructure Evolution and Its Effect on Water Transfer Processes under Contrast Tillage Systems

Nargish Parvin*, Marie Chelin, Marie-Pierre Hiel, Sarah Garre, Bernard Bodson and Aurore Degre

Gembloux Agro-Bio Tech, Belgium

O28-5
15:10
Soil Hydraulic Properties and Moisture Regime as Affected by Agronomic Management Practices in a Clayey Ultisol

Jiazhou Chen* and Lirong Lin

Huazhong Agricultural University, China

Oral Session No. 28

Halla A (3F)

[C3.5-1] Water Conservation Technologies and Impacts on Sustainable Dry Land Agriculture

June 10 (Tue), 13:40 - 15:30
Convenor: Takashi Kosaki (Tokyo Metropolitan University, Japan)

O28-1
13:40
Quantification by Image Analysis on Soil Thin Sections of Lessivage and Bioturbation Rates in Soils in Response to Land Use Change and Recycling of Organic Residues

Ophelie Sauzet*, David Montagne, Cecilia Cammas, Jean Marc Gilliot and Manon Bajard

AgroParisTech, France

O28-2
14:10
Identification of Relict Carbonate Pedofeatures in Modern Chernozems

Irina Koval*; Evgeny Morgun, Sergey Oleynik, Marina Lebedeva* and Vasilii Shishkov

1 Institute of Geography, Russia; 2 Moscow State University, Russia; 3 Princeton University, USA; 4 Dokuchaev Soil Institute, Russia

O28-3
14:30
Isotopic Techniques applied to Environmental Changes in Histosols in Itatiaia National Park, Brazil

Paula Fernanda Soares, Lucia Helena Cunha Dos Anjos, Luiz Carlos Ruiz Pessenda* and Marcos Gervasio Pereira

1 Federal Rural University of Rio de Janeiro, Brazil; 2 University of Sao Paulo, Brazil

O28-4
14:50
Effects of Anthropogenic Interventions on the Environments of Al-Khoud Dam Area in a Dry Region of Oman

Said Al-Ismaily, Ali Al-Maktoumi, Anvar Kacimov, Hamad Al-Busaidi and Said Al-Saqri

Sultan Qaboos University, Oman

O28-5
15:10
Digital Soil Mapping and Classification for Sustainable Crop Cultivation in Northeast, Akwa Ibom State, Nigeria Using Digital Elevation Model and Geographical Information System

Udeme Akpan

University of Uyo, Nigeria

O29-1
13:40
Synchrotron-based Xas, Nanosims, and Afm Microscopy as Novel Tools to Assess Micro- and Nanosite Mineralogy and Reactivity of Soils and Soil Particles

Joerg Prietzel*, Florian Werner, Ingrid Koegel-Knabner, Carsten Mueller, Carmen Hoeschen, Kai Uwe Totsche* and Karin Eusterhues

1 Technische Universitaet Muenchen, Germany; 2 University Jena, Germany

O29-2
14:10
Characterisation of Carnotite Grain and Cement Boundaries using Micro Xrd and Xanes Analyses

Markus Grafe*, Ryan Tappero, Caroline Johnson and Jian Li

Commonwealth Scientific Industrial Research Organisation, Australia; 1 Brookhaven National Laboratory, USA

O29-3
14:30
Phosphate Effects on Cadmium(ii) Sorption to Ferrihydrite

Charlotta Tiberg*, Ingmar Persson and Jon Petter Gustafsson

Swedish University of Agricultural Sciences, Sweden

O29-4
14:50
Dissolution of Phosphate-adsorbed Goethite by Desferrioxamine B

Priscila Ung and Jang-Hung Huang*

National Chung Hsing University, Taiwan

O29-5
15:10
Arsenic Accumulation in Soil Matrices in Relation to Microsite Composition

Dean Hesterberg*, Montserrat Fuentes, Matthew Polizotto, Joseph Guinness, Ryan Tappero, Chuanzhen Zhou*, Keith Jones* and Eva Johannes

1 North Carolina State University, USA; 2 Brookhaven National Laboratory, USA
**Oral Session No. 30**  
**[C1.5-2] Quantification and Application of Uncertainty in Pedometrics**  
June 10 (Tue), 13:40 - 15:30  
Convenor: A-Xing Zhu (University of Wisconsin-Madison, USA)/ Lin Yang (Chinese Academy of Sciences, China)  

**O30-1**  
13:40  
**How much Soil Spatial Information do We Need to Address Critical Uncertainties in Development Decisions?**  
Keith Shepherd  
World Agroforestry Centre (ICRAF), Kenya  

**O30-2**  
14:10  
**A Non-probabilistic Approach to Estimate Prediction Uncertainty with Sparse Ad Hoc Samples**  
Jing Liu* and A-Xing Zhu  
University of Wisconsin Madison, USA  

**O30-3**  
14:30  
**Changing Epistemic Uncertainties in Soil Classification and Digital Mapping**  
David Rees*, K.K. Benke and J. Hopley  
1Spatial Sciences, Australia; 2Epsom Centre, Australia  

**O30-4**  
14:50  
**Uncertainty Directed Digital Soil Mapping**  
A-Xing Zhu  
University of Wisconsin-Madison, USA  

**O30-5**  
15:10  
**Bayesian Geostatistical Modeling of Soil Organic Carbon with Uncertainty Analysis across a highly Heterogeneous Landscape**  
Xiong Xiong*, Sabine Grunwald, D. Brenton Myers, Jongsu Kim, Willie G. Harris, Nicolas B. Comerford and Nikolay Bilznyuk  
1University of Florida, USA; 2University of Missouri, USA  

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**Oral Session No. 31**  
**[C4.5-1] The Soil Underfoot: Infinite Possibilities for a Finite Resource**  
June 10 (Tue), 13:40 - 15:30  
Convenor: G. Jock Churchman (University of Adelaide, Australia)/ Masanori Okazaki (Ishikawa Prefectural University, Japan)  

**O31-1**  
13:40  
**Bread and Soil in Ancient Rome: A Vision of Abundance and an Ideal of Order based on Wheat, Grapes, and Olives**  
Bruce James*, Winfried Blum* and Carmelo Dazzi  
1University of Maryland, USA; 2University of Natural Resources and Life Sciences (BOKU), Austria; 3University of Palermo, Italy  

**O31-2**  
14:10  
**Climate Change-an Underfoot Perspective**  
Kevin Tate  
Landcare Research, New Zealand  

**O31-3**  
14:30  
**Picturing the Soil: Artistic Approaches to Raising Soil Awareness**  
Alexandra Toland* and Gerd Wessolek  
Technical University of Berlin / German Soil Science Society (DBG) Commission VIII, Germany  

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**Oral Session No. 32**  
**[C1.4-1] Marginal Soils: The Classification of Technogenic, Subaqueous, and Extraterrestrial Soil-like Bodies**  
June 10 (Tue), 13:40 - 15:30  
Convenor: John M. Galbraith (Virginia Polytechnic Institute and State University, USA)/ David C. Weindorf (Texas Tech University, USA)  

**O32-1**  
13:40  
**Pedogenic Processes in Anthropogenic Mine Soils**  
Pieter Vandevert  
North West University, South Africa  

**O32-2**  
14:10  
**Human-altered and Human-transported Soils: A Bottom-up Approach in us Soil Taxonomy**  
John Galbraith* and Joseph Chiaretti  
1Virginia Tech, USA; 2USDA-Natural Resources Conservation Service, USA  

**O32-3**  
14:30  
**Human Transported and Altered Material as a Diagnostics Key Feature for Technosol**  
Jaroslava Sobocka*, Juraj Balkovic and Zoltan Bedrna  
1Soil Science and Conservation Research Institute, Slovakia; 2Comenius University Bratislava, Slovakia  

**O32-4**  
14:50  
**Introduced Soils of Urban Areas and their Placement in the World Reference Base for Soil Resources**  
Boris Aparrin and Elena Suhkacheva  
The Dokuchaev Central Soil Science Museum, Russia  

**O32-5**  
15:10  
**Agro-management Practices on Tropical Peatland for Mitigation of Soil C Flux**  
Lulie Melling*, Angela Tang and Angelyn Kloni  
Tropical Peat Research Laboratory Unit, Malaysia  

15:30-16:20 **Coffee Break & Poster Session 2 (3F, 5F Lobby)**  

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**Oral Session No. 33**  
June 10 (Tue), 16:20 - 18:10

Convenor: Charles W. Rice (Kansas State University, USA)/Ganga Hettiarachchi (Kansas State University, USA)

O3-1 16:20 Linking Soil Health to Human Health
Charles William Rice
Kansas State University, USA

O3-2 16:50 Linking Soils to Global Food Security
Gary Pierzynski
Kansas State University, USA

O3-3 17:10 Land Take and Food Security: What We are Loosing?
Ciro Gardi, Arwyn Jones, Panos Panagos and Luca Montanarella
Joint Reserach Center - European Commission, Italy

O3-4 17:30 Sustainable Soil Fertility Improvement for Healthy Crop Production; a Panacea for Food Security
Sifau Adejumo*, Adeyinka Awoyode and Adeniyi Togun
University of Ibadan, Nigeria

Oral Session No. 34: Baekrok B (1F)

[C3.5-2] Techniques to Manage Contaminated Arable Soils
June 10 (Tue), 16:20 - 18:10

Convenor: Zueung-Song Chen (National Taiwan University, Taiwan)/Dar-Yuan Lee (National Taiwan University, Taiwan)

O3-1 16:20 Arsenic Accumulation and Speciation in Rice Grains of Various Genotypes Grown in As-contaminated Paddy Soils
Chien-Hu Syu, Pei-Yu Jiang, Chia-Chen Huang and Dar-Yuan Lee*
National Taiwan University, Taiwan

O3-2 16:50 Facilitating Remediation of E-waste Contaminated Soil by Mixed Chelants and Different Washing Schemes
Jingzi Beiyuan, Nick Siu and Dan Tsang*
Hong Kong Polytechnic University, Hong Kong

O3-3 17:10 Relevance of Soil Bioindicators for Risk Assessment, Monitoring and Soil Characterization in Contaminated Soils. Results from the French National “Bioindicators Programme.”
INRA Agrocampus Ouest UMR SAS, France; 2 UMR UFR CNRS, France; 3 ADAME, France; 4 Universite Victor Segalen Bordeaux 2, France; 5 ENS des Mines de St-Etienne, France; 6 INRA Dijon-LMSE, France; 7 Estipa (School of Agriculture Engineer), France; 8 INRA Versailles-Gifron, France; 9 Universite Rennes 1, France; 10 BRGM, France; 11 IUT de Clermont-Ferrand, France

O3-4 17:30 Sequestering a Persistent Organochlorine with Organic Fertilizer and Organic Amendment to Increase Food Safety in Martinique
Paula Fernandes*, Thierry Wignier*, Florence Clostre*, Alain Soler, Luc Rangon* and Magalie Lesueur-Jannoyer*  
CIRAD, Martinique; 3 IRD, Martinique

O3-5 17:50 Phytoremediation of Pyrene Contaminated Soils Amended with Compost and O-Mno2 and Planted with Ryegrass and Soybean
Shui Wen Chang Chien1, S.H. Chen2, Min-Chao Wang2, J.J. Chang and K. Sesaiah1  
1 Chaoyang University of Technology, Taiwan; 2 Chinese Cultural University, Taiwan; 3 Sri Venkateswara University, India

Oral Session No. 35: Yeongju A (1F)

[DS2] B: Soil Development and Soil Properties and Functions
June 10 (Tue), 16:20 - 18:10

Convenor: Martin. H. Gerzabek (University of Natural Resources and Life Sciences Vienna, Austria)/Franz Zehetner (University of Natural Resources and Life Sciences Vienna, Austria)

O3-1 16:20 Interpreting Soil Organic Matter Cycling from Radiocarbon Measurements in Soils
Susan Trumbore  
Max-Planck Institute for Biogeochemistry, Germany

O3-2 16:50 Digital Morphometrics and Rapid Pedology
Alfred Hartemink
University of Wisconsin - Madison, USA

O3-3 17:10 Changes of Soil Properties during Podzol Development in S Norway
Daniela Sauer*, Sri Svendgard-Stokke2, Ragnhild Sperstad3, Roll Sorensen3 and Markus Fuchs4  
1 Dresden University of Technology, Germany; 2 The Norwegian Forest and Landscape Institute, Norway; 3 Norwegian University of Life Sciences, Norway; 4 Justus-Liebig-University Giessen, Germany

O3-4 17:30 X-Ray Photoelectron Spectroscopy (XPS) as a Convincing Tool to Relate Changes in Wettability to Surface Chemical Composition during Soil Formation
Susanne Karoline Woche*, Marc-Oliver Goebel*, Georg Guggenberger*, Christian Schuring*, Matthias Kaestner* and Joerg Bachmann*  
Leibniz Universitaet Hannover, Germany; 2 Technische Universitaet Muenchen, Germany; 3 Helmholtz Centre for Environmental Research - UFZ, Germany

O3-5 17:50 Soil-Lt: Automatic and Continuous Determination of Shrinkage Behavior of Soils
Sebastian K. Pagenkemper*, Katja Richter*, Heinrich Unbekannt*, Manfred Seyfarth* and Rainer Horn  
University Kiel, Germany; 2 UGT GmbH, Germany

Oral Session No. 36: Yeongju B (1F)

[C2.5-3] B: Mechanism Controlling Greenhouse Gas Emissions from Soils
* Co-organized by Systems & Synthetic Agrobiotech Center
June 10 (Tue), 16:20 - 18:10

Convenor: Pil Joo Kim (Gyeongsang National University, Korea)/Yahai Lu (China Agricultural University, China)

O34-3 17:50 Phytoextraction Response of Yeongju A (1F)
[C3.5-4] Physical Restoration of Soils
June 10 (Tue), 16:20 - 18:10
Convenor: Asko Simojoki (University of Helsinki, Finland); Rainer Horn (Christian-Albrechts-Universität zu Kiel (CAU), Germany)

O38-1  16:20
Soil Deformation - How far are Physical, Chemical and Biological Processes and Soil Functions Irreversibly Affected on Various Scales, What are the Consequences for Reamendment!
Rainer Horn, Heiner Fleige and Dorte Holthuysen
Soil Science, Christian Albrechts University, Germany

O38-2  16:50
Persistent Effects of Heavy Soil Compaction on the Gas Transport Properties of a Clay Soil
Asko Simojoki*, Minna Makela, Feto Berisso, Per Schjønning, Kristiina Regina and Laura Alakukku
1 University of Helsinki, Finland; 2 Aarhus University, Denmark; 3 MTT Agrifood Research Finland, Finland

O38-3  17:10
Physical Restoration of Compacted Soils: A Lab Experiment using Rock Fragment Addition
Laura Gargiulo, Giacomo Mele, Bruno Di Matteo and Fabio Terribile
1 Institute for Agriculture and Forestry in the Mediterranean (ISAFOm), National Research Council (CNR), Italy; 2 University of Naples “Federico II”, Italy

O38-4  17:30
Physical Restoration of Eroded Soils in the Northern Great Plains (NA)
Tom E. Schumacher*, Sharon K. Papiernik, David A. Lobell, Javier Mollinedo, Rajesh Chintala and Sandeep Kumar
1 South Dakota State University, USA; 2 USDA-Agricultural Research Service, North Central Agriculture Research Laboratory, USA; 3 University of Minnesota, Canada

O38-5  17:50
Temporal Variability of Soil Physical Properties under Different Land Use Types of Clay Soil in the Mekong Delta, Vietnam
Linh Tran Ba*, Titus Ghyselinck, Khoa Le Van and Wim Cornelis
1 Gent University, Belgium; 2 Can Tho University, Vietnam

[WG4] New Approaches in Paddy Soil Management for Food Safety and Environmental Quality
June 10 (Tue), 16:20 - 18:30
Convenor: Ho Ando (Yamagata University, Japan); Yuan Shen (NCHU, Taiwan)

O39-1  16:20
Identifying Yield Limiting Soil Factors with Aids of Remote Sensing and Data Mining Techniques
Yi-Ping Wang and Yuan Shen
NCHU, Taiwan

O39-2  16:50
Root-zone Fertilization: A Key and Necessary Approach to Improve Fertilizer Use Efficiency and Reduce Non-point Pollution from the Cropland
Huoyan Wang* and Jianmin Zhou
O39-3
17:10
A Novel Trial to Combine Use of Azolla and Loach to Suppress Weed Monochoria Vaginalis and Increase Organically Farmed Rice Yield
Weiguo Cheng*, Miwa Takei, Chizuru Sato, Keitaro Tawaraya and Hironori Yasuda
Yamagata University, Japan

O39-4
17:30
Decrease in Nitrogen Fertility of Paddy Soils Induced by Paddy Rice and Upland Soybean Rotation
Mizuhiko Nishida, Koji Yoshihda and Hiroyuki Sekiya
NARO Tohoku Agricultural Research Center, Japan

O39-5
17:50
An Approach to Reduce Arsenic Uptake and Accumulation in Paddy Rice through the Selection of Rice Genotypes with High Iron Plaque Formation Capability
Dar-Yuan Lee* and Chien-Hui Syu
National Taiwan University, Taiwan

O39-6
18:10
Resource Conservation Technologies for Improved Rice Water Productivity in Indo-Gangetic Plains of India
Surinder Kukal*
Punjab Agricultural University, India

[O39.0] Convenor: Zhihong Xu (Griffith University, Australia)

O40-1
16:20
Regional Erosion Surfaces of the Midwest USA: Clues to Climatic Readjustment from Late Pleistocene Loess and Paleosols (OSI 5e-2)
Carolyn Olson*, USDA-Office of the Chief Economist, USA

O40-2
16:40
Pedosedimentary Sequences on Moscow (late Saalian) till in the Center of the Russian Plain
Alexander Makeev1, Pavel Kust1 and Marina Lebedeva2
1 M.V. Lomonosov Moscow State University, Russia; 2 V.V. Dokuchaev Soil Institute, Russia

O40-3
16:55
The Morphological and Chemical Properties of Paleosols are used as Proxies for Reconstruction of Multidirectional Paleoenvironmental Conditions in the Late Holocene for the Region Near Caspian Sea
Olga Khokhlova and Alexander Khokhlov
Russian Academy of Sciences, Russia

O40-4
17:10
The Establishment of Paleosol Reference Profile to Aid Paleoenvironment Reconstruction of Paleosols Derived from Quaternary Loess: An Example of the Fenghuangshan Profile in Chaoyang, China
Qiubing Wang, Zhongxiu Sun*, Chunlan Han and Hui Chen
Shenyang Agriculture University, China

O40-5
17:25
Magnetic Enhancement and Iron Oxides in a Fluvisoloclustrine Sediments Paleosol Sequence in Southern Italy
Claudio Colombo1, Giuseppe Palumbo1, Erika Di Iorio1, Filippo Russo1, Fabio Terblanche2, Zhaoxia Jiang3 and Qingsong Liu4
1 University of Molise v. De Sanctis, Italy; 2 Università degli Studi del Sannio, Italy; 3 Università degli Studi di Napoli “Federico II”-Via Università, Italy; 4 Chinese Academy of Sciences, China

O40-6
17:40
The Applicability of Plant Biomarkers to Reconstruct Palaeo-environments from Plaggic and Driftsand Deposits
Boris Jansen*, Jan Van Mourik, Frederique Kirkels and Karsten Kalbitz
University of Amsterdam, Netherlands

O40-7
17:55
A New Method for DNA Extraction from Allophanic Soils and Paleosols on Tephra: Insights in the Search for Ancient DNA from Past Terrestrial Environments
Yi-Tuan Huang1, Ray Cursons2, David J. Lowe1, Heng Zhang3, G. Jock Churchman4, Louis A. Schipper5, Nicolas J. Rawlence6 and Alan Cooper7
1 University of Waikato, New Zealand; 2 University of Adelaide, Australia; 3 University of Otago, New Zealand

[C4.2-1] Linking Forest Management and Soil Processes to Ecosystem Productivity and Functions
June 10 (Tue), 16:20 - 18:10
Convenor: Zhihong Xu (Griffith University, Australia)

O41-1
16:20
Is There a Role for Forest Management to Increase Carbon Sequestration and Ecosystem Services? Scott X. Chang*, Zhihong Xu* and Peikun Jiang*
1 University of Alberta, Canada; 2 Griffith University, Australia; 3 Zhejiang A & F University, China

O41-2
16:50
Forest Restoration Potential using Ecological Site Descriptions
Travis Nauman1, 2, Jason Teets1, James Thompson2, James Belf1, Henry Lieberrmann1 and Aaron Burkholder1
1 West Virginia University; USDA, USA; 2 USDA Natural Resources Conservation Service, USA; 3 West Virginia University, USA

O41-3
17:10
Carbon Stock Measurement to Evaluate Ecosystem Service from Carbon Sequestration
Joyce Monteiro1, Helga Hissa1, Mauricio Coelho1, Ademir Fontana1, Kenny Fonseca1, Marcelo Costa1 and Ana Carolina Goulart1
1 Embrapa Soil, Brazil; 2 SEAPES, Brazil; 3 University Federal Fluminense (UFF), Brazil; 4 Secretary of agriculture and livestock of Rio de Janeiro State (SEAPES), Brazil; 5 Federal Rural University of Rio de Janeiro (UFRJ), Brazil

O41-4
17:30
Soil Approaches for Intelligence and Evidence in Forensic Case Work
Lorna Dawson1, The James Hutton Institute, United Kingdom

O41-5
17:50
Soil Surface Assessment under Plantation Forest in South Sumatra using Landscape Function Analysis Procedure
Dwi Setyawati1
1 Sriwijaya University, Indonesia

[C1.3-2] Volcanic Soils: Distinctive Properties and Management

O42-1
17:40
The Applicability of Plant Biomarkers to Reconstruct Palaeo-environments from Plaggic and Driftsand Deposits
Boris Jansen*, Jan Van Mourik, Frederique Kirkels and Karsten Kalbitz
University of Amsterdam, Netherlands

O42-2
17:55
A New Method for DNA Extraction from Allophanic Soils and Paleosols on Tephra: Insights in the Search for Ancient DNA from Past Terrestrial Environments
Yi-Tuan Huang1, Ray Cursons2, David J. Lowe1, Heng Zhang3, G. Jock Churchman4, Louis A. Schipper5, Nicolas J. Rawlence6 and Alan Cooper7
1 University of Waikato, New Zealand; 2 University of Adelaide, Australia; 3 University of Otago, New Zealand

Oral Session No. 41
Halla B (3F)

Oral Session No. 42
401 (4F)
June 12 (Thu), 10:10 - 12:40
Convenor: Yong Sik Ok (Kangwon National University, Korea)/ Genxing Pan (Nanjing Agricultural University, China)/ Sophie Minori Uchimiya (USDA-ARS, USA)

O43-1 10:10 Influence of Dissolved Organic and Inorganic Compounds on the Function of Biochar in Amended Soils
Minor Uchimiya
USDA-ARS Southern Regional Research Center, USA

O43-2 10:20 Pyrolytic Temperature Affects Sulfamethoxazole Adsorption by Plant-derived Biochars
Baoshan Xing1, Zhenyu Wang1, Hao Zheng2 and Xinghua Su3
1University of Massachusetts, USA; 2Ocean University of China, China; 3Qingdao Biochar Environmental Bioengineering Co, Ltd, China

O43-3 10:30 Biochar in Zambia, Indonesia, Malaysia and Nepal: Biochar Technologies, Mechanistic Field Trials, and Socio-economic Aspects
Gerard Cornelissen1, Sarah Hale1, Vegard Martinsen2, Jan Mulder2 and Magnus Sparrevik2
1Norwegian Geotechnical Institute, Norway; 2University of Life Sciences, Norway

O43-4 10:40 Effect of Biochar Amendment on Greenhouse Emissions from Rice Paddy and Sugarcane Soils in the Subtropical Region of USA
Changyoon Jeong, Jim Wang and Dustin Harrell
Louisiana State University, USA

O43-5 10:50 Effect of Bamboo and Rice Straw Biochars on the Bioavailability of Cd, Cu, Pb and Zn in Soils
Kouping Lu1, Xing Yang1, Jiajia Shen1, Brett Robinson2, Dan Liu1 and Hailong Wang1
1Zhejiang A & F University, China; 2Lincoln University, New Zealand

O43-6 11:00 Groundwater Pollution Potential and Greenhouse Gas Emission from Soils Amended with Different Swine Biochars
Kyoung S Yoon
USDA-ARS, USA

O43-7 11:10 Evaluation of Biochar as a Medium for Underground Reactive Barrier to Attenuate Chemicals from Agricultural Drainage
Jaehoon Lee1, Andrew Sherfy, Forbes Walker, Andrea Ludwig, John Buchanan and Neal Eash
University of Tennessee, USA

O43-8 11:20 Biochar and DCD Effect on Nitrogen Dynamics in Soils Amended with Organic Amendments
Ramva Thangarajan1, Nanthi S Bolan, Sanchita Mandal and Ravi Naidu
University of South Australia, Australia

Oral Session No. 44
Yeongju A+B (1F)

[IDS11] Nanotechnologies in Environmental Soil Science
June 12 (Thu), 10:10 - 12:40
Convenor: Man Park (Kyungpook National University, Korea)/ Sridhar Komarneni (The Pennsylvania State University, USA)

O44-1 10:10 Nanoporous Minerals, Nanophases and Nanocomposites in Environmental Soil Science
Sridhar Komarneni
The Pennsylvania State University, USA
O44-2
10:40
Release Behaviour of Fullerene Nanoparticles from Soils Amended with Sewage Sludge
Divina Navarro, Rai S. Kookana, Mike McLaughlin and Jason Kirby
CSIRO Land and Water, PMB 2, Australia

O44-3
11:00
Al and Fe Nanominerals Dominate Organic Carbon Preservation in Soil
Jian Xiao
Nanjing Agriculture University, China

O44-4
11:20
Nanoscale Chemical Analyses of Biochar from Ancient Amazonian Anthroposols
1National Institute of Metrology, Quality and Technology (Inmetro), Brazil; 2Universidade Federal do Rio de Janeiro, Brazil; 3Universidade Federal do Rio Grande do Sul, Brazil; 4National Institute for Research in Amazonia (INPA), Brazil; 5Universidade Federal de Minas Gerais, Brazil; 6ETH Zurich, Switzerland; 7Universidade Federal do Rio de Janeiro, Brazil

O44-5
11:40
New Biofilter Media Modified with Nano-engineered Metal-organosilica Hybrid Composites: an Innovative Solution for Remediation of Stormwater Runoff and Prevention of Soil Pollution
Han-bae Yang1 and Paul Edmiston2
1ABSMaterials, Inc, USA; 2The College of Wooster, USA

O44-6
12:00
Bacterial Biofilms (Extracellular Polymeric Substances): Role in Geosorbs Mobility and Reactivity
Sneha Pradip Narvekar* and Kai Uwe Totsche
Institute of Geosciences, Germany

O44-7
12:20
Evaluation of Phytotoxicity Effects of Nano Zero-valent Iron (nZVI) on Plants Growth in Soil Culture; Seed Germination, Chlorophyll, Carbohydrates
Jae-Hwan Kim, Hak-Won Yoon, Chung-Seop Lee, Da-Som Oh and Yoon-Seok Chang*
POSTECH, Korea

O45-1
10:10
Soils, Land Use and Heat
Gerd Wessolek, Bjorn Kluge, Thomas Nehls, Andre Peters and Steffen Trinks
Berlin University of Technology, Germany

O45-2
10:40
On the Relation between Soils and Climate
Alfred Hartemink
University of Wisconsin - Madison, USA

O45-3
11:10
Numerical Modeling of Vadose Zone Processes using Hydrus and its Specialized Modules
Jirka Simunek*, Miroslav Sejna, Diedrik Jacques3, Guenter LANGERGRABER, Scott A. Bradford* and M. Th. Van Genuchten

O45-4
11:20
Monitoring and Mathematical Modeling of Water and Thermal Regime of Urban Soil Influenced by Various Surface Covers
Radka Kodesova*, Miroslav Fer, Antonin Nikodem, Ales Klement, Pavel Neuberger and Petr Bures
1Czech University of Life Sciences Prague, Czech Republic; 2VESKOM, Ltd, Czech Republic

O45-5
11:40
A New Technology to Secure a Congruent Temperatue Regime inside the Lysimeter Vessel and the Surrounding Soil
Sascha Reth1, Katja Richter2, Ralph Meißner2, Jozef Gubis3 and Ivan Matusek2
1Umwelt-Gerate-Technik GmbH, Germany; 2HELMHOLTZ Centre for Environmental Research, Germany; 3Agrosystems PS Piestany, PPRI, Slovakia; 4EKOSUR, Slovakia

O45-6
12:00
Long Term Trends in Some Australian Soil Temperature Records
John Knight*, Budiman Minasny1, Alex Mcbratney2, Terry Koen2 and Brian Murphy3
1The University of Sydney, Australia; 2Office of Environment and Heritage, Australia

O45-7
12:20
Quantifying Small-scale Variability in Water Storage and Root Water Uptake on the Edwards Plateau, Texas
Ieyasu Tokumoto
Saga University, Japan

Oral Session No. 46
Halla A+B (3F)

[IDS8] Soils, Land Use and Heat

June 12 (Thu), 10:10 - 12:40
Convenor: Wolfgang Burghardt (University of South Australia, Germany)/ Ralph Meissner (Helmholtz Centre for Environmental Research, Germany)

O46-1
10:10
Healthy Soils and Soil Information: A Prerequisite for Sustainable Food Production
Moujahed Achouri
FAO.

O46-2
10:40
Global Soil Carbon Assessment
Jose Padarian, Uta Stokmann, Budiman Minasny and Alex Mcbratney*
The University of Sydney, Australia

O46-3
11:00
The Good, the Bad and the Ugly - Experiences from Trying to Establish Soil Monitoring Networks within the UK
Helaina Black*
The James Hutton Institute, United Kingdom

O46-4
11:20
Soil Health in Southern Africa and Implication on Sustainable Intensification: How much is the Gap?
Scott A. Bradford*, Andrew Stil, Job Kihara, Gift Ndengu, Powell Mponela, Keith Shepherd*, Markus Walsh* and Deborah Bosio*
International Center for Tropical Agriculture (CIAT), Malawi; 2Agroforestry Center (ICRAF), Kenya; 3Africa Soil Information Service (AFSIS), Tanzania
Oral Session No. 47

[WG9] Steps made toward a Universal Soil Classification

June 12 (Thu), 13:40 - 15:30
Convenor: Jonathan Hempel (Universal Soil Classification System Working Group, Hungary)/ Enika Michéli (Szent István University, Hungary)

O47-1
13:40
Towards a Universal Soil Classification System
Jonathan Hempel*, Erika Michéli*, Phillip Owens† and Alex Mcbratney
1 Natural Resources Conservation Service, USA; 2 Szent István University, Hungary; 3 Purdue University, USA; 4 University of Sydney, Australia

O47-2
14:10
Approaches to Define the Elements of a Universal Soil Classification System
Erika Michéli*, Vince Lang*, Phillip Owens†, Jon Hempel*, and Alex Mcbratney
1 Szent István University, Hungary; 2 Purdue University, USA; 3 USDA NRCS, USA; 4 University of Sydney, Australia

O47-3
14:30
Toward a Global System of Soil Horizon Nomenclature
Curtis Monger*, Lucia Helena C. Anjos*, Gelain Zhang†, Sergey Goryachkin*, Ben Harms, Peter Schad†, Catherine Fox and Sonn Yeon-Kyu‡
1 New Mexico State University, USA; 2 UFRJ, Brazil; 3 Chinese Academy of Sciences, China; 4 Russian Academy of Sciences, Russia; 5 IT, Innovation and the Arts, Australia; 6 Technische Universität, Germany; 7 Agriculture and Agri-Food Canada, Canada; 8 NAAS, Korea

O47-4
14:50
Cold Soils in Universal Soil Classification
Sergey Goryachkin*
Russian Academy of Sciences, Russia

Oral Session No. 48

Baekrok A (1F)


June 12 (Thu), 13:40 - 13:50
Convenor: Ellen Kandeler (University of Hohenheim, Germany)

O48-1
13:40
The Moisture Response of Soil Microorganisms: Old Topic, Present Challenges and New Approaches
Claire Chenu*, Fernando Moyano*, Naoise Nunan†, Ruth Falconer‡, Patricia Garnier*, Olivier Monga*, Wilfred Otten*, Valerie Pot* and Xavier Raynaud*
1 AgroParisTech, France; 2 CNRS, France; 3 University of Abertay, United Kingdom; 4 INRA, France; 5 IRD, Cameroon; 6 UPMC, France

O48-2
14:10
X-Ray Tomography and in Situ Detection Technique used to Quantify Spatial Distribution of Bacteria in Soil
Archana Juyal*, Thilo Eckhorst†, Philippe Baveye‡, Ruth Falconer* and Wilfred Otten*
1 University of Abertay, Dundee, UK; 2 University of Bremen, Germany; 3 Rensselaer Polytechnic Institute, USA

O48-3
14:30
The Microbial Landscape in Soils - Biogeography of Soil Microorganisms at Different Scales
Ellen Kandeler*, Runa Boeddinghaus*, Kathleen Regan*, Franziska Ditterich†, Sven Marhan*, Christian Poil† and Naoise Nunan†
1 University of Hohenheim, Germany; 2 CNRS, France

O48-4
14:50
Soil Habitat Structure and Crop Management Influence Functional Diversity and Activity of Soil Microbiota
Vadakattu Gupta*, Lara Vallejo Roosdorp*, Ross Chapman†, Alan Mckay* and Rick Llewellyn†
1 CSIRO, Australia; 2 Wageningen University, Netherlands; 3 EconoAgronomy, Australia; 4 SARDI, Australia

O48-5
15:10
Processes and Filters Shaping Soil Microbial Diversity Assessed by High throughput Sequencing
Sebastien Tera†, Samuel Dequiedt*, Melanie Lelievre†, Virginie Nowak†, Patrick Wincker*, Corinne Crusaud*, Nicolas Saby†, Claudy Jolivet†, Dominique Arrouays†, Pierre-Alain Maron*, Lionel Ranjard* and Nicolas Cheminidin Prevost-Boure*
1 INRA-Univesite Bourgogne, France; 2 Commissariat at l’Energie Atomique (CEA), Institut de Genomique (IG), Genoscope, France; 3 INRA, France; 4 INRA-Univesite Bourgogne, AgroSup Dijon, France

Oral Session No. 49

Yeongju A (1F)


June 12 (Thu), 13:40 - 15:30
Oral Session No. 50

[201 (2F)]

[201 (2F)]

[201 (2F)]

Oral Session No. 51

21 Oral Session No. 52

21 Oral Session No. 52
OS2-1 13:40 A Heat Pulse Probe Array for Subsurface Soil Evaporation Estimates
Kashfia Ruma~n, Markus Tuller~ and Scott Jones~
1 Utah State University Logan, USA; 2 The University of Arizona, USA

OS2-2 14:10 Quantifying Evaporation from a Bare Soil Surface using an Open Top Chamber
Thomas Baumgartl*, Anne Schneider* and Sven Arnold*
1 The University of Queensland, Australia; 2 Palquis, Australia

OS2-3 14:30 Estimation of Soil Evaporation by Aerodynamic-profile Method used with Various α and β Formulations
Abdulaziz Alharbi, Qassim university, Saudi Arabia

OS2-4 14:50 Predicting Water Retention Curve from Two Point Measurement
Asim Biswas* and Hamish Cresswell
1 McGill University, Canada; 2 Commonwealth Scientific and Industrial Research Organisation, Australia

OS2-5 15:10 Partitioning of Evaporation and Transpiration in Arid Shrublands
Jianting Zhu* and Dongmin Sun*
1 University of Wyoming, USA; 2 University of Houston - Clear Lake, USA

[C4.4-1] Education and Social Awareness for Soil Science in General Public

June 12 (Thu), 13:40 - 15:30
Convenor: Teruo Higashi (University of Tsukuba, Japan)/ Jin-Ho Lee (Chonbuk National University, Korea)

OS3-1 13:40 Supply and Demand: What Australian Soil Science Students Get and What Australian Employers of Soil Scientists Want
Damien Field*, Stephen Cattle and Laura Phelps
The University of Sydney, Australia

OS3-2 14:10 Soil and Soil Science Education in the Compulsory and Vocational Education through Korean Textbooks Yeong-Sang Jung*, Jin-Ho Joo* and Eui-Do Lee*
1 Kangwon National University, Korea; 2 Chuncheon National University of Education, Korea

OS3-3 14:30 Expanding the Horizons of Soil Science to the Public
David Lindbo* and Jan Hopmans*
1 North Carolina State University and Soil Science Society of America, USA; 2 University of California, Davis and Soil Science Society of America, USA

OS3-4 14:50 Monitoring Soil Science Program for Schools
Lynette Abbott*, Robert Fitzpatrick*, Cameron Gardner* and Warwick Matthews*
1 The University of Western Australia, Australia; 2 Shenton College, Australia

OS3-5 15:10 A Global Soil Monolith Collection for Education and Advocacy on Soils of the World
Stephan Mantel
ISRIC World Soil Information, Netherlands

Oral Session No. 54
Halla B (3F)

[WG3] Understanding Acid Sulfate Soils: The Key to Their Proper Management

June 12 (Thu), 13:40 - 15:30
Convenor: Peter Österholm(AboAkademi University, Finland)/ Leigh Sullivan (Southern Cross University, Australia)

OS4-1 13:40 Characteristics of an Abandoned Peat Mining Area Underlain by a Sulfidic Subsoil
Jaakko Makela and Markku Yi-Halla*
University of Helsinki, Finland

OS4-2 14:10 Formation of Inland Saline Acid Sulfate Soils in the Saloum Region, Senegal
Aidaa Lamine Fall* and Jean-Pierre Montoroi*
1 University Assane Seck of Ziguinchor, Senegal; 2IRD, France

OS4-3 14:30 Increasing Rice Production on Soils Developed from Pyritized Coastal Sediments in the Malay Peninsula
Jusop Shamshuddin, Mohd Sufian Kang Enio, Azura Azman Elisa, Alia Jamaludin Farhana, Che Ishak Fauziah and Qurban Ali Panhwar
Universiti Putra Malaysia, Malaysia

OS4-4 14:50 Stable Sulfur Isotopes in Acid Sulfate Soils: Baseline Studies for SE Australia
Crystal Maher* and Leigh Sullivan
Southern Cross GeoScience, Australia

OS4-5 15:10 Subsurface Chemigation of Acid Sulfate Soils - a New Approach to Mitigate Acid and Metal Leaching
Sten Engblom*, Peeka Sten*, Peter Österholm*, Rainer Rosendahl* and Kjell-Erik Lall
1 Novia University of Applied Sciences, Finland; 2 Vasa University of Applied Sciences, Finland; 3 Abo Akademi University, Finland; 4 ProAgría Rural Advisory Centre of Ostrobothnia, Finland; 5 YA! Vocational Education and Training, Finland

Oral Session No. 55
Samda (3F)

[WG10] Cryosols on a Changing Planet: Properties, Processes, Regimes and Functions

June 12 (Thu), 13:40 - 15:30
Convenor: Megan Balks (University of Waikato, New Zealand)/ Hee-Myung Ro (Seoul National University, Korea)

OS5-1 13:40 Hot Issues in Cryosol Research
Dmitry Konyushkov*
V.V. Dokuchaev Soil Science Institute, Russia

OS5-2 14:10 Characterization, Classification and Distribution of Soils from the South Shetlands Archipelago, Antarctica
Felipe Nogueira Bello Simas*, Carlos Ernesto Goncalves Reynaud Schaeler*, Roberto Ferreira Machado Michel* and Marcio Rocha Francelino*
1 Universidade Federal de Vicosa, Brazil; 2 Universidade Estadual de Santa Cruz, Brazil
O55-3
14:30
Some Results of the Soil Cover Research in the Permafrost Area (West Siberia)
Victor Valdayskikh, Olga Nekrasova, Anton Uchaev and Tatiana Radchenko
Ural Federal University, Russia

O55-4
14:50
A Mechanism for Polygon Evolution on Hill Slopes in Taylor Valley, Antarctica: Evidence from OSL Dating and Micromorphology of a Typic Haplorturbel
Carol Smith1,2, Peter Almond1, Fiona Shan hun1, Andre Eger1, Jim Bockheim1,2, James Feathers3, Victoria Nall1 and Rachel Downward1
1Lincoln University, New Zealand; 2Victoria University of Wisconsin, USA; 3University of Washington, USA

O55-5
15:10
Effects of Nitrogen Addition on Soil Carbon Dynamics in the Active Layer of an Arctic Tundra Soil during Repeated Freeze-thaw Cycles
Min-Jin Lee and Hee-Myong Ro*
Seoul National University, Korea

Oral Session No. 56
401 (4F)

[WG7] Agricultural Land Management for Improving Soil Fertility and Irrigation Efficiency
June 12 (Thu), 09:00 - 18:00
Convenor: Yoo-Hak Kim (National Academy of Agricultural Science, RDA, Korea)

09:00 Introduction
09:45 Break
10:00 Bangladesh, Cambodia, Indonesia, Laos

Agricultural Land Management for Improving Soil Fertility and Irrigation Efficiency
Md. Baktar Hossain, Principal Scientific Officer (Soils), Natural Resources Management Division, Bangladesh Agricultural Research Council, Bangladesh

Sustainable Use and Management of Organic and Inorganic Fertilizers for Improving Rice Productivity in Cambodia
Soumya Pheay, Director, Department of Agricultural Land Resources Management, Ministry of Agriculture, Forestry and Fisheries, Cambodia

Improving Soil Fertility to Increase Rice Production through Promoting the Integrated Plant Nutrient Management Technology in Indonesia
Sri Rochayati, Senior Researcher, Indonesian Soil Research Institute, Indonesian Agency for Agricultural Research and Development, Ministry of Agriculture, Indonesia

A Study of Organic and Inorganic Nutrient Input Options for Lowland Rice Cropping in Lao PDR
Khonepany Donphaday, Deputy Director, Agricultural Land Management and Conservation Center, Department of Agriculture Land Management, Ministry of Agriculture and Forestry, Laos

11:50 Lunch
13:30 Mongolia, Nepal, Philippines, Sri Lanka

Agriculture Land Management for Improving Soil Fertility and Irrigation Efficiency in Mongolia
Bayarsaikhan Altangerel, Officer, Department of Crop Production Policy, Implementation and Coordination, Ministry of Industry and Agriculture, Mongolia

Water and Nutrient Management Study in Rice-Tomato Cropping System in Nepal
Surendra Prasad Srivastava, Senior Scientist/Chief, Soil Science Division, National Agriculture Research Institute, Nepal Agriculture Research Council, Nepal

Agricultural Land Management for Improving Soil Fertility in the Philippines
Florentino Monsalud, Director, Agricultural Systems Cluster, University of the Philippines Lao Banos, Philippines

Agricultural Land Management for Improving Soil Fertility and Irrigation Efficiency in Agro-Well Based Small Holder Farms in Sri Lanka
Konara Mudiyanselage Abhaya Kendaragama, Research Officer, Department of Agriculture, Ministry of Agriculture, Sri Lanka

15:20 Break
15:30 Thailand, Vietnam, Korea

Integrated Use of Fertilizers to Improve Sugarcane Productivity in Thailand
Bhavana Likhahanont, Senior Expert, Agricultural Production Science Research and Development Office, Department of Agriculture, Thailand

Fertilizer Management for Improving Rice Production and Soil Fertility in Northern Mountainous and Hilly Region of Vietnam
Rinh Pham Dinh, Researcher, Department of Soil Analysis Centre, Soils and Fertilizers Research Institute, Ministry of Agriculture and Rural Development, Vietnam

Limiting Factors for Improving Soil Fertility in Asian Countries
Yoo-Hak Kim, Senior Researcher, Division of Soil and Fertilizer, National Institute of Agricultural Science, RDA, Korea

17:00 Discussion

Oral Session No. 57
402 (4F)

[C1.2-2] Soil Data, Spatial information Systems and Interpretation Procedures
June 12 (Thu), 13:40 - 15:30
Convenor: Karl Stahr (Hohenheim University, Germany)/ Curtis Monger (New Mexico State University, USA)

057-1
13:40 Mapping Soil Microbial Diversity: A First Approximation
Elisabeth Bui
CSIRO, Australia

057-2
14:10 Central-european Digital Soil Database - The e-SOTER Methodology
Endre Dobos*, Erika Micheli1 and Laszlo Pasztor2
1University of Miskolc, Hungary; 2Szent Istvan University, Hungary; *Hungarian Academy of Sciences, Hungary
O57-4 14:50 Towards a New International Typological Data Base - Data Integration and Validation
Rainer Bartl, Josef Kozak, Michael Bock, Ulrich Schuler and Enrico Pickert
1 Federal Institute for Geosciences and Natural Resources (BGR), Germany; 2 Czech University of Life Sciences Prague, Czech Republic; 3 Sclands GmbH, Germany; 4 Ifu Institute for Environmental Observation, Germany; 5 Saxonian Agency for Environment, Agriculture and Geology (LIULG), Germany

O57-5 15:10 Spatial Variability of Electrical Conductivity of Salt-Affected Soils in Northeast Thailand
Porntip Phontusang, Roengsak Katawatin and Somsak Chaisiri
1 Khon Kaen University, Thailand; 2 Groundwater Research Center, Khon Kaen University, Thailand; 3 Thammasat University, Thailand

O57-6 (Not Presented) Hydrophysical Database for Brazilian Soils: Challenges and Perspectives
Marta Ottoni, Maria Leonor Lopes Assad and Otto Correa Rotunno Filho
1 Department of Hydrology, Geological Survey of Brazil, Brazil; 2 Federal University of Sao Carlos, Brazil; 3 Federal University of Rio de Janeiro, Alberto Luiz Coimbra Institute, Brazil

15:30-16:20 Coffee Break & Poster Session 3 (3F, 5F Lobby)

O58-1 16:20 Presenting the 3rd Edition of WRB
Peter Schad, Cornie van Huyssteen and Erika Micheli
1 Universitaet Muenchen, Germany; 2 University of the Free State, South Africa; 3 Szent Istvan University, Hungary

O58-2 16:40 The Application of WrB by the European Commission: Experiences and Future Perspectives
Luca Montanarella and Arwyn Jones
European Commission, Italy

O58-3 16:55 WRB and the Australian Soils Experience
Ben Harms, David Rees and David Morand
1 DSITIA, Australia; 2 Agriculture Group, Australia; 3 Office of Environment and Heritage, Australia

O58-4 17:10 A New Diagnostic Horizon in WRB for Anthropic Topsoils in Amazonian Dark Earths (South America)

O58-5 17:25 Classification of Technogenic Soils in WRB in the Light of Polish Experiences
Przemyslaw Charzyński, Renata Bednarek, Andrzej Greinert, Piotr Hulisz and Lukasz Uzarowicz
1 Nicolaus Copernicus University, Poland; 2 University of Zielona Gora, Poland; 3 Warsaw University of Life Sciences - SGGW, Poland

O58-6 17:40 Conceptual Development of WRB 2014 and Its Impact on the Third Soils Cartography Series in Mexico
Carlos Omar Cruz Gaistardo
Instituto Nacional de Estadística y Geografía, Mexico

O58-7 17:55 Software Tool for Deriving WRB Soil Names from National Soil Data - Potential for Further Development of WRB
Einar Eberhardt and Peter Schad
1 Federal Institute for Geosciences and Natural Resources (BGR), Germany; 2 Technische Universität München, Germany

O58-8 18:05 Towards a New International Typological Data Base - Data Integration and Validation
Rainer Bartl, Josef Kozak, Michael Bock, Ulrich Schuler and Enrico Pickert
1 Federal Institute for Geosciences and Natural Resources (BGR), Germany; 2 Czech University of Life Sciences Prague, Czech Republic; 3 Sclands GmbH, Germany; 4 Ifu Institute for Environmental Observation, Germany; 5 Saxonian Agency for Environment, Agriculture and Geology (LIULG), Germany

Oral Session No. 59 Baekrok B (1F)

[C2.3-2] B: Life in Soils - Distribution and Function of Soil Microorganisms in a Changing Environment
June 12 (Thu), 16:20 - 18:10
Convenor: Ellen Kandeler (University of Hohenheim, Germany)

O59-1 16:20 The Survival Strategy of the Soil Microbial Biomass
Philip Brookes, Sarah Kemmitt and Jianming Xu
1 Zhejiang University, China; 2 Rothamsted Research, United Kingdom

O59-2 16:50 Niche Specialisation and Differentiation of Archaeal and Bacterial Ammonia-oxidisers across Agricultural Soils in Southern Hemisphere
Sasha Jenkins, Daniel Murphy, Ian Waite and Anthony O’Donnell
The University of Western Australia, Australia

O59-3 17:10 Exoenzyme Activities across the Soil Micro-landscape: Spatial Distribution, Stoichiometry and Ecosystem Function
Haryun Kim, Naose Nunan, Dechesne Arnaud and Genevieve Grundmann
1 Pohang University of Science and Technology, Korea; 2 CNRS, France; 3 Technical University of Denmark, Denmark; 4 Universite Claude Bernard Lyon 1, France

O59-4 17:30 Water Flow Drives Small Scale Biogeography of Substrates and Soil Microorganisms - a Microcosm Study using 2,4-D as a Model Compound
Marc Pinheiro, Franzius Ditterich, Helger Page, Christian Poli, Patricia Garnier, Thilo Streck, Ellen Kandelar and Laure Vieupe Gonod
1 INRA-AGroParisTech, France; 2 University of Hohenheim, Germany

O59-5 17:50 Are Microbial Habitat Conditions or Microbial Communities the Main Drivers of Soil Organic Matter Decomposition?
Oral Session No. 60

[C2.2-2] B: Soil Organic Carbon: Dynamics, Stabilization, and Environmental Implications
June 12 (Thu), 16:20 - 18:10
Convenor: Ingrid Kögel-Knabner (Technische Universität München, Germany); Bas van Wesemael (Université catholique de Louvain, Belgium)

O60-1  16:20
A Soil-glomalin Map of France: Are Levels of Soil Protein Related to Land Use or Soil Properties?
Siobhan Staunton1, Priscila Jorge-Araujo1, Herve Quiguempoix2, Nicolas Saby2, Claude Jolivet3 and Dominique Arrouays3
1 INRA-Eco&Sols-Montpellier, France; 2 INRA-Eco&Sols-Montpellier, CNPq, Brazil; 3 INRA-Ifolsof, France

O60-2  16:50
How Do Microbial Metabolism and New Microbial Legacy Mediate Soil Carbon and Nitrogen Cycling?
Xudong Zhang1*, Hongbo He1*, Yeye Wu1 and Wei Zhang2
1 Chinese Academy of Sciences, China; 2 National Field Research Station of Shenyang Agricultural Ecosystems, China

O60-3  17:10
Uncertainty in Modelling of Soil Organic Carbon Dynamics Caused by Model Calibration Against Variable Observational Data
Zhengkui Luo1 and Enli Wang1
CSIRO Land and Water, Australia

O60-4  17:30
Investigation of the Degradation of 13C-Labeled Fungal Biomass in Soil - Fate of Carbon in a Soil Bioreactor System
Michael Schweiger1, Thomas Fester1, Anja Miltnner1 and Matthias Kaestner2*
1 Helmholtz Centre for Environmental Research, Germany
2 University of Limerick, Ireland

O60-5  17:50
Modern Approaches to the Isolation and Characterisation of Soil Humin
Michael H. B. Hayes1 and Roger S Swift2*
1 University of Limerick, Ireland; 2 University of Queensland, Australia

Oral Session No. 61

[C3.5-3] Management and Reclamation of Mining Site Soils
June 12 (Thu), 16:20 - 18:10
Convenor: Jieman Bech (University of Barcelona, Spain); Maria Manuela Abreu (Technical University of Lisbon, Portugal); Hyo-Taek Chon (Seoul National University, Korea)

O61-1  16:20
Capacity of Tamarix Africana Poirot to Colonize Contaminated Estuarine Sediments by Former Steel Industry Activities. Microcosm Assays
Sara Peres1, Maria Manuela Abreu1*, Erika Santos1 and Maria Clara F. Magalhaes1
1 Universidade de Lisboa, Portugal; 2 Universidade de Aveiro, Portugal

Oral Session No. 62

[C4.4-2] Widening the Soil Science Course to the Various Directions of Scientific and Humanistic Area
June 12 (Thu), 16:20 - 18:10
Convenor: Zueng-Sang Chen (Taiwan National University, Taiwan); Keun-Yook Chung (Chungbuk National University, Korea)

O62-1  16:20
Dirt Dialogues: An Integrated Art Exhibition, Film Program, and Emerging Dialogue at the 20th WCSS
Alexandra Tolland1* and Gerd Wessolek1
1 Technical University of Berlin / German Soil Science Society (DBG), Germany
Oral Session No. 63
202 (2F)

[C1.2-1] Pedodiversity and Ecological Services - Bridging Soil Geography and Land Use
June 12 (Thu), 16:20 - 18:10
Convenor: Reinhold Jahn (University of Halle, Germany)

O63-1 16:20  A Framework for Assessing and Reporting on Soil Assets, their State and Trend
Peter Wilson, Richenda Thackway
CSIRO, Australia

O63-2 16:50  Sustaining Ecosystem Services based on an Understanding of Pedodiversity: a Global System based on Cloud Computing, Mobile Apps and Crowdsourcing
Thomas Reinsch, Jeffrey Herrick, Jon Hempel, Keith Shepherd, David Smith, Josh Beniston and Lee Norfleet
USDA-NRCS, USA; USDA-ARS, USA; ICRAF, Kenya

O63-3 17:10  Coupled Analysis of Pedodiversity and Surface Water Diversity for Case Areas from the Developed East and Less Developed Central China
Jinlong Duan, Xuelei Zhang and Guangping Xiao
Zhengzhou University, China; Shandong Normal University, China

O63-4 17:30  Development of Ecological Site Descriptions in Coordination with Soil Survey
David Smith, Joel Brown, Brandon Bestelmeyer, George Peacock and Susan Andrews
USDA, USA

O63-5 17:50  Land-related Resource Efficiency in Europe. Focus on Soil-based Ecosystem Services
Geertru Lauriague, Mirko Gregor, Christoph Schroeder, Emanuele Mancosu, Daniel Franzelin and Florence Stoeger
European Environment Agency, Denmark; European Topic Centre for Spatial Information and Analysis, Luxembourg; European Topic Centre for Spatial Information and Analysis, Spain; European Topic Centre for Spatial Information and Analysis, Austria

Oral Session No. 65
Halla B (3F)

[WG1] Soil Monitoring for Mankind and Environment Safety
June 12 (Thu), 16:20 - 18:10
Convenor: Dominique Arrouays (INRA, France)

O65-1 16:20  Digital Mapping of Soil Change
Budiman Minasny, Alex B. Mcbratney, Dominique Arrouays, Brendan Malone and Uta Stockmann
The University of Sydney, Australia; INRA Orleans, France

O65-2 16:50  Can We Map Ecosystem Services from Soil at Regional and National Scales?
Richard Macewan
Farming Systems Research, Australia

O65-3 17:05  Soil Spectroscopy in the Africa Soil Information Service
Keith Shepherd
World Agroforestry Centre (ICRAF), Kenya
Accumulation and Distribution Patterns of Pahs and Trace Metals in Forest Floors
Xiu-Hong Yang¹, Shi-Zhong Wang, Rong-Liang Qiu, Zhi-Wen Fang, Xiong-Fei Huang and Dan Mo
Sun Yat-sen University, China

Functional Digital Soil Mapping: Methods from Southern Africa
George Van Zil and Pieter Le Roux
University of the Free State, South Africa

Interpretation of Vegetation and Topographic Features Related To Soil Types in Amazon Forest: Comparison of Two Watersheds by the Use of Remote Sensing Data and GIS
Osvaldo Jose Ribeiro Pereira¹, Celia Regina Montes¹, Yves Lucas² and Adolpho Jose Melfi³
¹NUPEGEL, CENA, Universidade de Sao Paulo, Brazil; ²PROTEE, Universite du Sud Toulon-Var, France; ³NUPEGEL, ESALQ, IEE, Universidade de Sao Paulo, Brazil

Oral Session No. 66
Samda (3F)

[WG12] Unique Contributions of Hydropedology to Integrated Soil and Water Sciences
June 12 (Thu), 16:20 - 18:10
Convenor: Henry Lin (Penn State University, USA)/ Brent Clothier (New Zealand Institute for Plant & Food Research, New Zealand)/ Xiaoyan Li (Beijing Normal University, China)/ Hans-Joerg Vogel (Helmholtz Centre for Environmental Research, Germany)

Towards the Unification of Soil Formation and Soil Functions
Henry Lin
Penn State University, USA

A View of Pedogenesis as the Co-evolution and Spatial Organisation of Soils, Landforms, Vegetation, and Hydrology
Garry Willgoose¹, Gregory Hancock¹, Dimuth Welivitiya¹, Sagy Cohen¹, Eleanor Hoby¹ and Patricia Saco¹
¹The University of Newcastle, Australia; ²The University of Alabama, USA

Hydropedological Responses to Vegetation Degradation and Recovery Processes in the Semiarid Region
Xiao-Yan Li²
Beijing Normal University, China

Water Balance Dynamics in Mixed Crop-livestock Systems of Northern Ghana: Unraveling the Interactions between Farm-level and Landscape Fluxes in the Face of Climate Change
Fred Kizito¹, Emmanuel Panyan¹, Augustine Ayantunde¹, Karbo Naminong¹, Franklin Avonroyo¹ and Justine Cordingley¹
¹International Institute of Tropical Agriculture (CIAT), Kenya; ²Council for Scientific and Industrial Research, Ghana; ³International Livestock Research Institute, Burkina Faso

The Relationship between Histosols and RiverCaptures in the Atlantic Plateau Paulista, Southeastern Brazil
Deborah De Oliveira
University of Sao Paulo, Brazil

Oral Session No. 67
Baekrok A+B (1F)

[ID55] B: Biochar Soil Amendment for Environmental and Agronomic Benefits
June 13 (Fri), 10:10 - 12:40
Convenor: Yong Sik Ok (Kangwon National University, Korea)/ Johannes Lehmann (Cornell University, USA)/ Genxing Pan (Nanjing Agricultural University, China)/ Sophie Minori Uchimiy (USDA-ARS, USA)

Biochar Stability in Soils: Mechanisms of C Sequestration and Fertility Improvements
Yakov Kuzyakov
University of Gottingen, Germany

A Classification System for Biochars Applied to Soils
Marta Camps Arbaretí¹, Jim E. Amonette², Balwant Singh³, Tao Wang³ and Hans-Peter Schmidt³
¹Massey University, New Zealand; ²Pacific Northwesy National Laboratory, USA; ³The University of Sydney NSW, Australia; ⁴Institute of Agriculture and Environment, New Zealand; ⁵Ithaka Institute, Switzerland

Assessing Long-term Impacts of Contrasting Biochars on Soil Functionality and P Availability
Lukas Van Zwieten¹,², Mark Farrell³, Mick Rose³, Flavio Fornasier³, Warwick Dougherty³, Terry Rose³, Stephen Kimber³, Josh Rust³, Stephen Morris³ and Annette Cowie³
¹NSW Department of Primary Industries, Australia; ²CSIRO, Australia; ³Monash University, Australia; ⁴Consiglio per la Ricerca e la Sperimentazione in Agricoltura, Italy; ⁵Southern Cross University, Australia; ⁶University of New England, Australia

XPS, NEXAFS and FTIR Spectroscopy of Aged Biochar in Soils
Balwant Singh¹, Cliff Johnston¹, Yunying Fang¹, Bruce Cowie¹ and Lars Thomsen¹
¹The University of Sydney, Australia; ²Purdue University, USA; ³Australian Synchrotron, Australia

Aggregate Dynamics Influenced by Biochar Addition using 13C Natural Abundance
Gayoung Yoo¹, Hyunjin Kim¹, Jong-Yun Choi¹ and Yong-Sik Ok²
¹Kyung Hee University, Korea; ²Pusan National University, Korea; ³Kwangwon National University, Korea

Impacts of Phosphorus Type and Spatial Relation to Biochar on Bean-mycorrhizal Symbioses and Crop Phosphorus Nutrition in a Degraded Acrisol
Steven Vanek¹ and Johannes Lehmann
¹Cornell University, USA

Inhibitory Effects of Biochar on Phenol Oxidase in Agricultural Soils
Heojeong Kang¹, Hangsong Lee¹, Gayoung Yoo² and Yong-Sik Ok²
¹Yonsei University, Korea; ²Pusan National University, Korea; ³Kwangwon National University, Korea

Production of Charred Plants and Subsequent their Distribution, Behavior and Function in Soils
Yukio Yanagi¹, Haruo Shindo¹ and Syusaku Nishimura¹,²
¹Yamaguchi University, Japan; ²Japan Atomic Energy Agency, Japan

18:30 - 20:00 Gala Dinner (Tamna B)
Oral Session No. 68

[IDS6] Soil Microbial Ecology under Stress and Global Climate Change

June 13 (Fri), 10:10 - 12:40

Convenor: Tongmin Sa (Chungbuk National University, Korea)/ Suppillah Sundaram (Chungbuk National University, Korea)

O68-1 10:10
Plant-fungal Interactions under Elevated CO2: Impact on Soil Organic Carbon
Shujin Hu
North Carolina State University, USA

O68-2 10:40
Integrating Omics to Understand Soil C Cycling Responses to Precipitation Variation
David Myrold1,2, Maude David3, Emmanuel Prestat1, Lydia Zeglin4, Peter Bottomley5, Robert Hettrich5, Janet Jansson6, Ari Jumpponen7, Charles Rice8, Susannah Tringe9 and Nathan Verberkmoes10
1Oregon State University, USA; 2Lawrence Berkeley National Laboratory, USA; 3Kansas State University, USA; 4Oak Ridge National Laboratory, USA; 5Joint Genome Institute, USA; 6New England Biolabs, USA

O68-3 11:00
Raising Atmospheric Carbon Dioxide: Effect on Structure of Soil Microbial Communities and Functions Related to Terrestrial N Cycle
Divyashri Baranija1,2, Edoardo Puglisi1, Maria-Teresa Ceccherini2, Anna Lavecchia1, Giacomo Pietramellara2, Luigi Cattivelli2 and Paolo Nannipieri1
1University of Florence, Italy; 2Catholic University of Piacenza, Italy; 3University of Bari, Italy; 4Agricultural Research Council, Italy

O68-4 11:20
Interactions and Feedbacks between Above and Below-ground Ecosystems under Elevated CO2 and Elevated Temperature
Catriona Macdonald1, Amit Khachane, Craig Barton, David Ellsworth, Ian Anderson and Brajesh Singh
University of Western Sydney, Australia

O68-5 11:40
The Effects of Continuous Cabbage Cropping on Soil Microbial Communities Structure
Yu Gao1 and Guanghi Xu
Shanghai Chuhui Agricultural Biotechnology Co., Ltd.; Anhui Yongda Agricultural Biotechnology Co., Ltd., China

O68-6 12:00
A Polyphasic Approach to Study Arbucellular Mycorrhizal Fungi Activity and Community Structure Changes with Respect to Soil Salinity in Saemangeum Claimed Land of South Korea
Ramasamy Krishnamoorthy1, Changgi Kim2, Parthiban Subramanian3, Gopal Selvakumar1 and Tongmin Sa4
1Chungbuk National University, Korea; 2Korea Research Institute of Bioscience and Biotechnology, Korea

O68-7 12:20
Variation in Drought Tolerance Capability of Endophytic Bacteria Isolated from Different Tissues of Chickpea
Muhammad Usman Jamshaid1, Muhammad Yahya Khan, Ana Aslam, Hafiz Naeem Asghar and Zahir Ahmad Zahir
University of Agriculture, Pakistan

Oral Session No. 69

[IDS14] From Science to Policy – is the Knowledge on Diffuse Pollution by POPs Sufficient to Support Policies

June 13 (Fri), 10:10 - 12:40

Convenor: Bernd M. Bussian (Federal Environment Agency, Germany)/ Violette Geissen (Wageningen University, Netherlands)

O69-1 10:10
Sustainable Development Goals: A Possible Instrument to Tackle Diffuse Soil Pollution?
Knut Ehlers and Bernd M. Bussian*
German Federal Environment Agency, Germany

O69-2 10:30
Polluted Ground, a Ticking Time Bomb- the Neglected Issue of Diffuse Soil Pollution
Violette Geissen
Wageningen University, Netherlands

O69-3 10:50
Comparative Study on Toxic Metal Contamination in Balu River Water in Bangladesh
M. E. Haque1, M. A. B. Faruquet2, M. A. Sattar3, M. E. Hosain2 and A. N. A. Haque1
1Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh; 2Bangladesh Agricultural University, Bangladesh

O69-4 11:05
Impact of Sea Level Rise on Contaminant Mobility and Cycling
Joshua Lemonte* and Donald Sparks
University of Delaware, USA

O69-5 11:20
Diffuse Contamination of Forest Soils: Causes, Influencing Factors and Effects
Milan Sanka1, Klara Komprdova1, Lubos Boruvka2, Jarmila Cechmankova3, Ondrej Sanka2, Radim Vacha3, Vit Sramek4 and Viera Horvathova5
1Masaryk University, Czech Republic; 2Czech University of Life Sciences in Prague, Czech Republic; 3Research Institute for Soil and Water Conservation, Czech Republic; 4Forestry and Game Management Research Institute, Czech Republic

*Corresponding Author
**Oral Session No. 70**

**IDS15 Advanced Technology on Soil Remediation in Mined Lands**

**June 13 (Fri), 10:10 - 12:40**

**Convenor: Jong-Un Lee (Chonnam National University, Korea)**

**O70-1** 10:10

Recent Advances in Soil Remediation Technologies with Particular Emphasis on Mined Lands

Ravi Naidu

University of South Australia, Australia

**O70-2** 10:40

Arsenic Fate in a Copper Hydro-metallurgical Circuit to Develop a Soil Remediation Strategy

Margarita Eugenia Gutierrez Ruiz*, Agueda Ceniceros-Gomez, Gerardo Martinez-Jardines, Arturo Aguirre and Francisco Romero

UNAM, Mexico

**O70-3** 10:55

Chemical Properties, Arsenic Distribution and Remediation in Leonardite from Mae Moh Mine, Thailand, for Possible Use as Soil Amendment

Gautier Landrot, Suchada Pochadom and Saengdao Khaoaew*

Kasetsart University, Thailand

**O70-4** 11:10

Development of Treatment Agents Synthesized by Acid Mine Drainage Sludge (amds) for Adsorption of As(iii) and As(v) in Contaminated Soil: A Field Study

Jaeyoung Choi*, Hongkyun Lee, Woo-Ram Lee, Hyun-Shik Yun, Eunsoo Gue, Young-Tae Park, Yoon-Su Kim and Jin-Soo Lee*

*Korea Institute of Science and Technology (KIST), Korea; 1MIRECO, Korea

**O70-5** 11:25

Limiting Factors for Ecological Remediation of Abandoned Rare Earth Elements (REEs) Mine Tailings and a Field Survey of Rees Hyperaccumulating Plants in Ganzhou, China

Wen-Shen Liu, Chang Liu, Ye-Tao Tang*, Rong-Liang Qiu, Wen-Kai Teng and Zhi-Wei Wang

Sun Yat-Sen University, China

**O70-6** 11:40

Production of Poly-Hydroxybutyrate by Different Mixed Culture in a Revised Sequencing Batch Reactor

Mahdi Sadeghi Pour Marvi*

University of Tehran, Iran

**O70-7** 11:55

Stabilization of Arsenic and Heavy Metals in Contaminated Agricultural Soil Around the Mine Areas

Yoon-Su Kim*, Gwan-In Bak, Mi-Jeong Park, Jin-Soo Lee and Yon-Sik Shim

Mine Reclamation Corporation, Korea

**O70-8** 12:10

Assessment of Trace Elements Contamination in the Gold Mine Soils of Komabangou, Tillaberi, Niger

Abdourahamane Tankari Dan-Badjjo*, Yadj Gour, No-maou Dan Lamso, Ali Matsaliali, Jean Louis Morel*, Cyril Feidt*, Thibault Sterckeman and Guillaume Echevarria*

1Université Aboubou Moumouni de Niamey, Niger; 2Université de Lorraine, INRA, France

**O70-9** 12:25

Environmental Assessment of Coal Mine Wastes for in-Pit Disposal of Tailings

Jin Hee Park, Mansour Edraki* and Thomas Baumgart

University of Queensland, Australia

12:40-13:40 Lunch (Tamna B)

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**Oral Session No. 71**

**C2.5-1 Advances in Techniques to Investigate Chemical, Physical and Biological Interfaces in Soils**

**June 13 (Fri), 13:40 - 15:30**

**Convenor: Siobhan Staunton (INRA, France)**

**O70-1** 13:40

Combining Advanced Analytical Methods to Assess Interfacial Change during Bioweathering of Silicates and Sulphides: Mineral-organic-microbe Interactions Alter Bioaccessibility of Toxic Metal(ioid)es

Jon Chorover*

University of Arizona, USA

**O70-2** 14:10

Non-invasive Localization of Organic Matter in Soil Aggregates using SR-μCT

Stephan Peth*, Annka Mordhorst, Claire Chené, Daniel Uteau Puschmann, Patricia Garnier, Naoise Nunan, Valerie Pot, Felix Beckmann and Malte Ogurreck*

1University of Kassel, Germany; 2University of Kiel, Germany; 3INRA Grignon, France; 4GKSS-Research Centre, Germany

**O70-3** 14:30

Assessment of the Effect of the Microbiology of the Extreme Soil Surface on Hydrological Properties Revealed by X-Ray Imaging

Amin Garbout*, Elena Armenise, Sujung Ahn, Stefan Doerr*, Karl Ritz*, Robert Simmons, Craig Sturrock, Shinji Suzuki and Sacha Mooney*

1The University of Nottingham, United Kingdom; 2Cranfield University, United Kingdom; 3Swansea University, United Kingdom; 4Tokyo Univ. of Agriculture, Japan

**O70-4** 14:50

Microfluidics for Soil Science

Davide Ciceri and Antoine Allanore

Massachusetts Institute of Technology, USA
[C2.1-3] Hydro-Ecological Observatories and Advances in Soil Measurements and Sensors

June 13 (Fri), 13:40 - 15:30
Convenor: Yong Bok Lee (Gyeongsang National University, Korea)

O72-1 13:40 Remote Sensing and Geographic Information Systems and Global Soil Partnership Roles in Soil Monitoring
Seyed Kazem Alavipanah
University of Tehran, Iran

O72-2 14:10 Quantification and Visualisation of Dairy Pasture Soil Macroporosity Using a Computer
Abdur Rab1,*, Sharon Aarons2, Mark Imhof3 and Rebecca Halpin1
1 Department of Environment and Primary Industries, Australia; 2 University of New England, Australia

O72-3 14:30 Quantifying the Impacts of Land Use Change on Soil Water Movement using Environmental Tracers on the Loess Tableland of China
Zhi Li* and Xi Chen
Northwest A&F University, China

O72-4 14:50 Advanced Method for Quantifying Soil Hydrological Properties in the Laboratory
Uwe Schindler*, Lothar Mueller1 and Jose Doerner2
1 ZALF Muencheberg, Germany; 2 Universidad Austral de Chile, Chile

O72-5 15:10 A Multifunctional Heat Pulse Probe for Soil Physical Property and Process Assessment
Scott Jones1, Kashifa Rumana1, Pawel Szafrau1, Masaru Sakai1 and Markus Tuller
1 Utah State University, USA; 2 Mie University, Japan; 3 The University of Arizona, USA

O73-1 13:40 Continental Present-Day Erosion Rates in a European Context
Olivier Cerdan*, Aurora Gay, Valentin Landemaine and Anthony Foucher
1 BRGM, France; 2 Universite de Tours, France

O73-2 14:10 Mapping Land Degradation at Global Scale, a Reflection
Freddy Nachtergaele*, Riccardo Biancalani, Godert Van Lynden, Ben Sonneveld, Claudio Zucca and Monica Petri
1 FAO, Belgium; 2 FAO, Italy; 3 ISRI, Netherlands; 4 Universiteit van Amsterdam, Netherlands; 5 University of Sassoli, Italy

O73-3 14:35 Agricultural Water Balance in Korea
Ki-Cheol Eom*, Pi-Kyun Jung1 and Yeun-Kyu Sonn2
1 SEjong Institute of Data Analysis (SEIDA), Korea; 2 National Academy of Agricultural Science, Korea

O73-4 15:05 Gully Expansion in Agricultural Fields in Andalucia: the Role of Slope Failure and Water Erosion in Relation to Land Management, Cover, and Rooting
Erik Cammeraat*, Bianca Pricopé and Tom Vanwallegheem
1 Universiteit van Amsterdam, Netherlands; 2 Business Development Group, Romania; 3 University of Cordoba, Spain

O73-5 15:30 Soil Erodibility Model for the Dry Tropics of Northeastern Australia
Peter Zund* and James Payne
Queensland Government, Australia

Oral Session No. 74

Oral Session No. 73

[C3.2-1] A: Soil Erosion and Degradation on Agricultural Land

June 13 (Fri), 13:40 - 15:30
Convenor: Panos Panagos (European Commission, Joint Research Centre, Italy)

O74-1 13:40 Are Soil Nitrogen and Organic Matter Contents Declining due to Continuous Application of Nitrogen Fertilizers in Cereals?
Bijay Singh
Punjab Agricultural University, India

O74-2 14:10 Consider of Non-exchangeable and Exchangeable Potassium Status of Soils under Sugarcane Cultivation in Some Fields with Different Ages
Mahmoud Alimohammadi, Sattar Shakiba and Alireza Zahirnia
Sugarcane & by products company, Iran

O74-3 14:30 The Influence of Tillage Systems on Soil Physical Properties and on Oil-seed Rape Yield in Central-northern Area of Moldavian Plateau, Romania
Lucian Raus, George Chiriac, Denis Topa, Costica Alincaic and Iulianaru Carmenca Doina
The University of Agricultural Sciences and Veterinary Medicine, Romania

O74-4 14:50 Soil Nutrient Diagnostics using Mid-infrared Spectroscopy
Rao Mylavarapu* and Mike McLoughlin
1 University of Florida, USA; 2 CSIRO, Australia
**Oral Session No. 75**

**[C4.5-2] Cultural Perspectives on Soils and Soil Science**

**June 13 (Fri), 13:40 - 15:30**

**Convenor:** Bruce R. James (University of Maryland, USA)/ Alexandra Regan Toland (Technische Universität Berlin, Germany)

- **O75-1**
  13:40
  **Gods of Soil**
  Budimanyasny
  The University of Sydney, Australia

- **O75-2**
  14:00
  **Soil and the Development of Agricultural Systems in South Korea since the Neolithic**
  Heejin Lee
  Korea University

- **O75-3**
  14:20
  **The Soil Legacies of 18th and 19th C Illicit Scotch Whisky**
  Clare Wilson* and Hazel Ramage
  University of Stirling, United Kingdom

- **O75-4**
  14:40
  **The ‘Living Soils’ Project - Journey into the Earth**
  Winfried E.H. Blum1 and Beatrice S. Voigt2
  1University of Natural Resources and Life Sciences, Austria; 2Beatrice Voigt Art and Culture Projects & Edition, Germany

- **O75-5**
  15:00
  **Development and Departures in the Philosophy of Soil Science**
  Thomas Sauer
  USDA-ARS-NLAE, USA

**Oral Session No. 77**

**[C2.2-3] A: Behavior and Fate of Pollutants Entering the Soil Environment**

**June 13 (Fri), 13:40 - 15:30**

**Convenor:** Teodoro M. Miano (UniversitàdegliStudi di Bari, Italy)/ Chang Oh Hong (Pusan National University, Korea)

- **O77-1**
  13:40
  **Dissolved Organic Matter Induces the Mobilization of Arsenic in Soil**
  Nanthi Bolan* and Anitha Kurikrishnan
  1University of South, Australia; 2National Academy of Agricultural Science, Korea

- **O77-2**
  14:10
  **Volatilization Processes of Diesel oil from Selected Soils**
  Yanfei Ma1, Stephen Anderson2, Xilai Zhang3, Jie Lu* and Xuedong Feng3
  1Shandong University of Technology, China; 2University of Missouri, Columbia, USA; 3Ocean University of China, China

- **O77-3**
  14:30
  **Lithium, an Emerging Environmental Contaminant, is Mobile in the Soil Plant System**
  Brett Robinson*, Rohith Yalamanchali and Nick Dickinson
  Lincoln University, New Zealand

- **O77-4**
  14:50
  **Quantifying the Effect of Interactions between Soil Minerals and Organic Matter on Butachlor Sorption**
  Yan He1, Zhongchen Liu2, Xinquan Shen1, Xinpeng Li1 and Jianming Xu
  1D helyang University, China; 2Guangdong Academy of Agricultural Sciences, China

- **O77-5**
  15:10
  **Classification and Modelling of Non-extractable Residue (NER) Formation from Xenobiotics in Soil - a Synthesis**
Oral Session No. 78


June 13 (Fri), 13:40 - 15:30
Convenor: Kazuyuki Yagi (National Institute for Agro-Environmental Sciences, Japan)/ Charles W. Rice (Kansas State University, USA)

O78-1 13:40
Considering Stakeholder Perceptions and Institutional Settings for Mitigation Projects in Rice Production
Reiner Wassmann1, Julie-Ann Basconcello, Bjorn-Ole Sander and Ngo Duc Minh
International Rice Research Institute, Philippines

O78-2 14:10
On-going Research Activities to Mitigate Greenhouse Gas Emission from Paddy Fields in China
Xiaoyuan Yan
Chinese Academy of Sciences, China

O78-3 14:30
Effectiveness of Surface Drainage during Fallow Seasons on Mitigating Methane Emissions from Poorly-drained Paddy Fields in Japan
Yutaka Shiratori and Yuichiro Furukawa
Niigata Agricultural Research Institute, Japan

O78-4 14:50
M. Rafiqul Islam1, Azmul Huda2, Md. Rafiqul Islam1, M. Jahiruddin1, M. Abdul Satter1, Yam Gaihre3 and Upendra Singh3
1Bangladesh Agricultural University, Bangladesh; 2International Fertilizer Development Center, Bangladesh; 3International Fertilizer Development Center, USA

O78-5 15:10
Preliminary Studies on Methane Mitigation in Rice Production Systems in Santa Catarina, Brazil
Maeda Lima1, Domingos Savio Eberhardt1, Rosa Toyoko Shiraishi Frighetto1, Jose Alberto Noldin1 and Maria Conceicao Peres Young Pessoa1
1Brazilian Corporation for Agriculture Research, Brazil; 2Epagri-Estacao Experimental de Itajai, Brazil

Oral Session No. 80

[C3.3-3] Ecological Significance of Soil Organic Phosphorus

June 13 (Fri), 13:40 - 15:30
Convenor: Leo Condron (Lincoln University, New Zealand)/ Ben Turner (Lincoln University, New Zealand)

O80-1 13:40
Oxygen Isotopes for Unravelling Phosphorus Transformations in the Soil/plant System: A Review
Emmanuel Frossard*, Federica Tamburini, Stefano Bernasconi, Verena Pfahler and Christian von Sperber
ETH Zurich, Switzerland

O80-2 14:10
N-fixing Tree Species (Acacia Mangium) Introduced in Eucalyptus Forest Modify Soil Organic P and Low Molecular Weight Organic Acid Pools: A Case Study from Tropical Forest Ecosystem in Congo
[DS1] Micromorphological Answers to Palaeopedological and Polypedagnostic Questions

June 13 (Fri), 13:40 - 15:30
Convenor: Rosa Maria Poch (University of Lleida, Spain)/ Daniela Sauer (Dresden University of Technology, Germany)

O81-1
13:40
Tracing Palaeo-environmental and Land-use Changes in Polygenetic Soils of the Alpine Forelands (Germany) and the Northern Alps (Austria) - a Soil Micromorphological and Pedological Approach
Astrid Kirsten Ropke*, Vanessa Baehr and Carlo Dietl1
1 Goethe University, Germany; 2 Gesteinslabor Jahns, Germany

O81-2
14:10
Paleohydrology and Ancient and Historical Paddysoils
Heejine Lee*
1 Korea University, Korea

O81-3
14:30
Soil Sequences in the Young Morainic Landscapes of North-eastern Poland
Marcin Svitoniak*, Przemyslaw Charzynski and Lukasz Mendyk
1 Nicolaus Copernicus University, Poland

O81-4
14:50
Microtomographic Studies of Loamy Soils: Problems and Prospects
Elena Skvortsova*, Kirill Gerce*, Dmitry Korost1, Konstantin Abrosimov4 and Andrey Ivanov1
1 V.V. Dokuchaev Soil Science Institute, Russia; 2 CSIRO Land and Water, Australia; 3 Moscow State University, Russia

O81-5
15:10
Modelling Pedogenesis in the Anthropocene
Sophie Leguedois*, Geoffroy Sere*, Jerome Cortel1, Stephanie Ouvrard*, Francoise Watteau1, Christophe Schwartz1 and Jean Louis Morel2
1 National Flagship/CSIRO Sustainable Agriculture Flagship, Australia; 2 University of New England, Australia

O82-1
16:20
Globalsoilmap - the History, Vision and Way Forward
Jon Hempel1, Alfred Hartemink2, Alex Mcbratney2, Dominique Arrouays2, Neil Mckenzie3 and Michael Grundy4
1 Natural Resources Conservation Service, USA; 2 Université de Lorraine, France; 3 Université de Lorraine, France; 4 Université Paul Valery Montpellier III, France

O82-2
16:40
Model Averaging for Combining Disaggregated Analogue Soil Maps with Those from Scorpion Kriging: Experience from the Dalrymple Shire, QLD, Australia
Brendan Malone, Budiman Minasny, Nathan Ogders and Alex Mcbratney
1 The University of Sydney, Australia

O82-3
16:50
Spatial Disaggregation using Random Toposequences
Alex Mcbratney*, Budiman Minasny, Nathan Ogders
1 The University of Sydney, Australia

O82-4
17:00
Pedogeomorphometry, Integrating Empirical and Mechanistic Models for Better Prediction of Soil over Space and Time
Budiman Minasny, Alex Mcbratney and Uta Stockmann
1 The University of Sydney, Australia

O82-5
17:10
Modelling of Soil Carbon Variability and Trajectories across the Conterminous US
Sabine Grunwald*, Xiong Xiong1, Baijing Cao1, Alex B. Mcbratney1, Budiman Minasny2, C. Wade Ross3 and Risa Patarasuk1
1 University of Florida, USA; 2 University of Sydney, Australia

O82-6
17:20
Mapping the Functionality of Soils in Scotland using a Neural Network-based Digital Soil Mapping Approach
Matt Aitkenhead, Allan Lilly and Helaina Black
1 The James Hutton Institute, United Kingdom

O82-7
17:30
Operational Digital Soil Mapping at National Scale: Application of Random Forest to Spatial Prediction of Soil Particle-size Fractions
Stephen Akpa1, Inakwu Odeh and Thomas Bishop
1 The University of Sydney, Australia

O82-8
17:40
Jongsung Kim1, Sabine Grunwald* and Rosanna G. Rivero2
1 University of Florida, USA; 2 University of Georgia, USA
**[WG11] Soil Information Exchange Standards and Systems**

**June 13 (Fri), 16:20 - 18:10**

Convenor: Peter Wilson (CSIRO, Australia) / Rainer Baritz (Federal Institute for Geosciences and Natural Resources (BGR), Germany)

**O83-1 16:20** Developing International Soil Information Exchange Standards
Peter Wilson* and Rainer Baritz*
*CSIRO, Australia; 2Federal Institute for Geosciences and Natural Resources, BGR, Germany

**O83-2 16:50** ISO and Inspire for Digital Soil Data Exchange? Extensions, Improvements and Potential Feedbacks between Similar Standards
Einar Eberhardt* & Simon Templer* and Tomas Rezník*
*Federal Institute for Geosciences and Natural Resources (BGR), Germany; 2Fraunhofer Institute for Computer Graphics Research IGD, Germany; 3Masaryk University, Czech Republic

**O83-3 17:10** European Soil Data Centre: a Spatial Data Infrastructure for Research and Policy Making in Europe
Panos Panagos*, Marc Van Liedekerke, Arwyn Jones and Luca Montanarella
European Commission, Joint Research Centre, Italy

**O83-4 17:30** Best Practice Guidelines for Soil Data Harmonization
Rainer Baritz*, Gordon Hudson* and Borut Vrscaj*
1Federal Institute for Geosciences and Natural Resources (BGR), Germany; 2The James Hutton Institute, United Kingdom; 3Agricultural Institute of Slovenia, Slovenia

**O83-5 17:50** Towards an Ontology-based Soil Information System
Yanfeng Shu*, Ahsan Morshed and Ritarban Dutta
CSIRO, Australia

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**[C3.3-4] B: Soil Management Strategy for Enhancing Crop Yields**

**June 13 (Fri), 16:20 - 18:10**

Convenor: Wolfgang Burghardt (University Duisburg-Essen, Germany) / Chunsheng Hu (Chinese Academy of Sciences, China)

**O85-1 16:20** Industrialization Progress and Application of Slow & Controlled Release Fertilizers in China
Min Zhang*, Yuechao Yang, Lianbu Wan, Chengliang Li, Hongkun Chen* and Li Ma
1Shandong Agricultural University, China; 2Shandong Kingenta Ecological Engineering Co, Ltd, China

**O85-2 16:50** Utility of Soil Analysis Database of Routine Laboratory to Monitor and Describe the Evolution of the Fertility of Costa Rican Soils
Flora Bertsch* and Juan Carlos Mendez
University of Costa Rica, Costa Rica

**O85-3 17:10** Changes in Soil Fertility under Slash and Burn Systems with Different Land Use Systems in the Peruvian Amazon
Julio Alejandro*, Ruby Vega, Eddie Schrevers and Felipe De Mendiburu*
1Universidad Nacional Agraria La Molina, Peru; 2University of Leuven, Belgium
Oral Session No. 86 201 (2F)

[C3.4-1] Design and Performance of Cover Systems
for Landfills and Contaminated Sites

June 13 (Fri), 16:20 - 18:10
Convenor: Kye-Hoon Kim (The University of Seoul, Korea)

Oral Session No. 87 202 (2F)

[WG8] Proximal Soil Sensing

June 13 (Fri), 16:20 - 18:10

Convenor: Hak-Jin Kim (Seoul National University, Korea); Raphael Viscarra Rossel (CSIRO Land & Water, Australia)

Oral Session No. 88 Halla A (3F)

[C2.2-3] B: Behavior and Fate of Pollutants Entering the Soil Environment

June 13 (Fri), 16:20 - 18:10

Convenor: Chang Oh Hong (Pusan National University, Korea)
Oral Session No. 89


June 13 (Fri), 16:20 - 18:10
Convenor: Siobhán Staunton (INRA, France)/ Qiaoyun Huang (Huazhong Agricultural University, China)

O89-1
16:20
Congruent Development of Microbial Communities, Organic Matter and Surface Properties in Artificial Soils with Different Mineral Composition and Charcoal Presence
Geertje Pronk1,2, Doreen Babin3, Franziska Ditterich1, Julia Giebler1, Katja Heister1, Michael Henkmeyer1, Ellen Kandeler1, Ingrid Kogel-Knabner1, Yamada Kunhi Mouvenchery2, Christian Poll3, Gabriele Schaumann1, Michael Schloter1, Kornelia Smalla1, Annelie Steinbach1, Christoph Tebbe1, Lukas Wick1 and Susanne Woche8
1Technische Universität München, Germany; 2Julius Kühn-Institut, Bundesforschungsinstitut für Kulturpflanzen, Germany; 3University of Hohenheim, Germany; 4Helmholtz Centre for Environmental Research - UFZ, Germany; 5Institute for Biodiversity, Germany; 6Universität Koblenz-Landau, Germany; 7German Research Center for Environmental Health, Germany; 8Leibniz Universität Hannover, Germany

O89-2
16:50
Soil Humic Acid Complexity with Protein Complexation
Wenfeng Tan1,2, Yan Li1, Luuk K. Koopal1, Michaela Dippold and Yakov Kuzyakov1
1Huazhong Agricultural University, China; 2Wageningen University, Netherlands

O89-3
17:10
Nanoparticles of FE2O3 and Zno and Microbial Interactions in Rice Rhizosphere
Ashok Patra1, R C Yadav, Sarvender Kumar, T J Purakayashta and R Singh
1Indian Agricultural Research Institute, India

O89-4
17:30
Effect of Phenanthrene and Hexadecane on the Release and Transport of Mobile Organic Matter in Soil - a Two Layer Column Study
Katharina Reichel1, Doreen Babin1, Marc-Oliver Gobel1, Armin H. Meyer1, Kai Uwe Totsche2* and Kornelia Smalla2*
1Friedrich Schiller University Jena, Germany; 2Julius Kühn-Institut Braunschweig, Germany; 3Leibniz University Hannover, Germany; 4Helmholtz Centre for Environmental Research - UFZ, Germany

O89-5
17:50
Microbial Utilization of Free Versus Sorbed Pyruvate Investigated by Position-specific 13C and 14C Labeling and 13C-PFla Analysis
Carolin Apostel1*, Michaela Dippold and Yakov Kuzyakov1
1Georg-August University of Goettingen, Germany

Oral Session No. 90

[C1.4-2] The Progress in Development and Harmonization of Soil Classifications

June 13 (Fri), 16:20 - 18:10
Convenor: Sergey Goryachkin (Russian Academy of Science, Russia)/ Yeon Kye Sonn (NAAS, Korea)

O90-1
16:20
Proposed Soil Taxonomy Changes for Gelisols and Other Soils with Gellic Materials
J.G. Bockheim1, C.I. Ping2, D.W. Smith1*, J.W. Hempel3 and T.G. Reinsch1
1University of Wisconsin, USA; 2University of Alaska-Fairbanks, USA; 3USDA, Natural Resources Conservation Service, USA

O90-2
16:50
Soils with High Activity Clay and High CEC in Acre State, Amazon Region
Lucia Helena Cunha Dos Anjos1, Marcos Gervasio Pereira2 and Paulo Guilherme Salvador Wadt1
1Federal Rural University of Rio de Janeiro, UFRRJ, Brazil; 2UFRRJ, Brazil; 3Embrapa Acre, Brazil

O90-3
17:10
The Method of Development and Structure of the Modernized Hungarian Soil Scisssion System
Erika Micheli1*, Marta Fuchs1, Vince Lang1, Tamas Szegi1 and Endre Dobos2
1Szent Istvan University, Hungary; 2University of Miskolc, Hungary

O90-4
17:30
Developing a Simplified Guide to Soil Taxonomy
Michel Ransom1, Cameron Loerch2, Kim Kerschen3, John Galbraith1, David Weindorf3, Curtis Monger4, Joseph Chiaretto2, Craig Ditzler1, Michele Golden1, David Smith1* and Kenneth Scheffe4
1Kansas State University, USA; 2USDA, Natural Resources Conservation Service, USA; 3Virginia Tech, USA; 4Texas Tech University, USA; 5New Mexico State University, USA

O90-5
17:50
Explore the Secrecy in the Distribution of Red and Yellow Soil on the Earth
Zhongjie Ye1* and Liqun Xu2
1Zhejiang A&F University, China; 2Zhejiang Forestry Administration, China

Oral Session No. 91

[DS5] Soil Health: Key to Food Security

June 13 (Fri), 16:20 - 18:10
Convenor: Yong Sik Ok (Kangwon National University, Korea)/ M.B. Kirkham (Kansas State University, USA)/ Nanthi Bolan (University of South Australia, Australia)/ Sang Soo Lee (Kangwon National University, Korea)

O91-1
16:20
Environmental Geochemistry and Health, with Special Reference to Food Contaminants
Ming H. Wong*
Hong Kong Institute of Education, Hong Kong

O91-2
16:40
Heavy Metal Contamination of Soils: A Global Challenge to Food Security
Zhenli He1*, Xiaoe Yang1 and Virupax C Baligar2
1University of Florida, USA; 2Zhejiang University, China; 3USDA-ARS, USA

O91-3
16:53
Soil at the Nexus of Food Security, Climate, and Sustainability
Charles William Rice
Kansas State University, USA

O91-4
17:06
Soil the Next Step Nexus for Global Existential Environmental Challenges
Damien Field1*, Alex Mcbratney and Budiman Minasny
1The University of Sydney, Australia
Movement of Heavy Metals from Soil to Human Food Chain and Risk Assessment
Xiao-E Yang*, Wendan Xiao, Mahamad Tarig, and Zhenli He
Zhejiang University, China; University of Florida USA

Improving Soil Productivity in Dryland Agroecosystems of India by using Organic Amendments
Ch. Srinivasarao*, Rattan Lal, B. Venkateswarlu and Nanthi. Bolan
Central Research Institute for Dryland Agriculture, India; The Ohio State University, USA; University of South Australia, Australia

Phosphorus Recovery and Reuse from Waste Streams
Rajasekar Karunanithi*, Nanthi Bolan, Ravi Naidu and Ariel Szogi
University of South Australia, Australia; USDA ARS, USA

EXPO2015 Milan and Feeding Knowledge Programme: the Nexus between Land, Water, Climate Change, Biodiversity, Energy and Food Security in the Mediterranean
Pandi Zdruji*, Nicola Lamaddalena, Todorovic Mladen, Alessandra Scardigno, Jenny Calabrese, Gaetano Ladisa and Vincenzo Verrastro
CIHEAM Mediterranean Agronomic Institute of Bari, Italy

Closing Ceremony (Halla, 3F)
- For your reference, abstracts of oral sessions are shown as group per symposium, but those of poster presentations are listed individually.

- Those who wish to cite abstracts in the proceedings of 20WCSS may refer as below since the abstract online access system does not specify the page.

  * Author’s Name. 2014. Title of Abstract. Symposium Name. Proceedings of the 20th WCSS (www.20wcss.org), Abstract Online Access System, June 8 to 13, Jeju, Korea.

POSTER SESSION

June 9 (Mon), 10 (Tue), 12 (Thu), 13 (Fri) – 4 Days
15:30-16:20

June 9 (Mon) – Poster Session 1
A Zone: P1-1 - 194, B Zone: P1-195 - 450, C Zone: P1-450 - 603

P1-1 - 5  [IDS1] Folk Soil Knowledge for Soil Taxonomy and Assessment
P1-6 - 32  [IDS4] Critical Issues of Radionuclide Behavior in Soils and Remediation
P1-33 - 53  [IDS10] Impact of Bioenergy Cropping on Soils and the Environment
P1-54 - 76  [IDS13] Integrated Management Strategies for As and Cd in Rice Paddy Environments
P1-77 - 194  [DS2] Soil Development and Soil Properties and Functions
P1-259 - 279  [DS7] African Eco-Efficient Solutions to Food Insecurity and Climate Change
P1-293 - 311  [C1.3-2] Volcanic Soils: Distinctive Properties and Management
P1-312 - 323  [C1.4-1] Marginal Soils: The Classification of Technogenic, Subaqueous, and Extraterrestrial Soil-like Bodies
P1-324 - 336  [C1.5-1] Validation of Soil Carbon Sequestration
P1-337 - 348  [C2.2-1] Biogeochemical Reactivity of Soils and Sediments: Molecular Process Control over Material Flux at Field Scales
P1-349 - 369  [C2.3-1] Modern Soil Biology for N and C Transformation: From Genes to Ecosystems
P1-370 - 450  [C2.5-3] Mechanism Controlling Greenhouse Gas Emissions from Soils
P1-451 - 463  [C3.3-1] Mobilization of Essential Micronutrients by Exudates
P1-464 - 507  [C3.6-1] Saline and Sodic Ecosystems in the Changing World
P1-508 - 546  [C4.1-1] Advances in Quantifying Forest Soil Processes and Functions
P1-547 - 552  [C4.1-2] Environmental Management of Post-Epidemic Carcass Burial Sites
P1-553 - 603  [C4.1-3] Soil Ecosystem under Climate Change

June 10 (Tue) – Poster Session 2
A Zone: P2-1 - 199, B Zone: P2-200 - 445, C Zone: P2-446 - 580

P2-1 - 43  [IDS3] Soil Information and Food Security
P2-44 - 199  [IDS5] Biochar Soil Amendment for Environmental and Agronomic Benefits
P2-200 - 240  [IDS6] Soil Microbial Ecology under Stress and Global Climate Change
P2-241 - 250  [C1.1-1] The Role of Environment on Soil formation: Morphological Indicators
P2-251 - 258  [C1.2-1] Pedodiversity and Ecological Services - Bridging Soil Geography and Land Use
P2-259 - 281  [C1.3-1] Weathering and Soil formation in Response to Environmental Changes
P2-282 - 290  [C1.5-2] Quantification and Application of Uncertainty in Pedometrics
P2-291 - 300  [C1.6] Paleopedology
P2-310 - 409  [C2.2-2] Soil Organic Carbon: Dynamics, Stabilization, and Environmental Implications
P2-410 - 419  [C2.3-3] Microbial Biodiversity and Ecosystem Functions in Volcanic Soils
P2-420 - 445  [C3.5-1] Water Conservation Technologies and Impacts on Sustainable Dry Land Agriculture
P2-446 - 491  [C3.5-2] Techniques to Manage Contaminated Arable Soils
P2-492 - 500  [C3.5-4] Physical Restoration of Soils
P2-501 - 513, P2-579  [C4.2-1] Linking forest Management and Soil Processes to Ecosystem Productivity and Functions
P2-523 - 546  [WG4] New Approaches in Paddy Soil Management for Food Safety and Environmental Quality
P2-547 - 578  [WG6] Urban Soils-Properties, Functions and Evolution
P2-580  [IDS17] Surface Soil Resources Inventory and Integration: Soil Value and Erosion
June 12 (Thu) - Poster Session 3
A Zone: P3-1 - 204, B Zone: P3-205 - 448, C Zone: P3-449 - 589

P3-1 - 19  [IDS8] Soils, Land Use and Heat
P3-20 - 46  [IDS9] Key Processes and Factors to Mitigate Land Degradation
P3-47 - 59  [IDS11] Nanotechnologies in Environmental Soil Science
P3-60 - 100  [IDS15] Advanced Technology on Soil Remediation in Mined Lands: MIRECO Symposium
P3-101 - 110  [DS1] Micromorphological Answers to Palaeopedological and Polypedogenetic Questions
P3-111 - 171  [DS5] Soil Health: Key to Food Security
P3-172 - 204  [C1.2-2] Soil Data, Spatial information Systems and Interpretation Procedures
P3-205 - 216  [C1.4-2] The Progress in Development and Harmonization of Soil Classifications
P3-217 - 222  [C2.1-1] Quantifying Evaporative Fluxes from Terrestrial Surfaces
P3-223 - 262  [C2.1-3] Hydro-Ecological Observatories and Advances in Soil Measurements and Sensors
P3-263 - 339  [C2.3-2] Life in Soils - Distribution and Function of Soil Microorganisms in a Changing Environment
P3-340 - 353  [C2.4-1] Mineralogy and Reactivity of Soil Microsites
P3-357 - 415  [C3.3-2] Advances in Rhizosphere Regulation and Soil Nutrient Management
P3-416 - 448  [C3.3-3] Ecological Significance of Soil Organic Phosphorus
P3-449 - 477  [C3.5-3] Management and Reclamation of Mining Site Soils
P3-478 - 482  [C3.6-2] Salinity Management When Irrigating with Marginal Quality Waters
P3-483 - 506  [C4.4-1] Education and Social Awareness for Soil Science in General Public
P3-507 - 514  [C4.4-2] Widening the Soil Science Course to the Various Directions of Scientific and Humanistic Area
P3-515 - 529  [WG1] Soil Monitoring for Mankind and Environment Safety

P3-541 - 559  [WG3] Understanding Acid Sulfate Soils: The Key to Their Proper Management
P3-560 - 564  [WG9] Steps made toward a Universal Soil Classification
P3-578 - 589  [WG12] Unique Contributions of Hydropedology to Integrated Soil and Water Sciences

June 13 (Fri) - Poster Session 4
A Zone: P4-1 - 180, B Zone: P4-181 - 430, C Zone: P4-431 - 571

P4-1 - 72  [C2.2-3] Behavior and Fate of Pollutants Entering the Soil Environment
P4-73 - 91  [C2.4-2] Roles of Minerals as Suppliers and Regulators of Plant Nutrients
P4-92 - 117  [C2.5-1] Advances in Techniques to Investigate Chemical, Physical and Biological Interfaces in Soils
P4-140 - 222  [C3.2-1] Soil Erosion and Degradation on Agriculture Land
P4-223 - 493  [C3.3-4] Soil Management Strategy for Enhancing Crop Yields
P4-494 - 496  [C3.4-1] Design and Performance of Cover Systems for Landfills and Contaminated Sites
P4-497 - 502  [C4.5-2] Cultural Perspectives on Soils and Soil Science
P4-519 - 540  [WG8] Proximal Soil Sensing
P4-541 - 545  [WG11] Soil Information Exchange Standards and Systems
P4-546 - 571  [WG13] Progress in Digital Soil Mapping and GlobalSoilMap
**Poster Session 1 (P1)**

**IDS1:** Folk Soil Knowledge for Soil Taxonomy and Assessment

**Soil Art**


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**P1-1**

Characterization and Classification of Soils in Mexico-Cali Valley, Baja California, Mexico

Monica Aviles-Marín, Roberto Soto-Ortiz, Angel Lopez-Lopez, Victor Cardenas-Salazar, Angel Faz-Cano, Earl Alexander, Jesus Roman-Calleros, Isabel Escobosa-Garcia and Fernando Escobosa-Garcia

1 Autonomous University of Baja California, Mexico; 2 Technological University of Cartagena, Spain; 3 Concord CA, USA

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**P1-2**

Relationship between Phytophysiognomy and Classes of Wetland Soil of Northern Pantanal Mato Grosso - Brazil

Leo Adriano Chig, Eduardo Guimaraes Couto Eduardo Couto and Catia Nunes Da Cunha Catia Nunes

1 University of Cuiaba, Brazil; 2 Universidade Federal De Mato Grosso, Brazil

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**P1-3**

Use of Sig Tools in the Treatment of Data and Study of the Relationship between Soil, Geology and Geomorphology in the Basin of the Ribeirao Jardim, Distrito Federal, Brazil

Luiz Felipe Moreira Cassol, Marilusa Pinto Coelho Lacerda, Deborah Christina Moraes Mesquita, Guilherme Queiroz Micas, Manuel Pereira De Oliveira Junior, Bruna Goncelves Vieira and Henrique Sousa Honorato Universidad de Brasilia, Brazil

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**P1-4**

Farmer’s Knowledge of Land and Classes of Corn of Michoacan, Mexico

Maria Alcala De Jesus, Rogelio Garcia Rangel and Juan Carlos Gonzalez Cortes Universidad Michoacana de San Nicolas de Hidalgo, Mexico

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**P1-5**

Soil Mass Balance for an Alfisol in Greece

Pantelis E. Barouchas and Nicolas Moustakas

1 Technological Educational Institute of Western Greece, Greece; 2 University of Athens, Greece

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**IDS4:** Critical Issues of Radionuclide Behavior in Soils and Remediation

**Soil Art**

Featured artist: Center for Land Use Interpretation, USA, www.clui.org

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**P1-6**

Aging Effects on Transfer Factor of Cs-137 from Drinking Water Treatment Sludge to a Leaf Vegetable

Nobuyoshi Ishii, Keiko Tagami and Shigeko Uchida National Institute of Radiological Science, Japan

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**P1-7**

Differential Responses of Drought Induced Reduction in Growth Rate, Plant Radio-Cesium Uptake and Distribution between the Tolerant and Sensitive Blackgram Species (vigna Mungo)

Khin Thuzar Win, Aung Zaw Oo, Akimi Terasaki, Han Phyo Aung, Yokoyama Tadashi and Sonoko Dorothea Bellin-grath-Kimura

Tokyo University of Agriculture and Technology, Japan

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**P1-8**

Distribution Coefficients (kd) for Cs-137 in Highly Weathered Soils

Guilherme Sobrinho, Maria Angelica Wasserman and Luis Bellido

1 Instituto de Radioprotecao e Dosimetria (IRD/CNEN), Brazil; 2 Instituto de Engenharia Nuclear (IEN/CNEN), Brazil

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**P1-9**

Radiocesium Interception Potential and 137Cs Concentration in Particle-Size Fractions of Soil

Hirofumi Tsukada, Akira Takeda, Noriko Yamaguchi, Atsushi Nakao and Kenji Ohse

1 Fukushima University, Japan; 2 Institute for Environmental Sciences, Japan; 3 National Institute for Agro-environmental Sciences, Japan; 4 Kyoto Prefectural University, Japan

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**P1-10**

Mitigation of Radioactive Contamination from Farmland Environment and Agricultural Products

Takuro Shinano, Takeshi Ota and Hiroyuki Kobayashi

NARO Tohoku Agricultural Research Center, Japan

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**P1-11**

(Moved to O4-6) Layer-To-Layer Variations of 137Cs Content in Soil throughout a Calendar Year within the Alienation Zone of the Chernobyl Npp

Natalia Zarubina

Institute for Nuclear Research of National Academy of Science of Ukraine, Ukraine

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**P1-12**

Using a Collection of Soil Monoliths for the Study of Natural Radiation of Soils in Russia

Elena Mingareeva and Margaret Lasareva

The Dokuchaev Central Soil Science Museum, Russia

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**P1-13**

Model-Based Estimation of Inhibitory Effect of Potassium Application on Cs-137 Uptake by Rice

Shigeto Fujimura, Nobuharu Kihou, Junko Ishikawa, Yukio Suzuki, Takashi Saito, Mutsumo Sato and Hideo Washio

1 NARO Tohoku Agricultural Research Center, Japan; 2 National Institute for Agro-Environmental Sciences, Japan; 3 Fukushima Agricultural Technology Centre, Japan; 4 Miyagi Prefectural Furukawa Agricultural Experiment Station, Japan

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**P1-14**

Relationships between Radioesium Interception Potential (rip) and Soil Properties

Noriko Yamaguchi, Yusuke Takata, Kazunori Koyama, Hirofumi Tsukada, Akira Takeda and Ichiro Taniyama

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**P1-15**

Natural Radionuclide Measurements in Soil Samples from Tanke-Ilorin, North-Central Nigeria

Levi Nwankwo and Olalekan Olubo

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**P1-16**

Development of Low-Level-Radioesium Concentration Analysis System for Irrigation Water Using Solid Phase Extraction Disks

Hiroaki Yamaguchi, Seiichi Ota and Hirofumi Tsukada

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**P1-17**

Correlation between Soil Properties and Radioactive Cesium Absorption by Legume Crops

Sayaka Motojima, Naoki Harada and Masanori Nonaka

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**P1-18**

The Vertical Distribution of Cs-137 in Bavarian Forest Soils

Joerg Voelkel, Jennifer Winkelbauer and Matthias Leopold Technische Universität Muenchen TUM, Germany

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**P1-19**

Rice Fields can be Affected by Radioesium in Irrigation Water Originating from Forested Mountain Areas

Naoki Harada*, Natsuki Yoshikawa, Shohei Miyamoto, Ryota Yoshizawa, Hitomi Obara, Marie Ogasa, Susumu Miyazu and Masanori Nonaka

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**P1-20**

Adsorption Rate of Dissolved Radioesium in Water onto Soil

Yasukazu Suzuki, Shinji Fujisawa, Takao Yabuki, Kunio Yoshioka and Kazuyuki Inubushi
DOI50: Impact of Bioenergy Cropping on Soils and the Environment

Soil Art
Featured artist: Georg Dietzler, Germany, www.dietzlerge.org

P1-22 Effects of Differences in Land Use on the Radioce- sium Vertical Distribution in Soil Profile after Fukushima Daiichi Nuclear Power Plant Accident
Tomoya Suda, Kenji Tamura, Junko Takahashi*, Hiroaki Kato, Ryo Matsumura and Onda Yuichi*
University of Tsukuba, Japan

P1-23 Prediction of Radioesium Concentration in Brown Rice Based on the Water-Soluble Potassium Ion Concentration in the Soil and the Potassium Ion Concentration in the Soil Solution
Takashi Saito*, Kazuhiro Takahashi, Tomoyuki Makino, Takeshi Ota and Kunio Yoshioka*
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P1-24 Terrestrial Gamma Radiation Dose and its Relation- ship with Soil Ph Level in Seri Gading Industrial Area, Batu Pahat District, Malaysia.
Saffuwan Mohamed Johar* and Zaidi Embong
Universiti Tun Hussein Onn Malaysia, Malaysia

P1-25 Effects of Decontamination and Potassium Fertil- ization on Radioesium Concentrations in Rice and Vegetables Cultivated in Evacuation Area at Okuma Town, Fukushima
Kenji Ohse*, Kyo Kitayama, Yoshiyuki Takeuchi*, Kencho Kawatsu and Hirofumi Tsukada*
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P1-26 Development of a Device for Measuring the Vertical Distribution of Radioactivity in Soil Using Geiger-Muller Tubes
Shinya Suzuki
The University of Tokyo, Japan

P1-27 Challenge in Remediation of Agricultural Soil Contaminated by Radioesium in Fukushima, Japan
Masaru Mizoguchi
University of Tokyo, Japan

P1-28 Dynamics of Radioactive Cesium at Paddy Fields in Lower Basin of Agano-River, Niigata, Japan
Tadao Aoda
Niigata University, Japan

P1-29 Plot-Scale Spatial Variability of Radioactive Cesium Profile in Contaminated Paddy Soil in Fukushima
Shuichiro Yoshida* and Hiroaki Yamano
The University of Tokyo, Japan

P1-30 Seasonal Changes in Soil Radioesium Distribution in Rice Fields and their Effect on Rice
Naoki Harada*, Ryosuke Shoji, Yusuke Katagiri, Kenro Okumura*, Natsuki Yoshikawa and Masanori Nonaka
Niigata University, Japan
The Recovery Conference of Ota Area, Japan

P1-31 (Moved to O4-7) Estimation of Radioesium In/out Flows in Paddy Fields in Fukushima, Japan
Seiko Yoshikawa*, Eguchi Sadao, Itahashi Sunao, Igura Masato, Nobuharu Kihou, Shigeto Fujimura*, Takashi Saito*, Hideshi Fujihara, Shinichiro Mishima, Kazunori Kohyama*, Noriko Yamaguchi and Ohkoshi Satoru*
National Institute for Agro-environmental Sciences, Japan; 2 National Agriculture and Food Research Organization, Japan; 3 Fukushima Agricultural Technology Centre, Japan

P1-32 Soil-To-Plant Transfer Factors of Cs-137 for the Korean Diet and their Potential Use after a Nuclear Accident
Yong-Ho Choi*, Kwang-Muk Lim, Byung-Ho Kim and Dong-Kwon Koom
Korea Atomic Energy Research Institute, Korea

P1-33 Soil Carbon and Nitrogen Affected by Perennial Grass, Cover Crop, and Nitrogen Fertilization
Uependra Sainju*, Bharat Singh* and Hari Singh*
1 USDA, Agricultural Research Service, USA; 2 Fort Valley State University, USA

P1-34 Soil Carbon Sequestration And Soil Aggregation Affected by Perennial Energy Crops
D.K. Lee*; 1 Vance Owens, James Doolittle* and Arvid Boe*
1 University of Illinois at Urbana-Champaign, USA; 2 South Dakota State University, USA

P1-35 Growth Responses and Accumulation of Cadmium in Energy Crops: Switchgrass (panicum Virgatum L.) and Prairie Cordgrass (spartina Pectinata L.)
Chaolan Zhang, Guo Jia, Thapa Santanu* and Lee Doyoung*
1 Guangxi University, China; 2 University of Illinois, USA

P1-36 Soil Carbon Sequestration on Conservation Reserve Program (crp) Lands Managed for Bioenergy Feed- stock Production
James Doolittle*; 1 Vance Owens, Arvid Boe* and Doyoung Lee*
1 South Dakota State University, USA; 2 University of Illinois, USA

P1-37 Environmental Impact of Bioenergy Landscapes in the United States
Tara Hudiburg, William Parton, Melannie Hartman, Madhu Khanna, Weiwei Wang, Stephen Long* and Evan Delucia
1 University of Illinois, USA; 2 Colorado State University, USA

Morgan Davis, Gevan Behnke, Robert Darmody, Mark David and Thomas Voigt
University of Illinois, USA

P1-39 Biomass and Seed Yield of Oilseeds in Ne Montana for Use as Hydro-Treated Renewable Jet Fuel
Brett Allen* and Jay Jabro
USDA-ARS, USA

P1-40 Effect of Different Types of Wastewater on Soil Properties and Biomass Production in a Low Ph Soil
Sonia Shilpi*, Balaji Seshadri, Raghupathi Matheyarasu, Nanthi Bolan and Ravi Naidu
University of South Australia, Australia

P1-41 Growing Populus I-214 and Miscanthus on Agricultur- al Land - Four-Year Study Experience for Bioen- ergy Purposes
Veselka Gyuleva*; 1 Miglena Zhiyanski* and Miroslav Petrov*
1 Forest Research Institute, BAS, Bulgaria; 2 Titan Zlatna Panega Cement AD, Bulgaria

P1-42 Perennial Herbaceous Crops Used for Bioenergy: a Review of their Impact on Soil Organic Carbon
Denis Angers*, Annie Claessens, Marie-Line Leclerc and Emilie Mailard
Agriculture and Agri-Food Canada, Canada
P1-43 A Camelina Sativa Production System in Central Montana and its Effect on Soil And Environment
Chengci Chen*, Montana State University, USA

P1-44 Scope of Native Grass Species as Potential Bioenergy Crops Grown in a Flyash Amended Phosphorus-Rich Soil and its Effects on Soil’s Phosphorus Availability
Thammared Chuaasavath*, Balaji Seshadri*, Nathni S. Bolan and Ravi Naidu
University of South Australia, Australia

P1-45 Soil Quality Changes under Bioenergy Cropping in Tropical Soils: from Corn Feed Plant to Oil Palm Plantation
Anna Maria Malakew* and Meldia Septiana
Faculty of Agriculture, Lambung Mangkurat University, Indonesia

P1-46 Impacts of No-Tillage and Liming on Soil Characteristics and Sugarcane Yield in Brazilian Long-Term Experiment
Denizart Bolonhezi1, Tais Lima Da Silva1, Julio Cesar Garcia1, Isabella Clerice De Maria3, Oswaldo Gentilini Junior1, Antonio Cesar Bolonhezi2 and Jose Roberto Scarpellini1
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P1-47 Biogas By-Product Digestate: A New Amendment that Causes New Soil Alterations and Requires New Approaches for Understanding
Doerthe Holthusen, Amrei Voelkner and Rainer Horn
Christian-Albrechts-University Kiel, Germany

P1-48 Soil Microbial Communities and Nitrous Oxide Emissions in a Corn-Based Biofuel Cropping System
Deanna Nemeth, Claudia Wagner-Riddle and Karl Dunfield*
University of Guelph, Canada

P1-49 Water Quality Improvement, an Important Consideration to Delineate Sustainable Fertilization and Harvesting Strategies for Cellulosic Bioenergy Crops
Ayaj Bhardwa1, Leilie Ruan1, Stephen K. Hamilton3 and G. Philip Robertson1
1Central Soil Salinity Research Institute, India; 2Michigan State University, USA

P1-50 Biomass Production of Prairie Cordgrass Using Urea And Kura Clover as a Source of Nitrogen
Sungun Kim1, Vance Owens2, Ken Albrechts1, Dookyong Lee* and Craig Sheaffer1
1South Dakota State University, USA; 2University of Wisconsin-Madison, USA; 3University of Illinois, USA; 4University of Minnesota, USA

P1-51 Factor Analysis of Methane Production Potential From Crop and Livestock Biomass
Kook-Sik Shin, Hyun-Sook Cho, Ki-Young Seong, Tae-Teon Park, Hang-Won Kang and Myung-Chul Seo*
Rural Development Administration, Korea

P1-52 Nitrous Oxide Emission, Nitrate Leaching, and Nitrogen Removal Influenced by Nitrogen Fertilization From Production of Switchgrass in South Dakota, USA
Chang Oh Hong1, Vance Owens1, Michael Lehman1, Shannon Osborne2, Thomas Schumacher* and David Clay1
1Pusan National University, Korea; 2South Dakota State University, USA; 3United States Department of Agriculture, USA

P1-53 Exploring Metal(loid) Accumulation Ability of Miscanthus Sacchariflorus Genotype Geodae-Ukiae; Implication to Application for Phytoremediation
Ga-Hee Lim1, Hyuck-Soo Kim1, Mi-Na Lee1, Jong-Woong Ahn1, Bon-Cheol Koo2, Kwon-Rae Kim1 and Kye-Hoon Kim*
1University of Seoul, Korea; 2Rural Development Administration, Korea; 3Gyeongnam National University of Science and Technology, Korea

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P1-54 Assessment of Potentially Toxic Element Pollution in Soils And Rice (oryza Sativa) in Selected Paddy Soil of Iran
Ghasem Rahimi and Amin Charkhabi
Bu-Ali Sina University, Iran

P1-55 Heavy Metal Pollution of Mining District in Guangdong Province and its Control Strategies
Chuanping Liu and Fang-Bai Li*
Guangdong Institute of Eco-Environmental and Soil Sciences, China

P1-56 Effects of the Alkaline Material Addition on Chemical Fractions of Heavy Metals in a Contaminated Soil Under Flooded and Non-Flooded Conditions
Hirotaka Sumi1, Takashi Kunio1, Yuichi Ishikawa2, Kazunari Nagaoka1, Hideshige Todal and Yoshio Aikawa1
1Shinshu University, Japan; 2Akita Prefectural University, Japan; 3National Agricultural Research Center, Japan; 4Tohoku University, Japan

P1-57 Fractionation Of Residual Zn in Some Mazandaran Prov. Soils -Iran
Ali Cherati*
Soil and Water Research Institute, Iran

P1-58 Variation in the Grain Iron and Zinc Minerals Among Promising Low-Grain Cadmium Rice (oryza Sativa L.) Cultivars
Anongnat Sriprachote1, Kanokporn Manantapong2, Pornthira Kanyawongha3, Kumiko Ochiai* and Toru Matoh3
1 Khon Kaen University, Thailand; 2 Kasetsart University, Thailand; 3 King Mongkut’s Institute of Technology Ladkrabang, Thailand; 4 Kyoto University, Japan

P1-59 Effect of Organic Matter Amendment on as Release in Soil Solution and Accumulation by Paddy Rice Grown in As-Contaminated Paddy Soils
Chia-Chen Huang, Pei-Rung Wu, Chien-Hui Syu, Chia-Hsing Lee and Dar-Yuan Lee*
National Taiwan University, Taiwan

P1-60 The Effects of Phosphate Application on as Release into Pore Water and Uptake by Rice Seedlings Grown in As-Contaminated Paddy Soils
Chun-Hung Wu, Chen-Hui Syu, Chia-Hsing Lee and Dar-Yuan Lee*
National Taiwan University, Taiwan

P1-61 Cadmium Uptakes By Different Rice Cultivars Related To Iron Nutritional Levels In Plant And Iron Plaque Formation
Yu-Hsuan Chen1, Chun-Hui Yu2, Ching-Ming Yang1, Wan-Ting Chiao1, Shan-Li Wang2 and Kai-Wei Juang1
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P1-62 Effect of Cd Contaminaton on S Oxidation and its Effect on Cd Extractable by Dtpa in Calcareous Cd Contaminated Soil
Ali Kasraian*
Islamic Azad University, Iran

P1-63 Stabilization Soil as to Rice (oryza Sativa L.) with Solid Wastes
Bai-Qing Tie Hunan Agricultural University, China
P1-64 Increasing Cadmium Solubility in Contaminated Paddy Soils to Enhance Cadmium Phytoremediation by Nicotiana Tabacum
Saeedgao Khosiaew, Kanokpong Klinla-Or and Gautier Landrot
Kasetsart University, Thailand

P1-65 Time-Dependent Changes of Plant Water Status to Cd Acute Toxicity and Absorption of Cd in Rice Seedlings
Wan-Ting Chiao* and Kai-Wei Juang
National Chiao Tung University, Taiwan

P1-66 Distribution of Arsenic in Soil-Water Plant (rice, Oryza Sativa L.) of Three Districts, Bangladesh
Shakib Bokhtiar
Bangladesh Agricultural Research Council, Bangladesh

P1-67 Nutrient and Water Management for Mitigating Arsenic Accumulation in Rice
Prasanta Kumar Patra*, Sandip Hembram1, Kaloll Bhattacharya1 and Supradip Sarkar1
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P1-68 Physical Effects on Soil Structure of Iron-Based Remediation Practices Used in as Contaminated Soils
Laura Gargiulo*, Giacomo Mele1 and Fabio Terribile1
1 National Research Council (CNR), Italy; 2 University of Naples “Federico II”, Italy

P1-69 The Application of Si And Se Fertilizers for Mitigating Cd Accumulation in Rice
Zhe Chen, Ye-Tao Tang, Rong-Liang Qiu1 and Bo-Qing Tie2
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P1-70 Dietary Risk Exposure to Heavy Metals among Poor and Non-Poor Households in Dhaka City, Bangladesh
M. Rafiqul Islam1, M. Jahiruddin1, Md. Rafiqul Islam1, M. A. Alam1, M. Akhteruzzaman1, Lalita Bhattacharjee2 and M. A. Mannan2
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P1-71 Spatio-Temporal Variability of Heavy Metals in Paddy Field and Their Socio-Environmental Interpretation
Xingmei Liu
Zhejiang University, China

P1-72 In-Situ Field Application of Electrokinetic Remediation for As-Contaminated Rice Paddy Site
Ji-Min Jung, Eun-Ki Jeon, Jong-Chan Yoo and Kitae Baek
Chonbuk National University, Korea

P1-73 Effect of Limestone on the Leaching Characteristics of Cd, Zn, and As from Submerged Paddy Soil
Sungwook Yun and Chan Yu
Gyeongsang National University, Korea

P1-74 Regression Model Development for Estimating Total Metal(loid) Contents in Paddy Soil
Min-Ji Kim, Won-II Kim*, Woo-Ri Go, Anitha Kunhikrishnan, Gyeong-Jin Kim, Ji-Hyock Yoo and Jeong-Mi Lee
National Academy of Agricultural Science, Korea

P1-75 Varietal Differences of Rice on the Heavy Metal(loid) s Uptake Grown at the Paddy Soils Near Closed Mines in Korea
Gyeong-Jin Kim, Won-II Kim*, Min-Ji Kim, Woo-Ri Go, Jeong-Mi Lee, Hyun-Muong Noh and Ji-Hyock Yoo
National Academy of Agricultural Science, Korea

P1-76 Study on the Effect of Soil Amendments on Reducing As and Cd Uptake by Rice
Ji-Hyock Yoo*, Won-II Kim, Woo-Ri Go, Ha-Yeon Jeong, Jeong-Mi Lee, Gyeong-Jin Kim and Nam-June Cho
National Academy of Agricultural Science, Korea

P1-77 Development of Functions of the Subsurface Drain Systems
Tadao Aoda
Niigata University, Japan

P1-78 Influence of Long-Term Application of Different Fertilizers on Soil Acidification and Sugarcane Yield
Hongwei Tan*, Liqiang Zhou, Rulin Xie and Meifu Huang
Guangxi Academy of Agricultural Sciences, China

P1-79 Metabolomic Analysis of Phospholipid and Fatty Acid Concentration Changes on a Dairy Farm Due to Changes in Cultivation, Pasture and Fertiliser Addition
Michael Heaven1, Thusitha Rupasinghe2, David De Souza1, Amsha Nahid1, Dredrea Tull3, Mark Watkins1, Malcolm Mcconville2 and David Nash3
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P1-80 The Streampower Concept for Assessing the Sediment Concentration in Interrill Overland Flow
Donald Gabriels*
Ghent University, Belgium

P1-81 Sprinkler Irrigation and Soil Tillage Practices in Sugarcane Plantations as Influenced by Soil Texture and Water Storage in Northern Ivory Coast
Crepin Bi Pene*, Soleymane Ndiaye and Chantal Nguessan-Konan
SUCAFCI/SOMDIAA, Ivory Coast

P1-82 Impact of Climate Change on Crop Land and Technological Recommendations for The Main Crops in Transylvanian Plain, Romania
Teodor Rusu, Ioan Pucaruc, Marcel Dirja and Ioan Oroian
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

P1-83 Nitrogen Partitioning in Artificial Grassland Ecosystems: A 15N Tracer Field Study on the Tibetan Plateau
Wang Wenying1 and Zhou Huakun2
1 Qinghai Normal University, China; 2 Northwest Institute of Plateau Biology, Chinese Academy of Sciences, China

P1-84 Effects of Different Tobacco Planting Patterns on Soil N Transformation Intensity and the Microbial Community
Jiuguang Zhang, LiLin Zheng, Yi Shi, Zhongfeng Zhang*, Guoming Shen, Xinghua Ma and Lin Gao
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P1-85 Cover Crops Species As Affecting Soil Aggregation, Aggregate Stability, Organic Carbon Concentration and Soil Bulk Density in Different Soil Aggregate Fractions
Adriano Stephan Nascente1, Yuncong Li2 and Carlos Alexandre Crusciol3
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P1-86 Lenghtful Sugarcane Cultivation Impact on Some Soil Characteristics.
Manjan Ansari Dezfooli1, Shahla Mahmoudi2, Mohammad Hasan Masih Abadi1 and Abed Ali Nasers3
1Islamic Azad university, Iran; 2Tehran University, Iran;
3Shahid Chamran University, Iran

P1-87 Rubber Plantation is Similar to Natural Secondary Forest in Soil Organic Carbon Storage in a North-Edge Tropical Ecosystem: In a Modified Calculation Method
Yuwu Li1
Chinese Academy of Sciences, China

P1-88 Study on the Salt Ions Spatial Distribution and Plant Community Succession Relations of Reed Marsh of Shuangtaizi River Estuary
Hu Hong and Fan Yuqing
China Ocean University, China

P1-89 The Effect of Soil Compaction on Population Densities of Bacteria and Fungi
Azadeh Gholoubi1, Mahmoud Shabanpour2 and Ehsan Khamene2
1University of Guilan, Iran; 2Soil and Water Research Institute, Iran

P1-90 Spatial Distribution of Nitrifiers and Nitrification Associated with Aggregates along A 2000 Year Chronosequence of Rice Cultivation
Xiaoping Xin, Xianjun Jiang* and Liu Wei
Southwest University, China

P1-91 (Moved to O35-5) Soil-Lt: Automatic and Continuous Determination of Shrinkage Behavior of Soils
Sebastian K. Pagenkemper1, Katja Richter2, Heinrich Unbekannt2, Manfred Seyfarth4 and Rainer Horn1
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P1-92 How to Identify the Important Organic Compounds from the Soil Matrix: Metabolomics and the Analyses of Soil Through Soil Water
David Nash1, Michael Heaven2, Thushita Rupasinghe2, James Pyke1, David De Souza3, Amsha Nahid4, Malcolm Mcconville5, Dredia Tull6 and Mark Watkins1
1Farming Systems Research, Australia; 2Metabolomics Australia, Bio21 Institute, University of Melbourne, Australia;
3Murdock University, Australia

P1-93 Effects of Straw Returning on Soil Enzyme Activity, Composition and Stability of Soil Aggregates of Flue-Cured Tobacco Field in Huanghui Area
Guoming Shen, Gundong Bo, Zhongfeng Zhang, Jiguang Zhang*, Jing Oao and Yi Wang2
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P1-94 Effect of Different Organic Nutrient Sources on Growth, Yield, Uptake and Economics of Groundnut Parashuram Chandranvanshi1, Sathish A, Chandrappa, H Naveen Kumar, B. T and Akmal Pasha
University of Agricultural and Horticultural Sciences, India

P1-95 Soil Organic Carbon Sequestration Affected by Re-vegetation on the Loess Plateau, China
Shaoshan An1, Man Cheng and Zhijing Xue
Northwest A & F University, China

P1-96 Application of Laser Triangulation for the Determination of Shrinkage Behavior of Soils in Laboratory Tests
Katja Richter1, Heinrich Unbekannt2, Sebastian K. Pagenkemper2, Rainer Horn2 and Manfred Seyfarth1
1Umwelt-Gerate-Technik GmbH, Germany; 2Christian-Albrechts-Universitat zu Kiel, Germany

P1-97 Assessing Soil Erosion Intensity in the Klipriviersberg Nature Reserve
Samuel Akinbayo Akinseye
University of Johannesburg, South Africa

P1-98 Characteristics of Soil Seed Bank in Different Ecological Environments on the Chinese Hill-Gully Loess Plateau
Juying Jiao and Ning Wang2
1Northwest A&F University, China; 2Shaanxi Normal University, China

P1-99 Soil Nutrient Dynamics in Major Agro-Ecologies and Implications for Proper Soil Fertility Management in Nigeria
Rotimi Ipinmoroti4, Andrew Daniel and Olurunfemi Akanbi
Cocoa Research Institute of Nigeria, Nigeria

P1-100 Effects of Undisturbed Soil Removal of Long-Term Located Experiment on the Combined Forms of Humus and the Organo-Mineral Complexes of Black Soil
Fengqin Chi1, Enjun Kuang, Jiuming Zhang, Qirong Su, Baoku Zhou and Shanshan Cai
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P1-101 Arsenic Removal from Contaminated Soil Using Porous Carbon-Iron Oxide Functional Nanostructures
Jia'nhui Cui and Fangbai Li*
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P1-102 Role of Topography and Land Use on Magnetic Susceptibility of Soils of Southwestern Iran
Hamidreza Ovielie
Yasuj university, Iran

P1-103 Effect of Nh4+-Zelite on Growth Characteristics of Wheat
Mostafa Chorom*
Shaid Chamran University, Iran

P1-104 Effects of Intercropping on Soil Nutrients and Enzyme Activities in Continuous Taro Cropping Fields
Hanlin Zhang, Xiaqin Zheng, Yifei Wang, Ke Song, Shuangxi Li, Juanqin Zhang, Qiyoug He, Dawei Yuan and Weiguang Lv*
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2Ludong University, China

Guo Minghang, Zhao Jun, Liu Puling, Cao Xiaoqin and Guo Xiaoou
Institute of Soil Land Water Conservation Northwest A&F University, China

P1-106 Effects of Two-Point-Source Overlap Sewage Trickles Irrigation on the Distributions of Soil Water Content, Soil Salt Content and Wdpt
Yi Li and Xianze Liu*
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P1-107 Improving the Productivity of Acidic Sulfate Soils of Malaysia by Using Soil Amendments for Increased Rice Yield
Qurban Ali Pahwar*
Agriculture Department, Pakistan

P1-108 The Uptake of Intact Soluble Organic N by Two Forest Species in Subtropics
Shihe Xing, Biqing Zhou, Liming Zhang1, Yanling Mao1 and Chengkapong Chen2
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Effects of Nitrogen Deposition Rates and Frequencies on the Abundance of Soil Nitrogen Functional Genes in a Typical Steppe of Northern China
Quishi Ning
Griffith University, Australia

Effects of Potassium on Growth, Photosynthetic Characteristics and Yield of Camelina Oleifera Abel Dongnan Hu, Xiaomin Guo and Dekui Niu
Jiangxi agricultural university, China

Sedimentation Processes of Phosphorus in the Catena in Dam Reservoirs in the Mekong River Basin
Tomoyoshi Murata1, Mikiya Hiroki1, Noriko Tomioka1, Seichi Nohara1, Katsushiko Yoshida1, Michio Fukushima1, Akio Imai1, Tuantong Jutagate2, Pao Sreen2 and Bountobh Praxayomtham2
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Just a Matter of Time: Fungi and Roots Significantly and Rapidly Aggregate Soil over Four Decades in Fiume Tagliamento, Ne Italy
Ulfah Mardhiah1, Tancredi Caruso2, Angela M Gurnell3 and Matthias C Rillig3
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Assessing Soil Structural Quality Using Visual Examinations and Classical Tests
Manosonia Pulido Moncada1, Letiane Helwig Penning1, Luis Carlos Timm1, Donald Gabriels2 and Wim Cornelis1
1 Ghent University, Belgium; 2 Federal University of Pelotas, Brazil

The Effect of 13c and 15n-Labelled Green Manures on the Dynamic Changes of the Soil Microbial Biomass C and N
XiXiangyin1, Geng Sanan1, WangShufeng1, XuYing1 and LuMeyu1
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Changes in Geochemistry of Soils Induced by Foreign Soil Reconstruction Project in the Three Gorges Reservoir Area, China: Implication to Anthropogenic Pedogenetic Process
Juan Liu and Chaofu Wei2
1 Southwest University, China

Depth Profiling of Soil Organic Matter and Minerals Distribution Using Fourier Transform Mid-Infrared Photoacoustic Spectroscopy
Fei Ma, Changwen Du1, Yazhen Shen and Jiamin Zhou
Chinese Academy of Sciences, China

A New Technology for a Controlled Tension Gradient in Lysimeters in Accordance with the Surrounding Soil
Katja Richter1, Sascha Reth2, Manfred Seyfarth1 and Ulrich Weller3
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Forest Soils and Vegetation of the Mediterranean Region of Croatia
Boris Vrbek1 and Mirjana Vrbek2
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Long-Term Monitoring of Technogenically Eroded Soils in Primorsky Krai (Russia)
Raisa Makarevich *
Pacific Institute of Geography Far Eastern Branch of Russian Academy of Sciences, Russia

Changes in Properties of Different Soils Exposed to Paddy Management
Angelika Koebel1, Klaus Kaiser2, Liaivia Urbanski1, Peter Schad1, Pauline Geier1, Vanessa Vogelsang2, Reinhold Jahn1, Eva Lehndorff1, Wulf Amelung3, Sri Rahayu Utami1, Zhi-Hong Cao4, Karsten Kalbitz5, Michael Schloter2, Andrea Bannert1, Cornelia Mueller-Niggemann1, Lorenz Schwark6 and Ingrid Koegel-Knabner1
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Examination of Background Variables During Soil Ph Determination by Remote Sensing
Ibrahim Issa6, Laszlo Tolner*, Miklos Nemenyi1, Imre Czinkota*, Barbara Simon* and Imre Tolner*4, 6
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Estimation of Soil Texture Using Observed Soil Moisture in an Oasis of the Heihe River Basin, Northwest China
Ren-Min Yang1, Gan-Lin Zhang2, Feng Liu2, Yu-Guo Zhao3 and De-Cheng Li2
1 Chinese Academy of Sciences, University of the Chinese Academy of Sciences, China; 2 Chinese Academy of Sciences, China

Measuring Cadmium in Soils and Leachate Water Using Double Mixed Layer DGT in a Sandy Soil
Rawaa Abduljabbar, Peter Teasdale, Hossein Ghadiri* and Jared Panther
Griffith University, Australia

Soils and Land Use Potential in Central Province of Png
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<td>1Zhejiang University, China; 2Commonwealth Scientific and Industrial Research Organization, Australia</td>
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<td>1University of Hohenheim, Germany; 2Xinjiang Institute of Ecology and Geography, CAS, China</td>
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<td>1Kangwon National University, Korea; 2Chonnam National University, Korea; 3Rural Development Administration, Korea</td>
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Soil Phosphorus Fractionation of Two Oil Palm Fields with Different Planting Age in Pahang, Malaysia
Ngai Paing Tan1,*, Yusufujiang Yusuyin, Mum Keng Wong2, Anfin Abdu3, Kozo Iwaski4 and Sota Tanaka4
1 Ehime University, Japan; 2 Felds Agricultural Services Sdn. Bhd., Malaysia; 3 Universiti Putra Malaysia, Malaysia; 4 Kochi University, Japan

Partitioning of Different Elements to Solid and Liquid Separates with Solid-Liquid Separation of Swine Slurry Using Different Separation Techniques
Darshani Kumaragamage1,*, Wole Akinremi1, Lorne Grieger2 and Geza Racz2
1 University of Winnipeg, Canada; 2 Prairie Agricultural Machinery Institute, Canada

Studies on Application of High Se and Co Alfalfa Forage on Animal Production
Guo Xiao1, Jie Xiao Lei2,*, and Hu Hua Feng1
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

Studies on Growth Characteristics and Productivities of Mixed Sowing Forage Plants
Shen Yong Shu1, Guo Xiao2 and Jie Xiao Lei1,2
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

Migration Effect of Selenium in Soil-Grass System
Hu Hua Feng1, Jie Xie Lei2,* and Guo Xiao3
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

Value Adding of Animal Wastes to Reduce Environmental Liabilities and for the Improvement of Soil Health
Gina Villegas Panga1,*, and Sambo Pheph
1 University of the Philippines Los Banos, Philippines

DS6: Soils in the Anthropocene Era: Global Health, Food Security, and Human Health


PI-241 Participatory Soil Health Management and Food Security in Hundred Climate Vulnerable Districts of India
Ch. Srinivasaroa,*, V. Girija Veni, Y. Sudha Rani, S. Dixit and B. Venkateswarlu
Central Research Institute for Dryland Agriculture, India

PI-242 Correlation Studies On Secondary Nutrients and Soil Properties in Soils Under Rubber Plantations in Cameroon
Njukeng Nkengafac, Samalang Patrick and Ehabe Eugene Institute of Agricultural Research for Development (IRAD), Cameroon

PI-243 Soil Phosphorus Fractionation of Two Oil Palm Fields with Different Planting Age in Pahang, Malaysia
Ngai Paing Tan1,*, Yusufujiang Yusuyin, Mum Keng Wong3, Anfin Abdu4, Kozo Iwaski3 and Sota Tanaka3
1 Ehime University, Japan; 2Felds Agricultural Services Sdn. Bhd., Malaysia; 3 Universiti Putra Malaysia, Malaysia; 4 Kochi University, Japan

PI-244 Chemical and Leaching Characteristics of Lead Smelting Slags from Four Open Contaminated Sites in Nigeria
Mary Ogundiran1,*, Henk Nugteren2 and G Witkamp2
1 University of Ibadan, Nigeria; 2 Delft University of Technology, Netherlands

PI-245 Partitioning of Different Elements to Solid and Liquid Separates with Solid-Liquid Separation of Swine Slurry Using Different Separation Techniques
Darshani Kumaragamage1,*, Wole Akinremi1, Lorne Grieger2 and Geza Racz2
1 University of Winnipeg, Canada; 2 Prairie Agricultural Machinery Institute, Canada

PI-246 Studies on Application of High Se and Co Alfalfa Forage on Animal Production
Guo Xiao1, Jie Xiao Lei2,* and Hu Hua Feng1
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

PI-247 Studies on Growth Characteristics and Productivities of Mixed Sowing Forage Plants
Shen Yong Shu1, Guo Xiao2 and Jie Xiao Lei1,2
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

PI-248 Migration Effect of Selenium in Soil-Grass System
Hu Hua Feng1, Jie Xie Lei2,* and Guo Xiao3
1 Henan Animal Husbandry and Economy, China; 2 Huanghui University, China

PI-249 Value Adding of Animal Wastes to Reduce Environmental Liabilities and for the Improvement of Soil Health
Gina Villegas Panga1,*, and Sambo Pheph
1 University of the Philippines Los Banos, Philippines

PI-250 Postagrogenic Dynamic of Soils on Abandoned Croplands of Cryolithozime
Elena Mamaeva and Roman Desyatkin
Institute for Biological Problems of Cryolithozime SB RAS, Russia

PI-251 Forestry Species Effects on the Characteristics of the Poor South-Eastern Soils of Nigeria
Olanrewaju Bello2* and Bassey Etim
University of Calabar, Nigeria

PI-252 Soil Properties, Their Impact On Citrus Tree Loss and Their Management.
Okafor B.N., Akinbola G.E.* and Olaniyi A.A.1
1 National Horticultural Research Institute, Nigeria; 2 University of Ibadan, Nigeria

PI-253 A Study on the Cadmium Sorption by Two Different Humic Acids: Effect of Ionic Strength on Cadmium Sorption and Description of Isotherm Data by Different Empirical Models
Sara Molaaliabasiyan* and Hassan Tofighi
University of Tehran, Iran

PI-254 A Study on the Cadmium Sorption by Two Different Humic Acids: Effect of pH on the Cadmium Sorption
Hassan Tofighi and Sara Molaaliabasiyan*
University of Tehran, Iran

PI-255 The Attribution Study on Salinisation Soils in Northern Hebei Based on Chinese Soil Taxonomy
Jun Li, Huiyui Long1* and Qiuliang Lei2
1 Chinese Academy of Agricultural Sciences, China

PI-256 Land Use Conversion and Soils Degradation in a Lowland Tropical Landscape of Papua New Guinea
Nangu George, Rajashekar Rao B.K. and David Lopez Cornwall*, PNG University of Technology, Papua New Guines

PI-257 Variation in Heavy Metal Accumulated in the Edible Part of Nine Different Crop Plants and Their Response to the Changes in Phytoavailable Metal Pools in Soil
Byoung-Hwan Seo1, Ga-Hee Lim2, Junsik Bae1, Kye-Hoon Kim1* and Kwon-Rae Kim4
1 Gyeongsang National University of Science and Technology, Korea; 2 University of Seoul, Korea

PI-258 Variation in Heavy Metal Accumulated in the Roots of Eleven Different Medicinal Plants and Their Bioconcentration Factors
Junsik Bae1, Byoung-Hwan Seo1, Won-II Kim1* and Kwon-Rae Kim1
1 Gyeongsang National University of Science and Technology, Korea; 2 National Academy of Agricultural Science, Korea

DS7: African Eco-Efficient Solutions to Food Insecurity and Climate Change

Soil Art Featured artist: Helen Lessick, USA and Kenya, www.hatchfund.org/project/soil_sample_kenya/about

PI-259 Establishing Environmentally Safe N Fertilizer Rates in a Dystric Leptosol Using Castor (ricinus Communis L.) as a Test Crop
Martin Anikwe*
Enugu State University of Science and Technology, Nigeria

PI-260 Fertility Capability Classification of Soils of the Sokoto-Rima Flood Plain, Nigeria
Adamu Alhaji Yakubu1,*, Saminu, A. Ibrahim1, Abayomi, J. Ojanuga1 and Ajit Singh1
1 Ahmadu Bello University Zaria, Nigeria; 2 Abubakar Tafawa Balewa University Bauchi, Nigeria; 3 Usmanus Danfodiyo University Sokoto, Nigeria
P1-261 Wet Lands’ Valorisation with Oil Palm: A Response to Land Scarcity and Rainfall Rarefaction in Southern Cote D’Ivoire

N’guessan Alphone Kouassi*
Centre National de Recherche Agronomique (CNRA), Ivory Coast

P1-262 An Innovative Eco-Garden System for Sustainable Food Crop Production for Resource-Poor Households in South Africa

Simeon Materechera and Dolph Swanepoel
1Science & Technology North West University (Mafikeng Campus), South Africa; 2NEWSTART Eco-Gardens (Pty) Ltd, South Africa

P1-263 Using Conservation Agriculture to Intensify and Stabilize Agricultural Production in Southern Africa

Neal Eash*, Dayton Lambert, Deb O’dell, Forbes Walker and Jaeoon Lee
The University of Tennessee, USA

P1-264 Sustainable and Efficient Land Management Practices in the Sahel

Hitoshi Shinozaki*, Kenta Ikazaki, Shinsuke Imanaka, Ureu Tanaka, Keichi Hayashi, Satoshi Toba* and Takashi Kosaki
1Kyoto University, Japan; 2Tokyo Metropolitan University, Japan; 3Research Institute for Humanity and Nature, Japan; 4Japan International Research Center for Agricultural Sciences, Japan

P1-265 Short-Term Effects of Compost and N-Fertilizer Inputs on Maize Performance and Nutrient Uptake in Agroforestry Parklands of Burkina Faso, West Africa

Zacharia Gnankambary

P1-266 The Position of Acessibility to Fertilizer in Farming Activities in the Sub Saharan Africa Region: A Case Study of the Nigerian Rural Areas

Babagana Abubakar
Administration and operations, Seabed International, Nigeria

P1-267 Sahel Development through Lands Capabilities Surviving in Harsh Conditions

Rokhaya Fall* and Lucas Montena*
1FAO, Senegal; 2JRC EUROPA, Italy

P1-268 Indigenous African Soil Enrichment as Climate-Smart Sustainable Agriculture Alternative

Dawit Solomon*, Johannes Lehmann, James Angus Fraser*, Melissa Leach, Kojo Amanor, Søren Munch Kristiansen* and James Fairhead
1Cornell University, USA; 2Lancaster University, United Kingdom; 3University of Sussex, United Kingdom; 4University of Ghana, Ghana; 5Aarhus University, Denmark

P1-269 Relationships Between Soil Fertility Indicators and Toposequence: in the Soudano Sahelian Area: Case of the Watershed of Koutang in the Southern Peanut Basin of Senegal

Mategue Diack*, MacoumbalouM, Fary Diomé* and Khady Sow
1Université Gaston Berger, Senegal; 2Université Cheikh Anta Diop, Senegal; 3Agence Nationale du Conseil Agricole et Rural, Senegal

P1-270 Effect of Application Method and Quality of Crop Residues on Soil Nitrogen Dynamics in Maize Crop-lands With Contrasting Soil Textures in Tanzania

Tomohiro Nishigaki*, Soh Sugihara, Method Kilasara* and Shinya Funakawa
1Kyoto University, Japan; 2Sokoine University of Agriculture, Tanzania

P1-271 Assessing the Long Term Sustainability of Fertilizer Micro-Dosing in the Sahel

Saidou Koala, Job Kihara, Rolf Sommer*, Derek Peak, Anthony Kimaro* and Isaac Savini
1International Center for Tropical Agriculture (CIAT), Kenya; 2University of Saskatchewan, Canada

P1-272 Effect of Organic and Inorganic Fertilizers on Potassium Status, Uptake and Yield of Sweet Potato (Ipomoea Batatas (L) Lam) in an Ultisol in South Eastern Nigeria

Dawit Asawalam, D. O* and Iren, O. B.*
1Michael Okpara University of Agriculture, Nigeria; 2National Root Crops Research Institute, Nigeria

P1-273 Effects of Organic Manures and Urea on Soil Properties, Nutrient Uptake and Yield of Amaranthus Cruentus in a Rainforest Ultisol in Nigeria

Hitoshi Shinozaki*, Jonas Koala*, Kenea Feyissa*, Louis Sawadogo*, Jan De Leeuw* and Keith Shepherd
1World Agroforestry Centre (ICRAF), Kenya; 2INERA, Burkina Faso; 3Hawassa University, Ethiopia


Arwyn Jones
European Union Joint Research Centre, Italy

P1-275 Long-Term Effects Prescribed Burning and Livestock Enclosure Management on Soil Carbon in Dry Savanna Ecosystems of Africa

Ernias Aynekulu*, Jonas Koala*, Kenea Feyissa*, Louis Sawadogo*, Jan De Leeuw* and Keith Shepherd
1World Agroforestry Centre (ICRAF), Kenya; 2INERA, Burkina Faso; 3Hawassa University, Ethiopia

P1-276 Crusting and Mode of Seedling Emergence as Affected by Rainfall Intensity in Some Quartz Dominated South African Soils

Adonis Dakarai Ncizich and Isaiah Wakindiki*
University of Fort Hare, South Africa

P1-277 Crust Formation, Infiltration and Erosion in Some South African Soils

Isaiah Wakindiki* and Adonis Ncizich
University of Fort Hare, South Africa

P1-278 Use of Farmer Indigenous Knowledge to Strengthen Soil and Water Management Skills by Farmers in an Irrigation Scheme in Nigeria

Bashir Sani*, Yusuf Abdullahi, Ibrahim Sambo, Aliyu Yari, Adamu Yakubu and Ismail Ibrahim
Ahmadu Bello University, Nigeria

P1-279 Sustainability of Crop Residue Allocation Options in Smallholder Cereal-Legume-Livestock Farms in the Dry Savannas of West Africa

Andrews Opoku*, Robert Abaidoo*, Ebenezer Safo*, Emmanuel Iwufo*, Maman Nouri* and Naaminong Kabo*
1KNUST, Ghana; 2International Institute of Tropical Agriculture (IITA), Ghana; 3Institute for Agricultural Research and Teaching, Nigeria; 4Institut National de Recherches Agronomiques du Niger, Niger; 5Animal Research Institute, Ghana

C1.1-2: Interactions between Soil Structure, Living Organism and Organic Matter

Soil Art Featured artist: Jackie Brookner, ECOLOGICAL ART + DESIGN, USA, jackiebrookner.com
Interactions of Soil Structure and Soil Organic Matter in Paddy Soil and Upland Soils under Long-Term Fertilization
Xinhua Peng1,2, Hu Zhou1 and Xiong Yan1
1 Institute of Soil Science, CAS, China; 2Hunan Agricultural University, China

Effect of the Fresh Waste Mushroom Beds of pleurotus Ostreatus on the Microstructure and the Physico-Chemical Properties of Soils in Brazil
Hiroko Nakatsuka1, Masato Oda1, Yukimi Hayashi2, Junko Takahashi1 and Kenji Tamura2
1 University of Tsukuba, Japan; 2Japan International Research Center for Agricultural Sciences, Japan; 3Sitio TKM, Brazil

How Soil and Sediment Features affect the Growing and Vitality Conditions of Populus Euphratica?
Christian Opp1, Andreas Giau2, Zhandong Sun3 and Umut Halik1
1 University of Marburg, Germany; 2University of Frankfurt, Germany; 3Chinese Academy of Science, China; 4Xinjiang University, China

Microscopic Genesity Diagnosis of the Desert Varish and Biogenic Crusts in Arid Soils of Central Asia
Marina Lebedeva1 and Vasiliy Shishkov2
1 V.V. Dokuchaev Soil Science Institute, Russia; 2Institute of Geography, Russia

Does Rhizosphere and Litter Diversity Mediate the Biogeochemistry of Restoration Soils?
Hongtao Zhong1, Young-Nam Kim2, Carol Smith1, Brett Robinson and Nicholas Dickinson
1 Lincoln University, New Zealand

Biogeochemical Role of Native and Exotic Earthworms in New Zealand Soils
Young-Nam Kim1, Hong-Tao Zhong1, Keum-Ah Lee1, Stephanie Boyer1, Brett Robinson2 and Dickinson Nicholas1
1 Lincoln University, New Zealand; 2University of Canterbury, New Zealand

Soil Macroaggregate Self-Assembly as a Feedback to Process “Macroaggregates Breakdown by Tillage”
Vladimir Khododov and Nadezhda Yaroslavtseva
Dokuchaev Soil Science Institute, Russia

Bruna Rossin1, Deborah Mendes2, Felipe Guimaraes1, Nadia Regina Do Nascimento2 and Guillerme Taisson Bueno2
1 UNESP, Brazil; 2 PUC-Minas, Brazil; 3Deplan, Unesp, Brazil

Forest Humus Forms, Carbon and Nitrogen Stocks in Boreal-Nemoral Ecotone
Imants Kukulis1 and Zane Zigure
University of Latvia, Latvia

The Spatial Distribution Pattern of Soil-Dwelling Termites in Primary Forest and Oil Palm Plantation in Sabah, Malaysia
Mum Keng Wong1 and Homathevi Rahman2
1 Felda Agricultural Services Sdn Bhd, Malaysia; 2Universiti Malaysia Sabah, Malaysia

Effects of Different Organic Materials on Fractal Features of Micro Aggregate and Available Nutrients in Chao Soil
Li Teng, Rao Wei, Wang Daichang, Liu Shiliang, Han Yanlai and Zhu Yueni
Henan Agricultural University, China

Net Effect of Liming on Soil Organic Carbon Stocks: A Review
Remigio Paradela1, Inigo Virto2 and Claire Chenu2
1 AgroParis Tech, France; 2Universidad Publica de Navarra, Spain

Balance of Organic Matter in a Maize Agroecosystem
Monika Skowronska1, Tadeusz Filipiek and Pawel Harasim
University of Life Sciences in Lublin, Poland

C1.3-2: Volcanic Soils: Distinctive Properties and Management

Phosphorus-Arsenic Interactions in Volcanic-Ash Soils in Relation to Arsenic Mobility and Bioavailability
Santiago Mahimairaja1 and Nanthi Bolain2
1 Tamil Nadu Agricultural University, India; 2University of South Australia, Australia

Distribution, Properties, and Genesis of Nonallophanic Andosols in Central Kyushu, Japan
Hideo Kubotera1, Takashi Kusaba2, Takeo Shima3 and Iwo Shishibe1
1 NARO Agricultural Research Center, Japan; 2NARO Kyushu Okinawa Agricultural Research Center, Japan; 3Oita Prefectural Agriculture, Japan

Significance of Aluminum-Humus Complexes in Andosols
Tadashi Takahashi1
Tohoku University, Japan

Exhuming Buried Allophanic Soil Horizons and Mixing Them with Vitrands in Central North Island, New Zealand: Impacts on Soil Moisture Availability
Laubscher Nadia, Megan R Bal1 and David J Lowe
University of Waikato, New Zealand

Elemental Composition of Agricultural Soils in Japan in Relation to the Genesis and Inherent Fertility of The Soils
Junta Yanai1, Hidekazu Yamada and Atsushi Kato2
1 Junta Yanai, 2Hokkaido University, Japan

Physical and Chemical Properties of Volcanic Ash Influenced Soils on Mount Rainier, Washington, USA
Phil Roberts
USDA-NRCS, USA

Effect of Organic Matter Application and Conventional Tillage on Soil Organic Carbon Content of a Volcanic Ash Soil in West Java, Indonesia
Wiwik Hartatik1, D. Setyorini2, N. Sumarni2, N. Suwandi1 and T. Sugino2
1 Indonesian Soil Research Institute, Indonesia; 2Indonesian Vegetables Research Institute, Indonesia; 3Japan International Research Center for Agricultural Sciences, Indonesia

Soil Genesis and Mineralogy in Volcanic Materials in the Mediterranean Climate of California, USA
Randi Dahlgren1 and Tadashi Takahashi1
1 University of California - Davis, USA; 2Tohoku University, Japan

Effects of Heating on the Formation of Black Humic Acids
Naoya Katsumi1, Koyo Yonoabashi and Masanori Okazaki
Ishikawa Prefectural University, Japan

Stable Isotope Analysis for Evaluating Origins and Exchangeability of Sulfate in Deep Andisols in Ibaraki and Kagoshima, Japan
Morihiro Maeda1,2, Daiyuke Yamada2,3, Hidetaka Katou3, Ken-Ichi Osaka1 and Hitoshi Chiba1
1 Okayama University, Japan; 2Oyo Corporation, Japan; 3National Institute for Agro-Environmental Sciences, Japan; 4The University of Shiga Prefecture, Japan
P1-303 Factors Influencing Carbon Availability and Metabolic Quotients in Temperate Volcanic and Tropical Forest Soils
Xu Xingkai*
Chinese Academy of Sciences, China

P1-304 Volcanic Soils Attributes Affecting Forest Productivity in Japan
Akihiro Imaya*, Shinji Kaneko and Shuichiro Yoshinaga
Forestry and Forest Products Research Institute, Japan

P1-305 Importance of Physically Protected Organic Matter to Carbon Sequestration in Chilean Volcanic Soils
Raul Panichini1, Francisco Matus, Roberto Godoy and Cornelia Rumpel
1 Universidad de La Frontera, Chile; 2 Universidad Austral de Chile, Chile; 3 Université Pierre et Marie Curie, France

P1-306 (Moved to O42-S) Soil Genesis and Mineralogy across a Volcanic Lithosequence in Northern California
Stewart Wilson*, Jean-Jacques Lambert and Randy Dahlgren
University of California-Davis, USA

P1-307 The Physical Quality of Andisols Under a Wide Range of Soil Development and Land Uses in Southern Chile
Jose Dorner, Dorota Dec, Susana Valle, Felipe Zuniga, Jorge Ivelic and Ignacio Lopez
Universidad Austral de Chile, Chile

P1-308 Stability of Soil Organic Matter in Particle Size Fractions in Top And Subsoil of Chilean Andisols
Marcela Calabi-Floody*, Cornelia Rumpel1 and Maria De La Luz Morad
1 Scientific and Technological Bioresource Nucleus (BIO-REN-UFRO), Chile; 2 Laboratoire de Biogeochemie et Ecologie des Milieux Continentaux (BIOEMCO), UMR Universite Paris VI et XII-CNRS-INRA-IRD, France; 3 Universidad de La Frontera, Chile

P1-309 Accumulation and Mobility of Sulfate in Andosol Profiles Under Different Land Use and Fertilization
Hidehiko Katou*, Morihiro Maeda, Daisuke Yamada and Kenichi Osakada
1 National Institute for Agro-Environmental Sciences, Japan; 2 Okayama University, Japan; 3 University of Shiga Prefecture, Japan

P1-310 Effect of Applying Fresh Cow Dung on Phosphorus Pools and Other Soil Properties in an Acid Chilean Andisol
Maria Luz Mora* and Rolando Demanet
Universidad de La Frontera, Chile

P1-311 Diminishing Grain-Size of Mt. Fuji-Derived Holocene Intermediate Terrestrial Phras in Japan with Increasing Distance, and Different Directions, from Volcanic Source: Influences on Andic Soil Properties
Hiroshi Takesako and Yaji Ogura
Meiji University, Japan

C1.4-1: Marginal Soils- The Classification of Technogenic, Subaqueous, and Extraterrestrial Soil-like Bodies
Soil Art Featured artist: Margaret Boozer, RED DIRT STUDIO, USA, www.margaretboozer.com

P1-312 Cultivation of Populus Euphratica* Populus Alba Hybrid in Garmser Saline Soil Plain in Iran
Rasool Mirakhorli
Agriculture, Iran

P1-313 Utilization of Salt Tolerant Species for Rehabilitation Coastal Saline Soil at Petchaburi Province of Thailand
Pirach Pongwachian*, Arunee Yuwanijaya, Chaityanam Dissapatorn1, Rungsun Im-Erb and Eirich Kohno
1 Land Development Department, Thailand; 2 Nihon University, Japan

P1-314 Characterization and Classification of Some Selected WtLand Soils for Rice and Vegetable Production in Ekiti State, Nigeria
Abayomi Fasina, Olubunmi Shittu and Olabode Amolaja
Ekiti state University, Nigeria

P1-315 Soil Resource Potential of Buraka Micro-Watershed in Mewat District of Haryana, India for Integrated Development
Sk Mahapatra*, Cs Waia, Tarsem Lal, Ram Gopal, Gs Sidhu and Jayan Surya
Indian Council of Agricultural Research, India

P1-316 The Subaqueous Soils of the Danube Delta Biosphere Reserve
Valentina Cotet1, Victoria Mocanu2 and Nicolae Florea3
1 National Research and Development Institute for Soil Science, Dunarea de Jos University from Galati, Romania; 2 National Research and Development Institute for Soil Science, Romania; 3 Academy of Agricultural and Forestry Sciences, Gh. Ionescu Sisesti, Romania

P1-317 Elite and Prime Land: Similar Messages and Continued Trade-Offs Over Half a Century Later in New Zealand’s Largest City
Fiona Curran Cournane*, Melanie Vaughan, Ali Memon and Craig Fredrickson
Auckland Council, New Zealand

P1-318 The Amount and Distribution of Peatlands Carbon Stock in Selected Areas of Papua, Indonesia
Sartji Taberma1, Julius Dwi Nugroho1, Irminda Aiko Fifi Djuna2, Saraswati Prabawardani, Daniel Murdiyarso* and Joko Puruboposiput1
1 State University of Papua, Indonesia; 2 Center for International Forestry Research (CIFOR), Indonesia

P1-319 Agriculture Development of Mustard Plants (brasica Junacea) Grown on Mining Soils Paloma Nadal Ruiz* and Arturo Aguirre Gomez
Universidad Autonomia Nacional de Mexico, Mexico

P1-320 Subsidence Rate in Peatland Planted to Acacia Cusarcarpa at Bukit Batu, Riau over a Two-Year Measurement
Darmawan*, Basuki Sumawinata, D P T Baskoro and C P Munoz
1 Bogor Agricultural University, Indonesia; 2 Sinarmas Forestry, Indonesia

P1-321 Exactly Soil Science Study of South-West Iran Region
Alireza Zahirnia1, Mahmood Alimohamadi1 and Kobra Makhvandi2
1 Sugar Cane and by Product Company, Iran; 2 Saman Abrah Co, Iran

P1-322 Characterization and Classification of Salt Affected Soils for Reclamation and Management - A Case Study of Haryana, India
Jaya N. Surya*, G. S. Sidhu, C. S. Walla, Tarsem Lal, S.K. Mahapatra and Dipak Sarkar
National Bureau of Soil Survey and Land Use Planning, India
P1-323 Nutrient Cycle in Acacia Craspisscarpa Plantation on Deep Tropical Peatland
Suwardi 1, Gunawan Dajakirana 2, Basuki Sumawinata 1, Darmawan 2 and Dian Novarina 2
1 Bogor Agricultural University, Indonesia; 2 Riau Andalan Pulp and Paper, Indonesia

C1.5-1: Validation of Soil Carbon Sequestration
P1-324 Changes in Soil Carbon and Nitrogen Contents, and their Anaerobic Decomposition Potentials after Rice Paddy Abandoned to Wetland
Weiguo Cheng 1, Tian Liu 1, Shuehi Sato 1, Shuirong Tang 1, Satoshi Hattori 1, Mitsuhiko Hayashida 1, Keitaro Tawaraya 1, Ronggui Hu 1, Qiaoyun Huang 1, Xingkai Xu 2 and Yao Huang 2
1 Yamagata University, Japan; 2 Huzhong Agricultural University, China; 3 Chinese Academy of Sciences, China

P1-325 Spatial Evident of Soil Organic Carbon Inference in Tropical Forest Domes and Geospatial Domain
Vandana Tomar 3 and Amit Kumar 1
1 Haryana Institute of Public Administration, India; 2 VLSI, NIT Kurukshetra, India

P1-326 Evaluation of Soil and Plant Carbon, Nitrogen and Water Use Efficiency under Different Tillage Systems and Manure Application Using Stable Isotope Technique
Mutui Busani 1, Felix Salaka 1, Claudio Tunиз 1 and Leo Mayr 1
1 Federal University of Agriculture, Nigeria; 2 The Abud Salam International Centre for Theoretical Physics (ICTP), Italy; 3 IAEA Seibersdorf, Austria

P1-327 Carbon Stocks and Soil Fertility in Physically Degraded Lands - Are We Over Estimating?
Mavinakoppa S Nagaraja 1, Prabhakara, G V. Reddy 2 and Srinivasamurthy, A Chilakunda 2
1 University of Horticultural Sciences, India; 2 University of Agricultural Sciences, India

P1-328 Effect of Soil, Fertilizer and Cropping System Management on Soil Carbon Storage under Maize and Cassava Production
Luanmanee, S. 1, Tipayarak, S. 1, Paisancharoen, K. 2, Amonpong, W. 2 and Klongchang, S. 2
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1 University of Minnesota, USA

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Adriana Garcia Lamothe, Jorge Amin and Leo Mayr
1 Università di Bologna, Italy; 2 Griffith University, Australia; 3 Griffith University, University of the Sunshine Coast, Australia

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1 Griffith University, Australia

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1 Swedish University of Agricultural Sciences, Sweden; 2 North Carolina State University, USA
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1 Centre de Recherche Public Gabriel Lippmann, Luxembourg; 2 Universite Pierre et Marie Curie, France

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Boris Jansen1, Jens Altmann and Karsten Kalbitz
University of Amsterdam, Netherlands

P1-356 Effect of Agricultural Land Use Change on Community Composition of Bacteria and Ammonia Oxidizers
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1 Chinese Academy of Sciences, China; 2 Lincoln University, New Zealand

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Kiwamu Minamisawa
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Institute of Livestock and Grassland Science, NARO, Japan

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Can Tho University, Viet Nam

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Cedric Le Guillou1, Nicolas Chemidlin Prevost-Boure2, Virginie Nowak3, Samuel Dequidet4, Sebastien Terrat1, Florentin Constantines1, Vincent Tardy1, Safya Menasseri-Aubry1, Valerie Viaud2, Pierre-Alain Marion1 and Lionel Ranjard1
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P1-364 Microbial Gene Abundance and Community Structure of Particle Size Fractions and the Change with Rice Cultivation Length
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P1-365 How Do Soil Properties and Environmental Conditions Affect Nitrous Oxide Emission from Nitriﬁcation and Distribution of Ammonia Oxidizers?
Rui Liu1,2, Deli Chen1, Helen Suter1 and Helen Hayden2
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P1-385 Land Use Change in Indian Western Ghats: Sink-Source Potential For CO2
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P1-388 Soil Redox Chemistry and Greenhouse Gas Emission in Lowland Rice Paddy Soils: Impact of Rice Straw Incorporation and Elevated Temperature
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P1-392 Response of Key Soil Properties to Predicted Climate Change over the Sydney Region, Australia
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Ei Ei Thein1, Sonoko Dorothea Bellingrath-Kimura1, Aung Zaw Oo1, Tadashi Yokoyama1, Naoko Ohtsu1 and Takashi Motobayashi1
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Kyoto University, Japan

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P1-396 Nitrile Exposure: A Metric to Describe the Influence of Soil NO3- on N2O Emissions.
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Rong Sheng, Jinbo Liu and Wenxue Wei* Institute of Subtropical Agriculture, The Chinese Academy of Sciences, China

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The University of Melbourne, Australia

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Catarina Martins¹, Loic Nazaries¹, Catriona Macdonald¹, Ian Anderson¹, Sarah Hobie², Rodney Ventera², Peter B. Reich³ and Brajesh K. Singh⁴
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Zofia Stepniowska¹, Agnieszka Kuzniar¹, Anna Szafranek-Nakonieczny¹, Weronika Goraj³, Danuta Urban¹ and Andrzej Gorski¹
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Xuezhong Li¹, Mingan Shao², Xiaorong Wei³ and Xiaoxu Jia²
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Can a Nitrification Inhibitor Improve Nitrogen Use Efficiency in Intensive Vegetable Production Systems? Helen Suter*, Shu-Kee Lam, Mei Bai, Rohan Davies and Deli Chen
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Antecedent Water Treatment Changes Nitrous Oxide Emission and Production Processes in an Acidic Arable Soil in China Lianfeng Wang* and Yang Wang
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Nitrification and Associated N2O Emission in Soil Responds Differently to Temperature Thang Lai*, Ryan Farquharson* and Matthew Denton*
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Factors and Processes Controlling Ghg Soil Emissions in Zonal Functional Set of Central Russia Ecosystems Ivan Vasenev*, Yacheslav Vasenev and Riccardo Valentini
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CO2, N2O and CH4 Production/consumption Potentials of Soils under Different Land Use Types in Central Japan and Eastern Hungary Yuhua Kong, Masaa Takahashi*, Hirohiko Nagano†, Janos Katai†, Imure Vago†, Miwa Yashima† and Kaziuyuki Inubushi†
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Tillage and Organic Materials Affect Soil Organic Carbon under Wheat-Rice Cropping System in Typic Calcisols soils Muhammad Ibrahim*, Amwar-Ul- Hassan, Muhammad Arshad†, Fakhar Mujeeb†, Farhat Abbas* and Muhammad Adrees†
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Effects of Biochar on Greenhouse Gas Emissions from Arable and Bioenergy Crops Jorge Paz-Ferreiro*, Gabriel Gasco, Ana Maria Mendez, Nick Ostle* and Niall McNamara†
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Nitrous Oxide Emissions from Different N Fertilizer Rates Applied to a Maize Crop under Conventional Tillage in Brazil Bruno Alves*, Segundo Urquiaga and Robert Boddey
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Above-Ground Carbon Pools of Citrus Acreage in Pakistan Bushra Akram, Farhat Abbas*, Muhammad Ibrahim*, Farrah Khan Nawaz* and Muhammad Raza Salik†
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Effect of N Fertilizers on Soil CO2 Flux in a Young Oil Palm Plantation on TropicalPEATland, Sarawak, Malaysia Auldery Chaddy* and Lulie Melling
Tropical Pest Research Laboratory Unit, Malaysia

Estimating Soil N2O Diffusivity from Fick’s Law Using Soil CO2 Concentration Profile and Efflux Bruno Alves*, Segundo Urquiaga*, Patricia Alves* and Robert Boddey†
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Nitrous Oxide Emissions from Farm Effluents Application on a New Zealand Pasture Jie Li*, Yuanliang Shi†, Jiafa Liu*, David Houlbrookes*, Stewart Ledgard* and Anwar Ghani†
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Mitigation of Ammonia Emissions from Cattle Manure Using Organic Amendments C. Pluimak Abesekara, Kathisn Dassanayake and Deli Chen
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Mechanisms Involved in Greenhouse Gas Emission from Saline Paddy Soils in Bangladesh Toufiq Iqbal*
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Weak Correlation between Methane Production and Abundance of Methanogens across Three Brackish Marshes Zones in the Min River Estuary, China Tong Chuan*, C. X. She, J. Z., Ni, P. Yang, Y. F. Jin and J. F. Huang
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Methane Emission Characteristics of Some Philippine Lowland Rice Varieties Nonilona Daquiado*, Pil Joo Kim**, Jessie Gutierrez* and Tae Hoo Kim*
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Effect of Warming and Precipitation Increase on Extracellular Enzyme Activities and Ghgs Fluxes in an Arctic Tundra Soil Juyoung Seo*, Ji Young Jung*, Yoo Kyung Lee* and Hojeong Kang*
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Research of Cultivation Techniques for the Reduction of Fertilizer in Greenhouse Soo Jeong Lim* and Seong Chul Choi
Gang Won Provincial ARES, Korea

Assessment on Ghgs Emission from the Cropland Sector in Korea Jong Sik, Lee
National Academy of Agricultural Science

Specific Inhibition of CH4 Production in Soil Using Chemical Analogue of Coenzyme M: A Presques- ter of Methanogenesis
Dynamics of Methanotrophic and Methanogenic Communities and Methane Emissions in a Flooded Rice Field Ecosystem
Hyo Jung Lee and Che Ok Jeon*
Chung-Ang University, Korea

Comparison of Methanotrophic bacteria Diversity between Crop Cultivation and Fallow Seasons in a Temperate Mono-Rice Paddy Soil
Hyo Suk Gwon, Hyun Young Hwang and Pil Joo Kim*
Gyeongsang National University, Korea

C3.3-1: Mobilization of Essential Micronutrients by Exudates

Response of Different Plant Species to Boron Concentrations in Sewage Wastewater and Soil
Rawia El Motaïum† and N Hayrouka†
1 Nuclear Research Center, Egypt; 2 Atomic Energy Commission of Syria

Effect of Foliarblend Micronutrient and Npk 15:15:15 Fertilizers on the Growth and Yield of Maize (Zea Mays L.) in North- Central of Nigeria
Adewale Nafiu* and Victor Chude
Federal Ministry of Agriculture and Rural Development, Nigeria

Rice Nutrition and Zinc Concentrations in Soil of Thailand
Orathai Sukreeyapongse*, Napatsorn Nofesri, Onanong Chomsiri, Nareumol Jantawatcharagorn, Saruchet Narabhat, Surachai Pattanapiboon and Nuanrat Yingcharoen
Ministry of Agriculture and Cooperatives, Thailand

Effects of the Ratios of Nitrate, Ammonium and Urea Nitrogen In Nutrient Solution on the Yield and Quality of Hydroponic Spinach
Bei Liu
Shandong Agricultural University, China

Foliar Application of Zinc Improves Shoot-Grain Zinc Concentrations of Wheat Decreased by High Available Phosphorus in Soil
Wei Zhang, Yan Deng, Xin-Ping Chen and Chun-Qin Zou*
China Agricultural University, China

The Role of Flavonoids in Promoting the Mobilization of Fe and Mn in Soil
Roberto Terzano†, Giovanni Cuccovillo†, Concetta Eliana Gattullo†, Luca Medici†, Nicola Tomasi†, Roberto Pinton†, Stefano Cesco† and Tanja Mirmo†
1 University of Bari, Italy; 2 C.N.R., Italy; 3 University of Udine, Italy; 4 Free University of Bolzano, Italy

Coprecipitation with Aluminum Oxides Reduces the Efficiency of Citrate in Mobilizing Cu from Calcareous Soils
Roberto Terzano†, Giovanni Cuccovillo†, Silvia Pascazio†, Carmine Crecchio†, Antonio Lettino†, Saverio Fiore†, Nicola Tomasi†, Roberto Pinton†, Stefano Cesco† and Tanja Mirmo†
1 University of Bari, Italy; 2 C.N.R., Italy; 3 University of Udine, Italy; 4 Free University of Bolzano, Italy

Detection of Siderophores in Natural Environments
Megan Andrews and Owen Ducworth*
North Carolina State University, USA

Cotton Yield and Quality Responses to Sulfur and Zinc Applications under No-Tillage
Xinhua Yin*, Owen Gwathmey† and Christopher Main†
1 University of Tennessee, USA; 2 Dow AgroSciences, USA

Interaction between Fe Plaque and Zn Uptake in Rice
Salimani Claif*, Matthias Wissuwa, Juan Paraisca Tanaka and Asako Morii
Japan International Research Centre for Agricultural Science, Japan

The Soil Acidity on Wugong Mountain’s Meadow Degradation Areas
Ziwen Zhao†, Wenyuan Zhang†, Zhi Li†, Dekui Niü†, Xiaomin Guo†, Shangshu Huang†, Weiping Qian† and Huizheng Peng†
1 Jiangxi Agricultural University, China; 2 Pingxiang Forestry Science Institute, China

Variations of Available Nitrogen along the Upland Meadow in Wugong Mountain
Zhiyang Yuan, Zhi Li†, Dekui Niü†, Wenyuan Zhang†, Xiaomin Guo†, Xun Chen and Xiao Cheng
Jiangxi Agricultural University, China

Soil Phosphorus Availability of Plantation in Degraded Sub-Tropical Hilly Red Soil Region
Xia Geng†, Xiaohua Wei†, Xiaorui Zhao†, Yuanqi Liu†, Dekui Niü†, Wenyuan Zhang†, Dongnan Hu†, Zhi Li† and Xiaomin Guo†
1 Jiangxi Agricultural University, China; 2 University of British Columbia (Okanagan campus), Canada

C3.6-1: Saline and Sodic Ecosystems in the Changing World

Management of Sodic Soils Through Cropping and Afforestation
Kripal Singh†, Bajrang Singh† and DD Patra†
1 CSIR-Central Institute of Medicinal and Aromatic Plants, India; 2 CSIR-National Botanical Research Institute, India

Effect of Different Leaf Litters on Carbon, Nitrogen and Microbial Activities of Sodic Soils
Kripal Singh†, Bajrang Singh† and DD Singh†
1 CSIR-Central Institute of Medicinal and Aromatic Plants, India; 2 CSIR-National Botanical Research Institute, India; 3 Central Institute of Medicinal and Aromatic Plants, India

Effect of the Integration Program Recommendation for Soil Management and Fertilizer on Farm and Organic Materials Application on Soil Organic Carbon Stock and Rice Production in Saline Soil, Thailand
Supanee Srutiboon*, USA Jakarta and Rudee Kodcharoe Land Development Department Regional Office 5, Thailand

Soil Salinity Variability and its Driving Factors at Multiple Spatio-Temporal Scales in the Oasis Of Xinjiang, China
Wentai Zhang, Hongqi Wu, Haibin Gu, Ze Wang and Jian-dong Sheng†
Xinjiang Agricultural University, China

Dynamics and Driving Forces of Salt-Affected Land Degradation in the Yellow River Delta
Gengxing Zhao, Mingxiu Gao, Chunyan Chang and Zhi-yan Wang
Shandong Agricultural University, China

Effects of Sodic Soil Reclamation Using Flue Gas Desulphurized Gypsum on Soil Pore Characteristics, Bulk Density, and Saturated Hydraulic Conductivity
Haoliang Yu, Peiling Yang†, Shumei Ren†, Xin He† and Henry Lin†
1 China Agricultural University, China; 2 Pennsylvania State University, USA
Effect of Deforestation on Soil Salinity and Sodicity in Cordoba, Argentina
Elena Bonadío1, Cecilia Milan2, Silvia Olivo3, Maximiliano Finello4 and Micaela Manzotti5
1 Universidad Nacional de Rio Cuarto, Universidad Nacional de Villa Maria, Argentina; 2 Universidad Nacional de Villa Maria, Argentina; 3 INTA, Argentina

Using Vis-Nir Spectroscopy for Digital Mapping of Selected Soil Properties in a Coastal Area
Yan Guo1, Zhou Shi1 and Ting Liu1
1 Henan Academy of Agricultural Sciences, China; 2 Zhejiang University, China

Shallow Sand-Filled Niches Beneath Drip Emitters Made Reclamation of an Impermeable Saline-Sodic Soil Possible: Ameliorative Effect on Soil Nutrients and Related Enzymes Activities
Tibin Zhang1, Yaoxu Kang1 and Hao Feng1
1 Northwest A&F University, China; 2 Institute of Geographic Sciences and Natural Resources Research, CAS, China

The Features of Arid Territories Soil Salinization (on The Example Of The Volga Delta)
Lyudmila Yakovleva and Anna Fedotova
Astrakhan State University, Russia

Chemistry of Salt Affected Soils in Lower Mesoamerican (Imp) in Iraq
Ali Al-Hasani and Ibrahim Abdulrazzaq
Ministry of Science and Technology, Iraq

Effect of Carbonate/bicarbonate Ion on Phytosiderophore Release by Puccinelliachinamphoensis Ohwi, Graminaceous Plant Tolerant to Sodic-Saline Condition in Northeast China
Shigenao Kawai1, Hideyuki Tamate1 and Atsushi Sato1
1 Iwate University, Japan; 2 Miyagi Prefecture, Japan; 3 Akita Prefectural University, Japan

Aluminum Toxicity in Plants under Sodic-Saline Soils Whose Ph is 10
Tomohiro Yoshida1, Atsushi Sato1 and Shigenao Kawai1
1 Iwate University, Japan; 2 Akita Prefectural University, Japan

Isolation and Evaluation of Salt Tolerant Microorganisms and Their Impact in Adaptation of Faba Bean To Salinity Stress.
I.A. El-Akhdar1, Neer El-Din1, M.1, and A. R. El-Shanshoury1
1 Water and Environment Research Institute, ARC, Egypt; 2 Tanta University, Egypt

Alas Soils Saline Phytotoxigenicity Dynamics in Central Yakutia
Mayya Nikoleeva1 and Alexey Desyatkin
Institute for Biological Problems of Cryolithozone SB RAS, Russia

Effects of Impoundment of the Three Gorges Reservoir on Salt-Water Dynamics in the Yangtze River Estuary
Wenping Xie and Jingsong Yang1
Chinese Academy of Sciences, China

Suspended Organic Particulate Reduces Effluent Seepage and Limits Salinisation Under Intensive Livestock Effluent Ponds
John Bennett1 and Bradley Warren
University of Southern Queensland, Australia

Remediaion of Sodic Soil by Calcium Carbonate and Pig Manure Compost
Sakuya Ishibashi1, Taku Nishimura, Shoichiro Hamamoto and Hiromi Imoto
The University of Tokyo, Japan

Effect of Soil to Water Ratios on Cation Exchange Equilibria in Salt-Affected Soils: Case Study of Mugerero Paddy Soils in Burundian Lower Rusizi Plain
severin Njimbere1, Genvais Rufykiri2 and Joseph Dufy1
1 Universite catholique de Louvain, Belgium; 2 Universite du Burundi, Burundi

Isolation of Salt Tolerant Microorganisms in Salt Affected Soils of East Anatolian Region, Erzurum, Turkey
Medine Guluce1, Furkan Orhan1, Metin Turan2, Fikrettin Sahin1 and Guleray Agar1
1 Ataturk University, Turkey; 2 Agri Ibrahim Cenleri University, Turkey; 3 Yeditepe University Kayisdagi, Turkey; 4 Ataturk University Faculty of Science Technology Department of Biology, Turkey

Effect of Land Use Patterns on Soil Carbon Seques- tration and Its Management in a Typical Coastal Salt-Affected Area of China
Jingsong Yang1, Wenhui Jin, Wenping Xie and Xiangping Wang
Chinese Academy of Sciences, China

Effects of Drought and Irrigation Water Salinity Increases on Quantity and Quality of Sugarcane Production in South West Iran Weather Conditions Alineza Zahimia, Mahmood Alimohamadi and Satar Shahkaba Sugarcane and by Products Development Company, Iran

CO2 Flux in Salt Affected and Alkaline Soils Under Cotton in Tarim Oasis (china)
Xiaoning Zhao1, Yakov Kuzyakov2, Chenshun Zhao2 and Karl Stahr3
1 Hohenheim University, Germany; 2 Georg August University of Gottingen, Germany; 3 Chinese Academy of Sciences, CAS, China

Saline and Sodic Vertisols and Vertic Soils in European Russia
Nikolay Khitrov1, Yuri Cheverdin2, Nataliya Chizhihova1 and Ludmila Rogovneva1
1 V.V.Dokuchaev Soil Science Institute, Russia; 2 Voronezh Research Institute of Agriculture, Russia

Diagnostics of the Development Degree of the Solonetzic Process in Natural and Agricultural Soils Valentin Khan1, Irina Lubimova and Irina Salpagarova
Dokuchaev Institute of Soil Science, Russia

Spatial Distribution Patterns of Soil Salinity in the Heavy Salinization Zone at Different Scales in Yin-chuan Plain
Anping Yan1, Kehe Hu1, Yongping Wei1, Liming Liu2 and Dezhou1
1 China Agricultural University, China; 2 The University of Melbourne, Australia

Characteristics of Soil Salinity in Typical Zone of South Xinjiang
Guangming Liu1, Jingsong Yang2, Yakun Wu1 and Shipeng Yu1
1 Chinese Academy of Sciences, China; 2 Anhui University of Technology, China

Effects of Sodium Ion in Different Cultural Media on Salinity Tolerance for Seedling Stages Of Rice Plants (oryza Sativa L.)
Risa Nagura1, Kosuke Noborio2 and Meechai Siangliw2
1 Meiji University, Japan; 2 Kasetsart University, Thailand

Variability of Salt Affected Soils in Khorat Basin, Thailand
Saowanah Tawnpruek1, Thongchai Khongnonglan1, Apichat Boonkasem1, Nattaphol Chittamart1, Irb Kheoru- enrome1, Sumitra Watana1, Naruekamon Janjirawutikul1 and Bhannaptit Samrit1
P1-493 (Moved to 07-5) Hydrostratigraphic Analysis Using Electromagnetic Induction Data and A Spatially-Constrained Algorithm for Quasi-Three-Dimensional Electrical Conductivity Imaging
John Triantafils
The University of New South Wales, Australia

P1-494 Soil Surface Salt Accumulation Phenomena Dominated by Shallow Groundwater Fluctuations under Arid and Semi-Arid Climate
Khaled Ibrahimi1, Tsuyoshi Miyazaki2 and Taku Nishimura3
1 The University of Tokyo, Japan, The university of sousse, Tunisia; 2 The University of Tokyo, Japan

P1-495 Sandy Soil Layer Alleviates Down-To-Top Enrichment of Salts in Saline Fields
Youcai Xiong*, Jianyong Wang, Zheng Zheng and Tao Tian
Lanzhou University, China

P1-496 Phyto-Remediation of Saline Coastal Soils Through Halophyte Plant Species
Sanjay Arora and Chirag Bhuva1
1 Central Soil Salinity Research Institute, Regional Research Station, India; 2 Veer Narmad South Gujarat University, India

P1-497 Soil Salinization in Southern Afghanistan
James Fisher
Soil Solutions LLC, USA

P1-498 Effectiveness of Subsurface Drainage System at Coarse-Textured Reclaimed Tidal Land
Sanghun Lee*, Hui-Soo Bae, Soo-Hwan Lee, Jong-Gook Kang, Seon-A Hwang, Yang-Yeol Oh, Hong-Kyu Kim and Kyeong-Bo Lee
National Institute of Crop Science, RDA, Korea

P1-499 Effect of Green Manure Crops on Soil Aggregate Stability under Different Soil Salinity Levels at Sae-megum-e Reclaimed Tidal Land
Sanghun Lee*, Hui-Soo Bae, Soo-Hwan Lee, Jong-Gook Kang, Seon-A Hwang, Yang-Yeol Oh, Hong-Kyu Kim and Kyeong-Bo Lee
National Institute of Crop Science, RDA, Korea

P1-500 Effect of Soil EC on N Mineralization of Livestock Manure Compost in Sea-Reclaimed Soils of Korea
Jeong Hyeyeon Kim1, Tae II Moon2, Kook Sik Shin2, Seung Whan Kim1, Doug Young Chung2, Myoung Yong Shim1 and Sang Eun Lee4
1 Hankyong National University, Korea; 2 National Institute of Crop Science, Korea; 3 Chungnam National University, Korea

P1-501 Effect of Subsurface Drainage Systems on Soil Salinity and Crop Development in Sae-megum-e Reclaimed Tidal Land
Sanghun Lee*, Hui-Soo Bae, Soo-Hwan Lee, Jong-Gook Kang, Seon-A Hwang, Yang-Yeol Oh, Hong-Kyu Kim and Kyeong-Bo Lee
National Institute of Crop Science, RDA, Korea

P1-502 Seasonal Variations in Soil Salinity of Paddy Soil and Yield Potential in Rice(oryza Sativa. L.) Cultivated in Newly Reclaimed Tidal Lands
Weon-Yong Choi1, Su-Hwan Lee, Sun Kim, Jae-Hyeok Jeong, Kwang-Min Cho, Jang-Hui Lee and Kyeong-Bo Lee
National Institute of Crop Science, RDA, Korea

P1-503 A Detailed Soil Survey on Reclaimed Land in the Western and Southern Coastal Area of the Korea Peninsula
Yeoung-il Kim*, Byeong-Deok Hong, Jae-Hwang Lee and Soon-Geun Kim
Korea Rural Community Corporation, Korea

P1-504 The Effect of Soil Improvement on Soil Chemical Properties and Seedling Growth on the Undersea Dredged Soil Slope
Chanwoo Park, Nam Hoon-Koo and Joo-Hoon Lim* Korea Forest Research Institute, Korea

P1-505 Assessment of Soil Chemical Properties of Typical Salt-Affected Land in Reclamation Areas in Korea
Su Hwan Lee*, Jong Guk Kang, Hui Su Bae, Yang Yeol Oh, Sang Hun Lee, Hye Rim Lee, Seon Ah Hwang, Seoong Su Kang, Hong Kyu Kim, Kyeong Bo Lee and Ki Hun Park
1 National Institute of Crop Science, Korea; Rural Development Administration, Korea; 2 National Academy of Agriculture Science, Korea

P1-506 Effect of Compost and Gypsum on Production of Chinese Cabbage in Reclaimed Land
Jung-Eun Lee and Seok-In Yun* Wonkwang University, Korea

P1-507 Effect of a Combination of Rice Straw and Gypsum on Soil Salinity and Yield of Potato in Newly Reclaimed Tidal Lands
Su Hwan Lee*, Jong Guk Kang, Hui Su Bae, Sang Hun Lee, Seon Ah Hwang, Yang Yeol Oh, Hye Rim Lee, Weon Young Choi, Kyeong Bo Lee and Ki Hun Park
Rural Development Administration, Korea

C4.1-1: Advances in Quantifying Forest Soil Processes and Functions

P1-508 Over Ground Biomass of Euphorbia Sp. in Shanjan Rangelands, East Azerbaijan, Iran
Hani Mohsenifar1, Ghassem Habibi Bibilani2, Neda Babapour3, Mohsen Alihamzeh2, Nasim Fazelmodarres3 and Elke Pourfarahabadi1
1 University Of Tabriz, Iran; 2 Islamic Azad University - Shabestar Branch, Iran; 3 Islamic Azad University - Tabriz Branch, Iran; 4 Rayab Consulting Company, Iran

P1-509 Long-Term Repeated Intensive Prescribed Burning Decreases Soil Carbon and Nitrogen Pools in a Wet Sclerophyll Forest of Southeast Australia
Bushra Muqaddas*, Chen Chengrong and Xiaoqi Zhou Griffith University, Australia

P1-510 Estimation of Soil Aggregate Stability in Forests’ Soils by Artificial Neural Networks
Adele Alijanpour Shalmani*
Soil Conservation and Watershed Management Research Institute, Iran

P1-511 Degradation Indicators and Sustainable Use of Soils
Marton Laszlo
Hungarian Academy of Sciences, Hungary

P1-512 Components of Soil Humic Substances in Larch Plantation of Northeast China and their Effect on Soil Acidity
Lixin Chen, Wenbiao Duan* and Chao Zhang Northeast Forestry University, China

P1-513 Carbon Sequestration and Nutrient Removal by Some Tree Species in an Agroforestry System in Punjab, India
Baljit Singh*, Rishi Gill and Navneet Kaur
Punjab Agricultural University, India

P1-514 Soil Organic Carbon (soc) in Soils along a Rainforest-Savannah Boundary in Central Guyana, South America
Jasmine E. Black, Geoffrey D. Abbott and Thomas Wagner
Newcastle University, United Kingdom

P1-515 Effects of Logging Activities on Soil Hydraulic Properties in a Hardwood Forest
Langston Simmons and Stephen Anderson*
University of Missouri, USA

P1-516 Spatially Explicit Large Area Net Soil Moisture Dynamics of Different Tree Species in Tropical Wildlife Reserve Using Geospatial Strategy
Amit Kumar, NIT Kurukshetra, India

P1-517 Root Biomass under Stem Bases and at Different Distances from Trees in the Brazilian Caatinga
Everaldo Sampaio*, Eliza Albuquerque*, Frans Pareyn* and Elcida Araujo*
UFPE, Brazil; UFRPE, Brazil; Associação Plantas do Nordeste, Brazil

P1-518 Spatial Distribution of Soil $P$ and its Correlation with Soil Acidity in Mountain Meadow of Wugong Mountain
Zhao Xiaorui, Guo Xiaomin, Zhang Jinyuan, Niu Dekui, Huang Shangshu, Gong Xia* and Li Zhi
Jiangxi Agricultural University, China

P1-519 The Effect of Robinia Pseudoacacia Short Rotation Coppice on Soil Physical Properties
Xavier Morvan*, Sébastien Laratte* and Isabelle Bertrand
University of Reims Champagne-Ardenne, France; INRA, UMR 614 Fractionnement des AgroRessources et Environnement, France

P1-520 The Morphological Features of Mica And Chlorite Minerals in Fine Sand Fraction in Some Forest Soils of Kurdistan Iraq
Shuela Mohammed and Salman Khalaf
Iraqi Citizenship, Iraq

P1-521 The Effects of Inceptisols and Ultisols on Composition of Solution Ions in Fushan Natural Hardwood Forest Ecosystem in Taiwan
Pin-Chieh Chen*, Chen-Chi Tsai*, Chia-Hsing Lee*, Chun-Chih Tsui* and Zueang-Sang Chen*
National Taiwan University, Taiwan; National Taiwan University, Taiwan

P1-522 The Effect of Prescribed Burning on Soil Microbial Properties in a Suburban Native Forest of South-East Queensland
Kadum Abdullah*, Zhihong Xu*, Timothy Blumfield*, Sue Boyd*, Shahla Bai*, Frederike Reverchon* and Yuzhe Wang*
Griffith University, Australia; Nankai University, China

P1-523 The Impact of Biodiversity on Initial Soil Erosion Processes and Nutrient Fluxes in Subtropical Forest Ecosystems
Steffen Seitz*, Philipp Goebes*, Peter Kühn and Thomas Scholten
Eberhard Karls University Tübingen, Germany

P1-524 Nitrogen Fluxes in the Soil Profile of Tropical Seasonal Forests in Cameroon
Nantes Bokassa*, Sow Suighara*, Antoine Mvondo Zo*, Shigeru Araki* and Shinya Funakawa*
Kyoto University, Japan; Dschang University, Cameroon

P1-525 Novel Techniques for Expanding Our Understanding of Soil Disturbance Resulting from Stump Harvesting Operations
Jeff Collins*, Clare Wilson*, Andy Moffat*, John Gallagher* and Andrew Tyler
University of Stirling, United Kingdom; AJ Moffat & Associates, United Kingdom; UPM Tilhill Ltd, United Kingdom

P1-526 Effect of Forest Stands on the Subsurface Salt Accumulation and on the Watertable Level
Tibor Toth*, Kitti Balog* and Andras Szabo*, Zoltan Gribovszki* and Ladislav Kuti*
Centre for Agricultural Research of the Hungarian Academy of Sciences, Hungary; Hungarian Academy of Sciences, Hungary; University of West Hungary, Hungary; Hungarian Institute of Geology and Geophysics, Hungary

P1-527 Hydropedological Interpretation of Ancient and Recent Soil Properties
Darren Bouwer and Pieter Le Roux
University of the Free State, South Africa

P1-528 Soil Contribution to Carbon Budget of Russian Forests
Dmitry Schepaschenko*, Lyudmila Mukhortsova* and Anatoly Shvidenko*
International Institute for Applied Systems Analysis (IIASA), Austria; Siberian Branch of the Russian Academy of Science, Russia

P1-529 Grazing in Mountain Ecosystems; Results of Long-Term Experiments in Norway
Vegard Martinsen*, Jan Mulder*, James D.M. Speed*, Atle Mysterud* and Gunnar Austreheim*
Norwegian University of Life Sciences, Norway; University Museum, Norwegian University of Science and Technology, Norway; University of Oslo, Norway

P1-530 Effect of Stand Factors and Tree Species Composition on the Content of Potentially Toxic Elements in Forest Soils
Lubos Boruvka*, Jarmila Cechmankova*, Vit Sramek*, Milan Sanka*, Vaclav Tejneycky* and Karel Nemcnek*
Czech University of Life Sciences in Prague, Czech Republic; Research Institute for Soil and Water Conservation, Czech Republic; Forestry and Game Management Research Institute, Czech Republic; Masaryk University Brno, Czech Republic

P1-531 The Brownfield of the Eiffel Tower Steel Mill: A Highly Contaminated but Well-Functioning Ecosystem
Université de Lorraine, France; Université Toulouse III, France; Université de Montpellier II, France

P1-532 Effect of Landslide Deposition on Soil Properties in the Xitou Experiment Forest, Central Taiwan
National Taiwan University, Taiwan; Institute of Forest SBRAS, Russia

P1-533 Effect of Silicon Application in Soil on Betula Pendula Ruth. Growth under Water Deficiency Stress
Nadiia Rostska
M.M. Grysishko National Botanical Garden, Ukraine

P1-534 Effects of Slope Gradient and Planted Species on the State of Soil Organic Carbon Storage in a High Rainfall Forested Area of Shikoku Island, Southern Japan
Hisao Sakai*, Kazuki Miyamoto, Tomoki Morishita and Kyotaro Noguchi
Forestry and Forest Products Research Institute, Japan

P1-535 Aboveground and Belowground Patterns in Pyrogenic Boreal Aspen Ecosystems: What Governs Nutrient Availability?
Sanatan Das Gupta*, M. Derek Mackenzie and Sylvie A. Quideau
University of Alberta, Canada
Nurul Rairan Abd Rashid and Hawa Jaafar* University Putra Malaysia, Malaysia

P1-581 Soil Fluxes of Carbonyl Sulfide (cos) and Carbon Dioxide (co2) in a Tropical Forest Ecosystem Sabrina Juarez 1,2,*, Kadmiel Maseyk1, Celine Lett1, Wu Sun1 and Ulli Selbit1 1UPMC, France; 2UCLA, USA

P1-582 Increased CO2 and Temperature Effects on Soil Water Balances Under Maize and Potato Dennis Timlin1,*, David Flesher2, Soo-Hyung Kim3 and Vr. Reddy4 1USDA-ARS, USA; 2University of Washington, USA

P1-583 Warmer Atmospheric Temperature Enhances Microbial Activity to Facilitate the Rate of Organic C Mineralization in Soil Of North-Eastern India Prabhjot Pramanik*, Chandim Sultana Ahmed, Niladri Gupta and Kamruza Ahmed Tocklai Experimental Station, India

P1-584 The Impact of Increasing Temperature on Carbon Dynamics in the Antarctic Soil Minseok Park*, Wonjae Hwang and Seunghun Hyun Chungbuk National University, Korea

P1-585 Temporal Change in Soil Carbon Dynamics under Pinus Koraensis and Quercus Acutissima Forest Floors Ji-Suk Park1, Hee-Myong Ro2, Min-Jin Lee1, Seo-Yeon Lee1, Joo-Han Sung1 and Tae-Sung Kwon1 1Seoul National University, Korea; 2Korea Forest Research Institute, Korea

P1-586 Effects of Soil Temperature and Aging Time on the Toxicity of Glyphosate to Two Collombolan Species June Wee, Yun-Sik Lee, Somi Yu, YoungJeon Kim, Hyoung-Ho Mo and Kijong Cho* Korea University, Korea

P1-587 Assessment of Soil Carbon Stock Change on Cut-Slope Sun Yong Sung, Dongkun Lee*, Sung Ho Kil and Ho Gul Kim Seoul National University, Korea

P1-588 Abiotic Stress on Photosynthetic Machinery in C4 Plants: Insights from Sorghum Chloroplast Proteomics Swapan Kumar Roy1, Soo-Jeong Kwon2, Seong-Woo Kim1, Seong-Woo Cho2, Chul-Won Lee and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-589 Characterization of Abiotic Stress Responsive Protein in Wheat Grain Abu Hena Mostafa Kamal1, Swapan Kumar Roy1, Ki-Hyun Kim1, Soo-Jeong Kwon1, Dong-Jin Lim1, Seong-Woo Cho2, Keun-Yok Chung1, Chul-Won Lee1 and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-590 Comparative Analysis of Biotic Stress-Responsive Proteins in Hexaploid Wheat Abu Hena Mostafa Kamal1, Swapan Kumar Roy1, Ki-Hyun Kim1,3, Won-Ju Lee1, Jong-Ho Yang1, Seong-Woo Cho2, Keun-Yok Chung1, Chul-Won Lee1 and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-591 Evaluation of Flooding Tolerance of Soybean Cultivars and analysis of the Tolerance Mechanism Using Proteomics Techniques Hee-Young Jung1, Yohei Narjio1, Hong-Sik Kim3, Setsuko Komatsu3, Jong-Sik Lee3, Gun-Yeob Kim and Sun-Hee Woo*1 1RDA, Korea; 2NARO, Japan; 3Chungbuk National University, Korea

P1-592 Metabolites Analysis in Wheat Root under Salinity Stress Da-Eun Kim1, Abu Hena Mostafa Kamal1, Soo-Jeong Kwon1, Jong-Ho Yang1, Ki-Hyun Kim1, Seong-Woo Cho2, Chul-Soo Park1, Moon-Soon Lee1, Chul-Won Lee1 and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-593 Profiling of Mitochondrial Proteome in Wheat Roots Da-Eun Kim1, Swapan Kumar Roy1, Soo-Jeong Kwon1, Dong-Jin Lim1, Seong-Woo Cho2, Chul-Soo Park1, Keun-Yok Chung1 and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-594 Proteome Analysis of Roots of Wheat Seedlings under Aluminum Stress Myeong-Won Oh1, Swapan Kumar Roy1, Jung-Hee Ko1, Hee-Young Jang2,3, Won-Ju Lee1, Seong-Woo Cho2, Keun-Yok Chung1, Moon-Soon Lee1, Keun-Yok Chung1 and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-595 Proteomics Analysis of the Wheat Chloroplast and Sub-Organellar Compartments: Isolation and Fractionation by Using Gradient Centrifugation Abu Hena Mostafa Kamal1, Swapan Kumar Roy1, Soo-Jeong Kwon1, Seong-Woo Kim1, Seong-Woo Cho2, Keun-Yok Chung1, Moon-Soon Lee1, and Sun-Hee Woo*1 1Chungbuk National University, Korea; 2RDA, Korea

P1-596 Effects of Added Organic Carbon and Increasing Temperature on Soil Respiration Rate Jung-Eun Lee and Seok-In Yun* Wonkwang University, Korea

P1-597 Intermittent Drainage Suppresses More Effectively Methane Emission in High Biomass Amended Paddy during Rice Cultivation Mozammel Haque, Sang Yoon Kim, Gilwon Kim and Pil Joo Kim* Gyeongsang National University, Korea

P1-598 Importance of Rice Root Oxidation Potential as a Regulator of Ch4 Production under Waterlogged Conditions Jessie Gutierrez1,*, Gil Won Kim2 and Pil Joo Kim1,2 1Gyeongsang National University, City Environment and Natural Resources Office, Philippines; 2Gyeongsang National University, Korea

P1-599 Evaluation of Root Oxidizing Potential as a Regulator of Root Rice Iron Uptake Using Image Analysis Sarah Louise Atulba, Jessie Gutierrez, Gil Won Kim, Sang Yoon Kim and Pil Joo Kim* Gyeongsang National University, Korea

P1-600 Combination of Methanogenesis and Microbial Respiration as a Scalar to Determine Microbial Biomass Activity in Waterlogged Soils Jennifer Cuello, Mozammel Haque, Prabhajit Pramanik and Piljoo Kim* Gyeongsang National University, Korea

P1-601 Effect of Plastic Film Mulching on Greenhouse Gases Emission in Cover Crop Amended Soil as a Green Manure During Corn Cultivation Jennifer Cuello, Jessie Gutierrez, Sang Yoon Kim and Pil Joo Kim* Gyeongsang National University, Korea

P1-602 Comparison of Global Warming Potential Between Rice Paddy and Upland Soils during Cropping Season Hyunyoung Hwang, Jennifer Cuello, Mozammel Haque and Piljoo Kim* Gyeongsang National University, Korea
IDS3: Soil Information and Food Security

Soil Art
Featured artist: Nil by Mouth (Chris Freemantle and Mike Bonaventure of the Crichton Carbon Centre, UK, ecoartscotland.net

P2-1 Growth Performance and Mineral Composition of Moringa Oleifera Seedlings as Influenced by Surface and Subsoil under Water Stress Conditions
Suara Oshununya1, John Fagbenro1 and Tolulope Oyewo1
1University of Ibadan, Nigeria;
2Bowen University, Nigeria

P2-2 Screening of Ten Rice Genotypes by Using Solution Culture
Hafeez B, Khanif Y. M and Saleem. M
University Putra Malaysia, Selangore

P2-3 The Study of Lead (gb) Remediation, Antioxidant Enzyme Activity and Malondialdehyde Biomarker Content in Two Barely Species in Contaminated Soils Under Greenhouse Condition
Afshin Mozafari*
Islamic Azad University (IAU), Iran

P2-4 Screening of Early and Late-season Sugarcane Varieties on Sprinkler Irrigated Ferralsols in Northern Ivory Coast Following a New Selection Scheme
Crepin Bl Pene2, Melanie Bomo Boua1 and Patrick Pons2
1SUCFCI-SOMDIAA, Ivory Coast; 2SUCFCI-SOMDIAA, France

P2-5 The Scottish Government’s Portfolio of Research Providing the Research Base and Tools for Understanding Soil and How That Impacts on Key Global Issues: Food Security & Sustainable Intensification
Lorna Dawson1, Charles Bestwick1 and Sandra Marks1
1The James Hutton Institute, United Kingdom; 2University of Aberdeen, United Kingdom; 3RESAS, Scottish Government, United Kingdom

P2-6 Using Soil Information in Geospatial Natural Disaster Analysis
Gari Mammadov
Azerbaijan National Academy of Sciences, Azerbaijan

P2-7 Effect of Potassium Fertilization Forms on Growth, Yield and Quality of the Sugar Beet Crop in Salt Affected Soils in Eastern Delta of Egypt
El Kholy, M.-H.; 1 A.H Abd El Hadi; 1 and E.H.H. Selim1
1Soil, Water and Environment Res. Inst., ARC, Egypt;
2Sugar Crops Res. Inst., ARC, Egypt

P2-8 Interaction of Nitrogen and Phosphorous Rates on Fertilizer Use Efficiency in Lettuce and Spinach
Mahdi Sadeghi Pour Marvi*
University of Tehran, Iran

P2-9 Soil Quality and Crop Production in an Agricultural Catchment of the Typical Molisol Region, Northeast China
Weige Yang1, Fenli Zheng1 and Xiaocun Zhang1
1Chinese Academy of Sciences and Ministry of Water Resources, China;
2Shanghai University, China

P2-10 Transmission of Selenium and Cobalt in “Soil-Pasture-Feed-Animal Chain” (spfac) and Their Regulation to the Nutritional of Pasture and Animal
Jie Xiao Lei1 and Huanghai University, China

P2-11 Soil Science Publications: Trends and Impact
Alfred Hartemink, Budiman Minasny* and Alex Mcbratney2
1University of Wisconsin - Madison, USA; 2The University of Sydney, Australia

P2-12 Model Development for Multi-Sensor Irrigation Systems to Optimise Water Use in Crop Production
Kefeng Zhang1, Howard Hilton2 and Andrew Thompson1
1Zhejiang University, China; 2SGS United Kingdom Ltd, United Kingdom; 3Cranfield University, United Kingdom

P2-13 Use of Phosphoric Acid as a Source of P-Fertilizer in Calcareous Soils
Aiman Suleiman and Aiman Suleiman
American University of Beirut, Lebanon

P2-14 Effect of Phosphorus Uptake Efficiency on Macronutrients Content in Grains of Wheat and Soybean Cultivars
Alinne Silva1, Isabelle Bruno2, Nericleses Marcante1, Vinicius Franzini1, Leticia Benitez1 and Takashi Muraoka3
1Soil Fertility, CENA/USP, Brazil; 2Soil Fertility, IAPAR, Brazil; 3Soil Fertility, Ealq/USP, Brazil; 4Soil Fertility, Embrapa, Brazil; 5Soil Fertility, Ealq/CENA/USP, Brazil

P2-15 Deficit Irrigation and Nitrogen Fertilizers Effects on Crop Production and Environment Hazardous of Nitrate Leaching in Upper Egypt
Aly Abdel-Mawgoud
Al-Azhar University, Egypt

P2-16 Soil Information and Food Security
Benjamin Appiah-Kubi
International Voluntary Organisation for Women, Ghana

P2-17 Sufficiency Ranges and Optimal Levels of Soil Fertility to the Coffee Crop in Minas Gerais, Brazil
Herminia Martinez1, Leonardo Alves and Julio Neves
Universidade Federal de Vicsa, Brazil

P2-18 Evaluation of Rice and Maize Cropping System Under Contrasting Tillage Practices in Alluvial Soil of Eastern Indo-Gangetic Plains of India
Abadesh K. Singh1, Anisur Rahman Khan* and Sati Shankar Singh1
1Rajendra Agricultural University, India; 2Indian Council of Agricultural Research, India

P2-19 Estimating Load Bearing Capacity of Some Agricultural Soils of the Cerrado Region Using Precompression Stress Data
Ayodele Ajayi1, Moacir Dias Junior2, Paula Sant’anna Moreira Pais3 and Curi Newton2
1Federal University of Technology, Nigeria; 2Universidade Federal de Lavras, Brazil

P2-20 Spatial Variability of Available Potassium in Arable Soils of Mazandaran and its Relationship with Soil Properties and Rainfall
Mohammad Mehdi Tehran* and Saleh Ghalambor
Soil and Water Research Institute, Iran

P2-21 Mapping Soil Zinc Levels and Spatial Variability in Brazil: Is Zinc Deficiency a Problem for Highly Technified Farmers in the Brazilian Cerrado?
Luiz Roberto Guimarães Guimarães1,2, Guilherme Amaral De Souza1, Joao Guilherme Vanzella Moraes2 and Geraldo Janio De Oliveira Lima1
1Federal University of Lavras, Brazil; 2International Zinc Association, Brazil; 3Environmental and Agronomical Laboratory, Brazil

P2-22 Screening and Selection of Sri Lankan Rice Varieties for Phosphate Deficiency Tolerance
P. P. K. Chandramohan, N. S. Sumanath, P. S. Wickramasinghe
Agriculture University, Sri Lanka
P2-23 Can Diffuse Mid Infrared Reflectance Provide Information on Soil Micronutrient Status? Mercy Nyambura1,2, Rikka Keskinen1,2, Erick Towett1,2, Keith Shepherd1 and Martti Esala1 1World Agroforestry Centre, Kenya; 2MTT Agrifood Research Finland, Finland

P2-24 Potential of Mir, Txf And Xrd as Complementary Techniques for Assessment of Soil Properties Erick Towett1,2, Mercy Nyambura1,2, Andrew Sia1, Ermias Betemariam1, Keith Shepherd1, Rikka Keskinen1 and Martti Esala1 1World Agroforestry Centre, Kenya; 2MTT Agrifood Research Finland, Finland

P2-25 Effects of Different Soil Inputs of Swat on Basin-Scale Hydrological Simulations in China Feng Huang1, Baoguo Li and Zhong Liu China Agricultural University, China

P2-26 Extracting Soil Water Storage Pattern Using a Self-Organizing Map Wenxiu Zou1, Bing Si2 and Xiaozeng Han1 1Northeast Institute of Geology and Agriculture, CAS, China; 2University of Saskatchewan, Canada

P2-27 The Effect of Soil Nitrogen and Relevant Microorganism under Different Fertilization Treatment in Camellia Oleifera Forest Hua Wang, Zhi Li, Xiaomin Guo1, Dekui Niu, Wenyuan Zhang and Sha Gui Jiangxi Agricultural University, China

P2-28 Land Evaluation with Digital Soil Mapping for Regional Agricultural Resource Assessment Daniel Brough1,2, Ben Harms1, Reanna Willis3, Seonaid Philip4, Rebecca Bartley1 and Mark Thomas1 1Innovation and the Arts, Australia; 2CSIRO, Australia

P2-29 Wheat Seedlings Urease Activity as Affected by Nickel and Nitrogen Sources Mohammad Nabi Gheibi1 Soil and Water Research Institute, Iran

P2-30 Tea Green-Leaf Yield as Affected by Soil Fertility: A Case Study with Small-Holder Tea Planters in Kegalle and Kandy Districts in Sri Lanka Warshi S. Dandeniyage1, Rasike J. Dissanayake2, Chalani N. Ranasinghe1, Upul Thalagoda1 and Supun Thalagoda1 1University of Peradeniya, Sri Lanka; 2Department of Agriculture, Sri Lanka

P2-31 Corn Growth and Corn Yield due to Organic Matter Treatments and Npk Fertilizer Applications in South Sumatera Uplands, Indonesia Maria Fitriana1, Yakup Parto1, Munandar Mun and Dedik Budianta2 1Agriculture Faculty University of Sriwijaya, Indonesia

P2-32 Introduction of Pulse Crop in Rice - Fallow System Through Use of Conservation Agriculture Practices in Western Odisha Arun Kumar Mishra1, UK Behara2, RN Nayak1 and Sudhanshu Singh3 1Govt. of Odisha, India; 2College of Agriculture, India; 3EC-IFAD Project, IRRI-India, India

P2-33 How Soil Erosion Affects Soil Quality and Corn Yield in the Mollisol Region of Northeast China Fenli Zheng1, Juan An1 and Xiaocun Zhang1 1Northwest A&F University, China; 2CAS & MWR, China; 3Shangluo University, China

P2-34 Drip Fertigation on the Nutrient Uptake and Grain Yield of Pigeonpea L Vimalendran, K.R. Latha1, P. Muthukrishnan and P. Malarvizhi 1Tamil Nadu Agricultural University, India

P2-35 Genotypic Variations in Phosphorus Acquisition and Utilization Efficiency in Rice Palaniappan Pillai Malarvizhi2 and Viswanathan Sanjivkumar 1Tamil Nadu Agricultural University Coimbatore, India

P2-36 Soil Management Systems on Annual Crops in Brazil: Figures from the 2006 Agricultural Census Tiago Pellini1,2, Rafael Fuentes Llanillo, Dimas Soares Junior and Tiago Santos Telles 1Agricultural Research Institute of Parana - IAPAR, Brazil

P2-37 Advances Measuring and Monitoring Carbon in Soils of Mexico Carlos Cruz1,2 and Rodrigo Vargas2 1Instituto Nacional de Estadistica y Geografia, Mexico; 2Universidad of Delaware, USA

P2-38 Rationalization and Harmonization of Turkish Legacy Soil Data.rationalization and Harmonization of Turkish Legacy Soil Data: National Soil Information System (ttbs) Sebahattin Keskin, Hakki Emrah Erdogan1, Yuksel Sahin, Mehmet Sahin and Yilmaz Ulku 1Agriculture and Livestock (GTHB), General Directorate of Agrarian Reform (GDAR), Turkey

P2-39 Remote Sensing and GIS for Digital Land Resources Mapping of the Northwestern Coast, Egypt Abdi-Alla Gad 1National Authority for Remote Sensing and Space Sciences (NARSS), Egypt

P2-40 Optimizing Nutrient Management Strategies for Rice-Wheat System in the Indo-Gangetic Plains and Adjacent Region for Higher Production Profitability, Nutrient Use Efficiency and Ensuring Food Security Vinod Kumar Singh1, Brahma S. Dwivedi2, Kaushik Majumdar3, Meenu Rani1 and Susheel K. Singh4 1Project Directorate for Farming Systems Research (ICAR), India; 2Indian Agricultural Research Institute, India; 3International Plant Nutrition Institute (IPNI), India

P2-41 Estimation Npp on Paddy Soils in South Korea Using Casa Model Sang Il Na, Suk Young Hong1, Yi Hyun Kim and Kyoung Do Lee1 1RDA, Korea

P2-42 Evapotranspiration Estimating in a Rice Field Using Tseb Model with Modified Soil Heat Flux Equation Kyungdo Lee1, Kyungwha Han, Sukyoung Hong, Kyoomoon Shim, Yihyun Kim and Sangil Na National Academy of Agricultural Science, Korea

P2-43 Classification of Soil Desalination Area for Crop Cultivation Using Radarsat Imagery in Saemangeum Reclaimed Land Shin-Chul Baek, Kyung-Do Lee1, Suk-Young Hong, Yi-Hyun Kim and Sang-II Na RDA, Korea

P2-44  Effect of Rice Husk Biochar and Ppgr on Rice Yield, Nutrient Uptake and Nutrient Availability in Alluvial Soil
Awtar Singh1, A.P. Singh, S.K. Singh and C.M. Singh2
Banaras Hindu University, India

P2-45  Evaluation of the Effect of Biochar on Greenhouse Gas Emissions from Slurry Storage and Slurry Amended Arable Soil
Nicola Winning1, Joanna Clay2, Robert Rees3 and Saran Sohi1
Cropland, Scotland’s Rural College, United Kingdom;2 Scotland’s Rural College, United Kingdom;3 UK Biochar Research Centre, United Kingdom

P2-46  Efficacy of Biochar in Improving Root Growth and Water Holding Capacity of Hard Setting Subsoil Layer in Coastal Plains Usa
Gilbert C. Sigua1, Jeffrey M. Novak1, Don W. Watts1, Keri B. Cantrell1 and Mark G. Johnson2
1 USDA-Agricultural Research Service;2 Western Ecology Division, USA

P2-47  Does Biochar Affect the Microbial Activity in Estuarine Sediments?
Gerardo Ojeda1, Joana Patricio1 and Stefania Mattana2
1 Universidade de Coimbra, Portugal;2 Centre de Recerca Ecològica i Aplicacions Forestals, Spain

P2-48  Carbon Mineralization Kinetics of Added Biochar in Swine Manure Compost-Treated Soils
Chen-Chi Tsai and Yu-Fang Chang
National Ilan University, Taiwan

P2-49  Effects of Biochar Incorporation on Cd Bioavailability in a Cd-Contaminated Agricultural Soil
Koji Kameyama1, Teruhito Miyamoto1, Yukiyo Ishawa1 and Takahiro Shiono2
1 National Agriculture and Food Research Organization, Japan;2 Ministry of Agriculture, Forestry and Fisheries, Japan

P2-50  Growth and Yield of Cucumber under Organic Farming Practices in Arid Regions Conditions
Ibrahim B. Razaq1 and Ragheb S. Mohammed1
1 Ministry of Science & Technology, Iraq;2 Directorate of Agricultural Research, Iraq

P2-51  Effects of Different Biochars on Amelioration of Acid Soil in the South of China
Muqiu Zhao
Chinese Academy of Sciences, China

P2-52  Characterization of Biochar for Agricultural Use in North of Iran
Reza Najmi, Akbar Forghani and Atefeh Sabouri
University of Gilan, Iran

Sarah Hale1, Vanja Alling2, Vegard Martinsen2, Jan Mulder3 and Gerard Cornelsen7
1 Norwegian Geotechnical Institute, Norway;2 University of Life Sciences, Norway

P2-54  Ameliorating Physical and Chemical Properties of Two Contrasting Texture Ultisols with Wastewater Sludge Biochar
Lu S.G.
Zhejiang University, China

P2-55  Reduction of Rice and Wheat Cd Uptake via Biochar Amendment in Contaminated Paddy Soil
Liqiang Cui1, Genxing Pan1, Lianqing Li2, Jinlong Yan1* and Andrew Chang3
1 Yancheng Institute of Technology, China;2 Nanjing Agricultural University, China;3 University of California Riverside, USA

P2-56  Effects of Pyrolysis and Htc Chars Produced from Sewage Sludge in the Plant-Soil System: Results from A 3 Year Field Experiment
Marc Breulmann1, Elke Schulz, Manfred Van Afferden and Christoph Fuehner
Helmholtz-Centre for Environmental Research - UFZ, Germany

P2-57  The Sewchar Concept: An Innovative Tool for Sustainable Use of Human Waste and Sewage Sludge in Soils
Christoph Fuehner1, Marc Breulmann and Manfred Van Afferden
Helmholtz-Centre for Environmental Research - UFZ, Germany

P2-58  Short-Term Response of Bacterial Populations in Compost-Amended Soil to Additions of Biochar
Miaomiao He1, Guangming Tian2 and Gendi Zhou
1 Hangzhou Normal University, China;2 Zhejiang University, China

P2-59  Role of Biochar on Metal Ion Release Kinetics and Phytotoxicity Reduction in Serpentine Soils in Sri Lanka
Indika Herath and Miththika Vithanage
Institute of Fundamental Studies, Sri Lanka

P2-60  Effect of Biochar on Nitrogen Mineralization of a Green Manure Legume Residue
Jude Odhiambo1 and Siphiehe Lusiba
University of Venda, South Africa

P2-61  Salt Leaching in the Saline Soil Added with Different Rates of Biochar
Yan Yue, Weina Guo, Qimei Lin*1, Guitong Li, Xiaorang Zhao and Guifang Wu
China Agricultural University, China

P2-62  Understanding the Soil Physics of Biochar Amendments: A Glasshouse Experiment
Sarah Jane Hill1, Richard Greene2 and John Field2
1 University of Newcastle, Australia;2 Australian National University, Australia

P2-63  Vegetation Response to Biochar Amendments: A Glasshouse Experiment
Sarah Jane Hill1, John Field2 and Richard Greene2
1 The University of Newcastle, Australia;2 Australian National University, Australia

P2-64  Biochar Impact on Methane Generation and Nitrogen Dynamics in Ruminal Fermentation
Zhengxia Dou1, Dipti Pitha1, John Toth1, Bonnie Vecchiarelli1, Bhima Bhukya1, Mingxia Guo1 and James Ferguson1
1 University of Pennsylvania, USA;2 Delaware State University, USA

P2-65  Effects of Biochar and Compost-Modified Biochar on Immobilisation of Pb in Lead Smelting Slag-Contaminated Soil, Yield and Pb Accumulation by Maize Plant
Mary Ogundiran1, Olamide Lawal and Silauf Adejumo
University of Ibadan, Nigeria

P2-66  Biochar Application to Soil and its Effect on Soil Health
S M Imamul Huq, M. Shahjahan Choudhury, M. Tanvir Ahmed Choudhury, Kishan Mahmud, Tazeen Fatima Khan, K Tahera Khan and Nadia Noor
University of Dhaka, Bangladesh

P2-67  Effect of Peanut Shell Biochar Soil Amendment on the Performance of Peanut on Two Types of Soil in Southeast Queensland
Cheng-Yuan Xu1*, Shahla Hosseini-Bai1, Yanbin Hao2, Rao C. N. Rachaput1, Zhihong Xu3 and Helen Wallace3
1 University of Technology, Sydney, Australia;2 Zhejiang University, China;3 University of California, USA

Ecotypes of Brachypodium Distachyon, Improving Topsoil Hydraulic Conductivity Consuelo Soler Linares, Carlos Casanova Penas, Jose Antonio Rodriguez Martin and Alberto Gonzalez Moreno; National Institute of Agricultural and Food (INIA), Spain

Effect of EFB Biochar on Total Phenolics and Secondary Metabolites of L.pumila Benth Siti Norayu Omar Baki, Hawa Ze Jaafar* and Radziah Othman* Universiti Putra Malaysia, Malaysia

Sorption of Nutrients by Three Biochars during Composting with Biowastes Naser Khan*, Jan Clark, Miguel A. Sanchez-Monedero*, Syd Shea, Sebastian Meier* and Nanthi Bolan* 1 University of South Australia, Australia; 2 Campus Universitario de Espinardo, Spain; 3 Environmental and Natural Resource Management Consultants Pty Ltd, Australia; 4 Universidad de la Frontera, Chile

Plant Nutrient Compounds in Biochar Produced from Tropical Plant Waste by Slow Pyrolysis Nattaporn Prakongkep, Robert Gilkes* and Wanpen Wiriya-kianteekul* 1 Agricultural Product Science Research and Development Office, Thailand; 2 University of Western Australia, Australia; 3 Office of Science for Land Development, Thailand

Modification of Biophysical Soil Properties by Biochar Amendments Gerardo Ojeda*, Joana Patricio, Stefania Mattana, Anna Avila*, Martin Volkman*, Josep Maria Alcainz* and Jorg Bachmann* 1 IMAR - Instituto do Mar - Universidade de Coimbra, Portugal; 2 Centro de Recerca Ecologica i Aplicacions Forestals, Spain; 3 Leibniz Universitat Hannover, Germany

Reducing Ammonia Emissions from Poultry Litter during Composting through the Use of Biochar Eunice Agyarko-Mintah*, Annette Cowie*, Lukas Van Zwi- eten*, Bphinder Pal Singh*, Robert Smillie* and Steven Harden* 1 University of New England, Australia; 2 NSW Department of Primary Industries, Australia

Study of the Al-Soluble NPK Content of Chernozem Soil in a Long-Term Fertilization Experiment Peter Pepo* University of Debrecen, Hungary

Short Term Effects of Biochar in Enhancing the Biological Nitrogen Fixation Potential of Soybean in the Semi-Deciduous Forest Zone of Ghana Nana Ewusi-Mensah* Kwame Nkrumah University of Science and Technology, Ghana

Use Efficiency of Some Soil Amendments and Un-conventional Irrigation Water on Improving Productivity and Productivity of Sodic Soil Abdalla Mohamedin Agricultural Research Centre (ARC), Egypt

Biochar as Soil Amendment to Improve Soil Quality, Crop Yield, and Carbon Sequestration Karamat Sistanii*, Jason Simmons* and Jeff Novak 1 USDA, USA; 2 USDA-ARS, USA

Quantifying Biochar Amendment Impacts on Global Warming Potential For Cd/pb Contaminated Paddy Soil Ecosystem: A Case Study in Tai Lake Plain, China Afeng Zhang, Ying Zhao, Genxing Pan*, Qaiser Hussain*, Lianqing Li* and Rongjian Bian* 1 Northwest A&F University, China; 2 Nanjing Agricultural University, China; 3 Pir Mehr Ali Shah Arid Agriculture University, Pakistan

Biochar Amendment Effects on Nitrous Oxide and Net Greenhouse Gas Balance from an Acidic Vegetable Field In Southeast China Jinyang Wang*, Zhaozhao Chen*, Yakov Kuzyakov* and Zhengqin Xiong* 1 JNanjing Agricultural University, China; 2 University of Gottingen, Germany

Biochar Application as a Non-Structural Bmp on Erosion Potential Using a Rainfall Simulator Aataallah Khadamalrasoul*, Nikolaus Kuhn*, Goswin Heck- rath* and Bo V. Iversen* 1 Aarhus University, Denmark; 2 Basel University, Swaziland

Reconstructed Topsoil Using Biochar: Soil Quality after Ten Years of Cultivation Aslaw Bekele*†, Julie Roy* and Michelle Young* 1 Imperial Oil Resources, Canada; 2 Imperial Oil Limited, Canada

Effects of Biochar and the Geophagous Earthworm Metaphire Guillelimi on Fate of 14c-Catechol in an Agricultural Soil Jun Shan and Xiaoyuan Yan Chinese Academy of Sciences, China

Added Value of Using High-Ash Biochar from Biosolids to Amend Low Fertility Pasture Soils of New Zealand Roberto Calvelo Pereira*, Mike Hedley, Peter Bishop, Marta Camps Arbestain, Reddy Pullanagary and Bambang H. Kusumo Massey University, New Zealand

Effects of Biochar Amendment on Adsorption-Desorption Behavior of Chlorpyrifos Metabolite TCP in Loamy Soils Under Saturated and Unsaturated Conditions Chen Liu and Xiang-Yu Tang* Chinese Academy of Sciences, China

Biochar as Regulator of Soil Ph Buffer Capacity Maarius Utso, Tonu Tonutare*, Kadri Krebstein, Ako Rodima, Pritt Poldma, Raimo Kolli and Merrit Shanskiy Estonian University of Life Sciences, Estonia

Fundamental Properties of Sugarcane and Rice Residue Biochars and their Agronomic and Environmental Functions Jim Wang*, Changyoong Jeong and Syam Dodla Louisiana State University, USA

Poultry Litter Biochar to Promote Reclamation of Surface Mine Soils Louis Mcdonald*, Joshua Cook, Saraswati Poudel-Acharya and Jeff Kousen West Virginia University, USA
Impact of Swine-Manure Derived Biochar Amendment on Soil Phosphorus Species and Phosphatase Activities: A Quantitative 31p NMR Analysis

Yi Jin, Xingqiang Liang, Maomiao He, Yu Liu, Yue Zhao, Chaodong Fu and Guangming Tian

1Zhejiang University, China; 2Hangzhou Normal University, China

Influence of Charring Biomass on Soil Microorganisms under Cocoa Agroforest in South Cameroon

Luc Gerard Onana Onana, Steffen De Neve, Ameloot Nele, Edith Hammer and Ongueue Awana Nere

1Institute of Agricultural Research for Development, Cameroon; 2Ghent University, Belgium; 3Lund University, Sweden

Assessment of P Availability in Biochar-Amended Soils and the Relation to Soil P Fractionation

Fang-Ju Lin and Kai-Wei Juang

National Chiai University, Taiwan

Can Biochar Be Used to Increase the Bioavailability of Phosphorus Immobilized in Andisols?

Qinhua Shen, Mike Hedley and Marta Camps Arbestain

Massey University, New Zealand

Does Soil 15N Natural Abundance with Biochar Application Provide Insights into Nitrogen Transformation?

Shahla Hosseini Bai, Chengyuan Xu, Frederique Reverchon, Zhihong Xu, Timothy J Blumfield, Haitao Zhao, Lukas Van Zwieten and Helen Wallace

1Griffith University, Australia; 2Yazhou University, China; 3NSW Department of Primary Industries, Australia; 4University of the Sunshine Coast, Australia

Nitrogen Dynamics in a Japanese Tropical Soil Amended with Sugarcane-Bagasse Biochars

Shunsuke Kinoshita and Shinjiro Sato

Soka University, Japan

An Knowledge-Based System for Plant Diseases Management

Ahsan Morshed, Ritaban Dutta and Yanfeng Shu

CSIRO, Australia

Biochar Mitigates Negative Effect of Salinity on Growth, Physiology and Yield of Wheat

Saqb Saleem Ahtlar, Mathias Neumann Andersen and Fuli Liu

1University of Copenhagen, Denmark; 2University of Aarhus, Denmark

Pyrolysis of Swine Manure - Plant Availability of the Phosphorus

Kimmo Rasa and Kari Vilainio

MTT Agrifood Research Finland, Finland

Phosphorus Bioavailability of Sewage Sludge Biochar Applied to Tropical and Temperate Soils in Japan

Shinjiro Sato and Hideki Kawamata

Soka University, Japan

Pyrolysis Performance and Emission Profiles for Biochar Product Commercialization

Jin Tak

Alberta Innovates - Technology Futures (AITF), Canada

Characterization of Biochar and its Effect on Crops and Soil Properties

Sellarthuthu K M, Duraisami V P and Venkatachalam P

1Tamil Nadu Agricultural University, India; 2Agricultural College and Research Institute, India

Chicken Manure-Derived Biochar Reduces the Bioavailability of Copper Contaminated Soils

Sebastian Meier, Mara Cea, Gustavo Curaqueo, Naser Khan, Catalina Vidal, Nanthi Bolan and Fernando Borie

1Universidad de La Frontera, Chile; 2University Blvd., University of South Australia, Australia; 3University of South Australia, Australia

Biochar Characterization: Evaluating their Potential as Sources of Stable C and Inorganic Nutrients

Joyce Clemente, Suzanne Beauchemin, Ted Mackinnon, Yves Thibault, Rolando Lastra, Derek Smith and Bryan Tisch

Natural Resources Canada, CANMET, Canada

Closing the Carbon Loop in Sugarcane Cultivation: Filtercake Biochar as a Value-Added Soil Amendment

Angela Joy Eykebosh, Edmar Santos Queiroz, Higo Jose Dalmagro, Mark S. Johnson, Ricardo S. S. Amorim and Eduardo Guimaraes Couto

1University of British Columbia, Canada; 2Universidade Federal de Mato Grosso, Brazil

Combined Remediation of Pesticide Contaminated Soil Via the Application of Manure Biochar

Junhui Li, Qihong Lu, Chongjian Jia, Ying Chen, Ying Lu and Hojoe Shim

1South China Agricultural University, China; 2University of Macau, Macao; 3Guangzhou Institute of Landscape Gardening, China

Biochar Induced Changes in Soil Stability Parameters

Ayodele Ajayi, Rainer Horn and Wilbe Baumgarten

1Federal University of Technology, Nigeria; 2CAU Kiel, Germany

Biochar Changes Soil Structure and Water-Holding Capacity - A Study with X-Ray Micro-CT

Peter Quin, Annette Cowie, Richard Flavel, Brad Keen, Lynne Macdonald, Stephen Morris, Iain Young and Lukas Van Zwieten

1University of New England, Australia; 2University of New England, Australia; 3New South Wales Department of Primary Industry, Australia; 4CSIRO, Australia; 5NSW Department of Primary Industry, Australia

Biochar Compound Fertilizer as an Option to Reach High Productivity but Low Carbon Intensity in Rice Agriculture: A Field Experiment in a Rice Paddy from Anhui, China

Qian Li and Pan Genxing

Nanjing Agricultural University, China

Predictive Mapping of Soil Organic Carbon Density Using Local Spatial Interpolator Models in Plain Areas

Guo Long

Wuhan University, China

Assessing Biochar Stability and Native Soil Carbon Stabilisation in Pasture

Zhe Weng, Lukas Van Zwieten, Bhupinderpal Singh, Stephen Kimber, Annette Cowie and Stephen Morris

1University of New England, New South Wales Department of Primary Industries, Australia; 2New South Wales Department of Primary Industries, Australia; 3University of New England, Australia

Changes in Nitrogen and Phosphorus Chemical Structure and Nutrients Release from Raw Biomass to its Converted Biochar

Yu-Hsuan Huang, Chi-Peng Chen, Da-Fang Lin, Chih-Hsin Cheng, Yaw-Wen Yang, Ling-Yun Jang and Oleg Menyalo

1National Taiwan University, Taiwan; 2National Synchrotron Radiation Research Center, Taiwan; 3Institute of Forest SB RAS, Russia

The Effect of Urban Biochar on Phosphorus Fractions in an Acid Soil

Phuong Nguyen and Anthony Weatherley
June 10 (TUE)
P2-156 Effect of Biochar Amendment on Major Soil Properties, Crop Yield under Saline Cropland from Central China Great Plain
Muhammad Siddique Lashari, Genxing Pan*, Hafei Lu, Haishi Ji, Grace Wanjurib Kibe, Yingxin Ye, Lianqing Li and Xinyan Yu
Nanjing Agricultural University, China

P2-157 Thermogravimetric and Spectroscopic Characterization of Biochar Carbon
Joseph Martin*, Joyce Clemente, Brad Joern, Cliff Johnston and Suzanne Beauchemin
Purdue University - College of Agriculture, USA; Natural Resources Canada, Canada

P2-158 Effects of Biochar Amendment on CO2 and CH4 Emissions from Two Paddy Soils in Subtropical China
Jieyun Liu, Jianlin Shen*, Yong Li, Hong Tang, Cong Wang and Jinshui Wu*
Chinese Academy of Sciences, China

P2-159 Biochar Impacts on Soil Biological and Biochemical Properties
Jorge Paz-Ferreiro*, Ana Maria Mendez and Gabriel Gasco
Universidad Politecnica de Madrid, Spain

P2-160 Soil Fertility Status, Nutrient Uptake and Yield of Cowpea by Tender Coconut Husk Biochar Application in Ferralic Soils
Mariya Dainy* and Usha P.B.
Kerala Agricultural University, India

P2-161 Competitive Sorption of Bisphenol a and Phenol in Soils and the Contribution of Black Carbon
Yu-Heng Ou*, Ying-Jie Chang, Ping-Yi Lin, Mei-Ling Chang* and Yang-Hsin Shih*
1 National Taiwan University, Taiwan; 2 Van Nung University, Taiwan

P2-162 Using Carbonized Agricultural Waste to Reduce the Uptake of Some Chlorinated Contaminants into Crops
Chien-Ying Yang, Ying-Jie Chang, Sin-Yu Lan, Yu-Chieh Huang and Yang-Hsin Shih*
National Taiwan University, Taiwan

P2-163 The Role of Organo-Mineral Fertilizers to Improve the Sorption Properties of Soils
Gani Mavlyanov and Gani Mavlyanov
National University of Uzbekistan named after Mirzo Ulugbek, Uzbekistan

Surani Jayathunga Arachchige*, Srimathi Indiraratne, Warshi Dandeniya* and Darshani Kumoragamage*1
1 University of Peradeniya, Sri Lanka; 2 University of Winnipeg, MB, Canada

P2-165 Biochar and Arbuscular Mycorrhizal Fungi: An Alternative to Contributing to Agroecosystem Sustainability
Gustavo Curaqueo*, Sebastian Meier, Fernando Borie and Rodrigo Nava
Universidad de La Frontera, Chile

P2-166 Phosphorus Sorption Behavior in Manure Impacted Soil Amended with Biochar
Bishwanath Dan*, Vimala Nar, Rao Mylavarapu and Willie Harris
University of Florida, USA

P2-167 Preferential Rooting in Biochars
Christian Pulver
Cornell University, USA

P2-168 Root Development of Non-Accumulating and Hyperaccumulating Plants in Metal Contaminated Soils Amended with Biochar
Frederic Rees*, Thibault Sterckeman and Jean-Louis Morel
Universite de Lorraine / INRA, France

P2-169 Environmental Benefits of Biochar to Improve Soil Quality and Carbon Sequestration in Soybean Production
Dinesh Panday* and M. R. Bayan
Lincoln University, USA

P2-170 The Effect of Biochar By-Products from Biofuel Production Processes on Wheat Growth in Western Australia
Jie-Lian Beh*, Timothy Cavagnaro and Antonio Patti
Monash University, Australia

P2-171 Development of Rice Husk Biochar Briquette and its Effect on N Retention in Soil
Chin-Hua Ma, Jaw-Fen Wang and Yueh-Huei Lin
AVRDC-The World Vegetable Center, Taiwan

P2-172 Oil Palm Empty Fruit Bunch Biochar Soil Amendment in Amaranthus Viridis Cultivation to Improve Crop Performance and Soil Properties
Rosenani Abu Bakar*, Siti Hajar Ahmad, Che Fauziah Ishak and Wei Looi Tan
Universiti Putra Malaysia, Malaysia

P2-173 Maize-Straw-Derived Biochar Effectively Suppressed the Decomposition of Native Organic Carbon in an Intensively Cultivated Sandy Loam Soil of North China Plain: A Negative Priming Effect
Weiwei Lu*, Weixing Ding*, Junhua Zhang, Yi Li*, Jiafa Luo3, Nanthi Bolan1 and Zubin Xie1
1 Chinese Academy of Sciences, China; 2 Agriculture, Food and Environment Solutions, New Zealand; 3 AgResearch, New Zealand; 4 University of South Australia, Australia

P2-174 Sorption Behavior of 2,4-D Herbicide and Sulfamethoxazole Antibiotic in Biochar-Amended Soils: A Spectroscopic Investigation
Ajit Sarmah* and Prakash Srinivasan
The University of Auckland, New Zealand

P2-175 The Effectiveness of Spent Coffee Grounds and those of Biochar on the Amelioration of Heavy Metals-Contaminated Soil
Min-Suk Kim*, Hyun-Gi Min1, Nguyen Huyen Trang*, Byeongjo Lee1, Jeongsik Park*, Namin Koo1 and Jeong-Gyu Kim1
1 Korea University, Korea; 2 Korea Testing & Research Institute, Korea; 3 Korea Forest Research Institute, Korea

P2-176 Biochar as a Sorbent for Contaminant Management in Soil and Water: A Review
Mahtab Ahmad*, Anushka Upamali Rajapaksha, Jung Eun Lim*, Ming Zhang*, Nanthi Bolan1, Dinesh Mohan1, Meththika Vithanage1, Sang Soo Lee* and Yong Sik Ok1
1 Kangwon National University, Korea; 2 China Jiliang University, China; 3 University of South Australia, Australia; 4 Jawaharlal Nehru University, India; 5 Institute of Fundamental Studies, Sri Lanka

P2-177 Comparative Sorption of Cd, Cu And Pb by Peat Moss and Peat Moss Derived Biochar
Seul Ji Lee*, Jin Hee Park, Meei-Ling Chou, Ying-Jie Chang*, Meei-Ling Chou*, Meei-Ling Chou, Ying-Jie Chang* and Yang-Hsin Shih*
Universities of Hokkaido, Hokkaido University, Japan; 2 University of Florida, Florida; 3 University of Queensland, Australia
P2-178 Assessment of Potential Risk of Biochar from Different Biomass Sources with Seed Germination Test
Yong-Seong Kim¹, Juhee Kim, Wonjae Hwang and Seunghun Hyun
Korea University, Korea

P2-179 Biochars from a Giant Miscanthus for Removing Heavy Metals
Taeryong Shim¹, Changkook Ryu², Seunghun Hyun¹ and Jinho Jung²
¹Korea University, Korea; ²Sungkyunkwan University, Korea

P2-180 Role of Biochar and Nano Materials as Amendments for Immobilizing Metals in Shooting Range Soil
Anushka Upamali Rajapaksha¹, Meththika Vithanage¹, Mahtab Ahmad², Hojeong Kang³, Han-Song Lee³, Scott X. Chang⁴ and Yong Sik Ok⁵
¹Kangwon National University, Korea; ²Institute of Fundamental Studies, Sri Lanka; ³University Institute of Biochemistry and Biotechnology, PMAS Agriculture University, Pakistan; ⁴Yonsei University, Korea; ⁵University of Alberta, Canada

P2-181 Amelioration of Acid Soil Using Biochar
Deok Hyun Moon¹, Yoon-Young Chang¹, Agarammon Koutsoyannis², Kyung Hoon Cheong³, Jeong-Hun Park¹ and Yong Sik Oka
¹Chosun University, Korea; ²Kwangwoon University, Korea; ³University of New Haven, USA; ⁴Chonnam National University, Korea

P2-182 Removal of Hexavalent Chromium in Aqueous Solutions Using Different Biochars
Anushka Upamali Rajapaksha, Avanthi D Shanigallavithana and Yong Sik Ok
Kangwon National University, Korea

P2-183 Effect of Corn Residue Biochar on Hydraulic Properties of Sandy Loam Soil
Avanthi D Shanigallavithana, Sang Sool Lee and Yong Sik Ok¹
Kangwon National University, Korea

P2-184 Combined Effects of Carbon Nanotube and Biochar on Phytotoxicity of Heavy Metals in Shooting Range Soil
Meththika Vithanage¹, Yasser A. Almaruai², Anushka Upamali Rajapaksha¹, Jwa Kyung Sung², Deok Hyun Moon¹ and Yong Sik Ok²
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P2-185 Effects of Biochar and Polycrystalline on Decomposition of Organic Matter and 14C-Labeled Alfafla Residue in Soil
Yasser Mahmoud Awad¹, Yong Sik Ok¹ and Yakov Kuzyakov¹
¹Suez Canal University, Egypt; ²Kangwon National University, Korea; ³University of Gottingen, Germany

P2-186 Effect of Biochar on the Physico-Chemical Properties of Horticulturally Growing Media and Plant Response
Hyuck-Soo Kim¹, Kwon-Rae Kim¹, Ga-Hee Lim¹, Yong Sik Ok¹ and Kye-Hoon Kim¹
¹University of Seoul, Korea; ²Gyeongnam National University of Science and Technology, Korea; ³Kangwon National University, Korea

P2-187 Effect of ZnCl₂-Activation in Tabacco Waste Biochar on Adsorption Capacity of Phosphorus
Jong-Hwan Park¹, Seong-Heon Kim¹, Dong-Cheol Seo², Ju-Sik Cho¹ and Jong-Soo Heo²
¹Gyeongsang National University, Korea; ²Sunchon National University, Korea

P2-188 Effect of Biochar Amendment on the Chemical and Physical Properties of Reclaimed Tidal Land Soil and Maize (Zea Mays L) Response
Hyuck-Soo Kim¹, Kwon-Rae Kim¹, Ho-Wan Son¹, Yong-Sik Ok² and Kye-Hoon Kim¹
¹University of Seoul, Korea; ²Gyeongnam National University of Science and Technology, Korea; ³Kangwon National University, Korea

P2-189 Mono- and Multi-Nutrient Adsorption of Nitrate-N, Ammonium-N and Phosphate-P in Activated Sesame Biochar
Jong-Hwan Park¹, Seong-Heon Kim¹, Dong-Cheol Seo², Ju-Sik Cho¹ and Jong-Soo Heo²
¹Gyeongsang National University, Korea; ²Sunchon National University, Korea

P2-190 Effect of Sesame Stalk Biochar on Growth and Nutrient Contributions of Green Manure Crops of Gramineae and Leguminous Species in Rice-Green Manure Crop Rotation
Ju Dong Yang¹, Dong Cheol Seo¹, Se Won Kang¹, Ju Wang Park¹, Young Jin Seo¹, Sang Gyu Lee¹, Jong Soo Heo¹ and Ju Sik Cho²
¹Sunchon National University, Korea; ²Gyeongsang National University, Korea

P2-191 Effect of Bamboo Biochar on Mitigation of Greenhouse Gases in Lettuce Cultivation
Se Won Kang¹, Dong Cheol Seo¹, Ju Wang Park¹, Ju Dong Yang¹, Young Jin Seo¹, Sang Gyu Lee¹, Jong Soo Heo¹ and Ju Sik Cho²
¹Sunchon National University, Korea; ²Gyeongsang National University, Korea

P2-192 Effect of Soybean Stover Biochar on Growth of Chinese Cabbage under Different Pyrolysis Temperatures
Se Won Kang¹, Dong Cheol Seo¹, Ju Wang Park¹, Ju Dong Yang¹, Young Jin Seo¹, Sang Gyu Lee¹, Jong Soo Heo¹ and Ju Sik Cho²
¹Sunchon National University, Korea; ²Gyeongsang National University, Korea

P2-193 Adsorption Characteristics of Heavy Metals by Pepper Stalk Biochar
Ju Wang Park¹, Dong Cheol Seo¹, Se Won Kang¹, Ju Dong Yang¹, Young Jin Seo¹, Sang Gyu Lee¹, Jong Soo Heo¹ and Ju Sik Cho²
¹Sunchon National University, Korea; ²Gyeongsang National University, Korea

P2-194 Effect of Wood Waste Biochar from Roadside Trees on Adsorption of NH₄-N and Cd
Junghwan Yoon and Kye-Hoon Kim¹
University of Seoul, Korea

P2-195 Effect of Biochars, Red Soiland Vermicompost on the Availability of Arsenic to Raphanus Sativus
Anitha Kunhikrishnan*, Won-Ill Kim, Jeong-Mi Lee, Woo-Ri Go, Ji-Hyuck Yoo and Nam-June Cho
RDA, Korea

P2-196 Biochar Effects on Crop Yields in a Calcareous Soil
Feng Liang, Hao Chen, Guitong Li* and Xiaorong Zhao
China Agricultural University, China

P2-197 The Effect of Biochar on Water Vapor Movement in Soil During Winter Period Revealed with Stable Isotope Technology
Yijie Wang, Hao Chen, Guitong Li* and Baoguo Li
China Agricultural University, China

P2-198 The Difference and Characteristics of Salt Leaching in the Saline Soil Added with Different Rates of Biochar
Yue Yan, Lin Qimei*, Hao Chen, Li Guitong, Zhao Xiaorong and Wu Guifang
China Agricultural University, China

P2-199 Short-term Effects of Seed Dressing with Azorhizobium Caulinodans on Establishment, Development and Yield of Early Maturing Maize (Zea Mays L.) in Zimbabwe
P2-200 Evaluation the Effects of Plant Growth Promoting Rhizobacteria (PGPR) on SOD, MDA and Proline Content in Two Wheat Cultivar Under Normal and Drought Stress Condition
Afshan Mozaffar*
Islamic Azad University (IAU), Iran

P2-201 Promotion of Upland Rice Growth by Actinomycetes under Growth Room Condition
Jayvee Cruz* and Erlinda Paterno*
1 Philippine Rice Research Institute, Philippines; 2 University of the Philippines Los Banos, Philippines

P2-202 Hyphal Production and Organic Matter Decomposition in Response to Summer Drought and Warming in Three Temperate Ecosystems
Sumitra Dewan*, Hans Goransson1, Andy R. Smith2, Giovanbattista De Dato1, Andreas Schindlbacher1 and Douglas L. Godbold1
1 University of Natural Resources and Life Science(BOKU), Austria; 2 Bangor University, United Kingdom; 3 University of Tuscia, Italy;
4 Natural Hazards and Landscape - BFW, Austria

P2-203 Isolation and Identification of Rhizospheric and Phyllosphere Microfungi of Keben (Barringtonia Asiatica Kurz.) in Pancur Costal Forest Alas Purwo National Park East Java
Arvan Solatan Rescho*
Padjadjaran University, Indonesia

P2-204 Effect of Artemisia Seed-Gum in Combination with Cyanobacteria on the Arid Soil
Satoshi Tagashi* and Kazuyuki Inubushi
Chiba University, Japan

P2-205 Soil Microbes Decrease Allelopathic Effects of Invasive Plants over Time by Degrading Allelochemicals
Yangping Li*, Yulong Feng* and Junling Zhang*
1 Chinese Academy of Science, China; 2 Shenyang Agricultural University, China

P2-206 Iron-Reducing and Sulphate-Reducing Bacterial Populations’ Dynamics and Activities in Rice Paddy Soil under Subsurface Drainage
Otooidahiga Cecile Harmonie
Centre Regional en Science Biologique, alimentaire et Nutritionnellen, Burkina Faso

P2-207 Microbial Community Diversity of Forest Soils in Northeastern and North Central USA
Mary Beth Adams*
USDA Forest Service, USA

P2-208 Bioaccumulation and Biosorption of Heavy Metals from Aqueous Solutions by Isolated Bacteria from Contaminated Soils
Rahim Mohammadzadeh Karkaragh*, Mostafa Chorom1, Hossein Motamed1 and Yusef Kianpour Kalkhajeh1
1 Shahid Chamran University of Ahvaz, Iran; 2 Copenhagen University, Denmark

P2-209 Differential Response of Single-, Co- and Multi-Strain Inoculation of PGPR for Improving Growth, Physiology and Nutrient Balance of Maize Under Salinity Stress
Muhammad Yahya Khan*, Muhammad Usman Jamshaid, Tasawar Abbas, Hafiz Naeem Asghar and Zahir Ahmad Zahir
University of Agriculture Faisalabad, Pakistan

P2-210 Microbial Dynamics in Salt Affected Soils
Zahir Shah* and Asif Shah
The University of Agriculture, Pakistan

P2-211 Functional Resilience and Soil Biota Dynamics in Rain-Fed Agroecosystems
Vadakattu Gupta* and David Coleman
1 CSIRO, Australia; 2 University of Georgia, USA

P2-212 Arbuscular Mycorrhizal Fungal Diversity Associated with Tea Plant (Camellia Sinensis) Roots under Inorganic and Organic Fertilization in Acidic Soil in the East Black Sea Region of Turkey
Kazuki Suzuki*, Oguz Can Turgay*, Muthttin Onur Akca*, Ali Ergul, Naoki Harada and Masanori Nonaka*
1 Niigata University, Japan; 2 Ankara University, Turkey

P2-213 Changes of Soil Microbial Community Structure During Soil Mineralization under Two Kinds of Shrubland in Mountainous Area of Southern Ningxia, Northwest China
Huang Yi-Mei*, Yan Hao and Jiang Yue-Li
Northwest A&F University, China

P2-214 Identification of Carbon Flow Derived from Callus Mediated BYT4-Type Bacteriophages in Microbial Loop in Rice Soil
Yong Li*, Takeshi Watanabe*, Jun Murase*, Susumu Asakawa* and Makoto Kimura*
1 Zhejiang University, China; 2 Nagoya University, Japan

P2-215 The Effects of Freeze-And-Thaw Cycles on Ammonium and Nitrate Availability in Highland Soils in Turkey, Adem Gunes1, Metin Turan1, Hilal Samray2 and Ertan Yildirim3
1 Erciyes University, Turkey; 2 Yeditepe University, Turkey; 3 T.R. Ministry of Food, Agricultural and Livestock, Turkey

P2-216 Significance of Arbuscular Mycorrhizal Fungi Inoculation on Tuber Yield of Dioscorea Alata under Moisture Stress Condition
Odoh, N.2, Lopez-Montes, A.*, Oluwasemire K., Abaidoo, R.2 and Asiedu, R.2
1 University of Ifabdan, Nigeria; 2 International Institute for Tropical Agriculture, Nigeria

P2-217 Effect of Halophilic Bacteria-Producing Exopolysaccharide on Some Growth Parameters of Wheat in Saline Soils
Ahmad Ali Pourbabaei*, Maryam Talebi Atouei and Mehdi Sharofa
University of Tehran, Iran

P2-218 Glomalin in Alpine Soil Along an Tibetan Altitudinal Gradient is Highly Correlated with Hyphae Growth but Not Community Composition of Arbuscular Mycorrhizal Fungi
Xiaoliang Li1, Xioabu Cai*, Xiaolin Li* and Junling Zhang *
1 China Agricultural University, China; 2 Tibet University, China

P2-219 Assessing Enzyme Activities Changes of Superoxide Dismutase and Catalase in Canola under Salinity Stress
Babak Motesharezadeh* and Nader Khadem Moghadam
University of Tehran, Iran

P2-220 Recovery of Soil Microbial Biomass and Enzyme Activities across the Chronosequence of Forest Fires in Northern Boreal Forests in Finland
Kajar Koster*, Frank Berninger, Jussi Heinonsalo*, Aki Lindén*, Egle Koster* and Jukka Pumpen*
1 Estonian University of Life Sciences, Estonia; 2 University of Helsinki, Finland
P2-221  Heathland Response to Nitrogen Deposition: Effects of Form and Frequency
Muhammad Adrees1, Sally Power2
1 Government College University, Faisalabad-Pakistan
2 Imperial College London, Pakistan; Imperial College London, United Kingdom

P2-222  Nitrogen Deposition: A Modifier of Plant Response to Ozone?
Muhammad Adrees1, Sally Power2, Emma Green2 and Nathan Callaghan2
1 Government College University, Faisalabad-Pakistan
2 Imperial College London, Pakistan; Imperial College London, United Kingdom

P2-223  Biochar Addition to Soil Alters its Resilience to Drought
Chen Fei Liang1, Shenglei Fu2, Gabriel Gasco3, Ana Maria Mendez4 and Jorge Paz-Ferreiro4
1 South China Botanical Garden, China; 2 Universidad Politecnica de Madrid, Spain

P2-224  The Impact of Pleurotus Ostreatus on Transformation Processes of Organic Matter and Metal Ions from Enriched Organic And Mineral Soils of Spent Oil
Izabella Pisarek1 and Mariusz Glowacki
Opole University, Poland

P2-225  Modifying Rhizospheric System for Soil Carbon Sequestration
Purushothaman Chirakkuzhyl Abhilash1
Banaras Hindu University, India

P2-226  Ecology of Halophilic Microbes Associated with Dominant Halophytes and Salt Tolerant Plants from Coastal Saline Ecosystem
Sanjay Arora1, Riddhi Mehta2 and Meghna Vanzara2
1 Regional Research Station, India; 2 V.N. South Gujarat University, India

P2-227  Potential Use of Microbial Inoculums in Ameliorating Soil Salinity Impact on the Productivity of Faba Bean (vicia Faba)
Ibrahim Elakhdar1
ARC, Egypt

P2-228  Effects of Elevated Ozone on Soil Microbial Community Composition and Metabolic Diversity Depending on the Ozone-Tolerance of Wheat Cultivars (QL1, XuanBao, WenzhLiu, CaiyanLu and Jinguo Zhu)
1 Chinese Academy of Sciences, China; 2 University of Chinese Academy of Sciences, China

P2-229  Molecular Analysis on Fungal Community Structures and Diversity in Different Fertilization Management Practices in Volcanic Ash Citrus Orchard Soil
Jae-Ho Joa, Hang-Yeon Won, Bong-Nam Chung, Kyung San Choi and Seong-Cheol Kim
1 National Institute of Horticultural & Herbal Science, Korea; 2 National Academy of Agricultural Science, Korea

P2-230  Comparison of Spatial Interpolation Methods for Estimation of Air Temperature
Seok-Cheol Kim, Yong-Seok Kim, Myung-Pyo Jung and Kyo-Moon Shim
Rural Development Administration, Korea

P2-231  Isolation and Characterization of Arbuscular Mycorrhizal Fungi Spore Associated Bacteria from Saemangeum Reclaimed Soil
Gopal Selvakumar, Kiyoon Kim, Ramasamy Krishnamoorthy, Parthiban Subramanian and Tongmin Sa
Chungbuk National University, Korea

P2-232  Assessment of Heavy Metals Incorporated into Soil Microbial Biomass with a Direction Chloroform Extraction Method
Jongchan Park, Seokho Jung, Bomin Kang, Eunjin Lee, Dongwook Kim and Gwang Hyun Han
Chungbuk National University, Korea; Phygen Inc, Korea

P2-233  Psychrophilic Characteristics and Plant Growth Promotion Effect of Pseudomonas Vancouervensis OB155 in Tomato (solanum Lycopersicum)
Parthiban Subramanian, Kiyoon Kim, Ramasamy Krishnamoorthy, Mak Chandrata and Tongmin Sa
Chungbuk National University, Korea

P2-234  Structural and Functional Changes in Soil Microbial Community in Response to Heavy Metal Contamination as Assessed by Culture-Dependent and Biochemical Analysis Techniques
Denver Walitang, Murugesan Chandrasekaran, Sherlyn Tipayno, Seifeddine Ben Tekaya and Tongmin Sa
Chungbuk National University, Korea; Song of State University, Philippines

P2-235  Effect of ACC Deaminase Producing PGPR Strains Inoculation on the Growth and Nutrient Accumulation of Maize and Sorghum-Sudangrass Hybrid in Saemangeum Reclaimed Soil
Kiyoon Kim, Ramasamy Krishnamoorthy, Parthiban Subramanian, Gopal Selvakumar and Tongmin Sa
Chungbuk National University, Korea

P2-236  Arbuscular Mycorrhizal Inoculation Modulates Plant Responses to Soil Salinity with Respect to Biomass, Nutrient Uptake, and Proline Accumulation: A Meta-Analysis
Murugesan Chandrasekaran, Denver Walitang, Mak Chandrata, Chaemin Kwak and Tongmin Sa
Chungbuk National University, Korea

P2-237  Effect of ACC Deaminase Producing Methylobacterium spp. on Seedling Development and Ethylene Emission under Greenhouse Condition
Mak Chandrata, Woojong Yim, Kiyoon Kim, Youngwook Lee and Tongmin Sa
Chungbuk National University, Korea

P2-238  A New Report on Plant Growth Promotion and Antagonistic Potential of Pigmented Facultative Methylotrophic Bacteria (delftia Sp And Bacillus Spp.) against Root Pathogens in Tomato Subhiah Sundaram, Veeranan Janahiramam, Rangasamy Anandham and Tongmin Sa
1 Chungbuk National University, Korea; 2 Agricultural College and Research Institute, India

P2-239  Effect of Varying Levels of Salinity on EPS Production and Biofilm Formation by Halotolerant Bacteria Youngwook Lee, Bohui Hong, Chaemin Kwak, Jae-hong Kim and Tongmin Sa
Chungbuk National University, Korea

P2-240  Exopolysaccharide Production, Intracellular Carbon Accumulation and Stress Tolerance of Methylobacterium Strains under High Carbon Conditions
Chaemin Kwak, Sungman Woo, Murugesan Chandrasekaran, Denver Walitang and Tongmin Sa
1 Chungbuk National University, Korea; 2 Division of maize Research Institute, Cambodia

C1.1-1: The Role of Environment on Soil formation: Morphological Indicators
Soil Art Featured artist: Jay Stratton Noller, Oregon State University, Department of Crop and Soil Science, USA, soilscapestudio.com
Soil Art Featured artist: Elvira Wersche, Stiftung Sammlung Weltensand

P2-251 Indigenous Knowledge of Soil Classification and Strategies of Land Use
Kissou Roger
The Soil Science Society of Burkina Faso (SSSBF), Burkina Faso

P2-252 Analysis of Dike Natural Subsidence Caused by Mining under River
Gong Xu*, Xiaoqing Su and Guoqing Qu
Shandong University of Technology, China

P2-253 Sedimentation Hazards and Sustainable Land Management: A Case Study of the Lobar Haor, Bangladesh
Shaikh Tanveer Hossain* and Md. Jasim Uddin
Friends In Village Development Bangladesh (FIVDB), Bangladesh; University of Dhaka, Bangladesh

P2-254 Colluvial Deposits as Proxies for the Kind and Intensity of Human Activities in Southwest Germany
Jessica Henkner*, Jan Ahrichs, Thomas Scholten and Peter Kuehn
Tuebingen University, Germany

P2-255 Retracing Signals of Historical Soil Erosion in Peat bog Archives as an Indicator for Landscape Resilience in the Context of Future Landuse Changes and Weather Fluctuations (tum-Czo, Ammer Mts.)
Joerg Voelkel and Jennifer Winkelbauer
Technische Universitat Muenchen TUM, Germany

P2-256 Peculiarities of Tundra Soil in the Northeastern Yakutia
Alexandra Ivanova* and Roman Desyatkin
Institute of Biological Problems of Cryolithozone SB RAS, Russia

P2-257 Post-Agrogenic Self-Restoration of Soda Pedzolic Soils: Results and Methods N.P. Sorokina, D.N. Kozlov, I.B. Kuznetsova
Natalia Sorokina; Danil Kozlov* and Inna Kuznetsova
V.V.Dokuchaev Soil Science Institute, Russia; Lomonosov Moscow State University, Russia

P2-258 Soil Cover Patterns Influence on Ecosystem Services and Land-Use Efficiency in Case of Central Russia Native and Agro Ecosystems
Ivan Vasenev*, Mikhail Geraskin and Ivan Yashin
Russian Timiryazev State Agricultural University, Russia

C1.3-1: Weathering and Soil formation in Response to Environmental Changes

P2-259 Minerals of Coarse Fraction and their Distribution in the Podzol Profile (Komi Republic, RF)
Evgeny Pogozhev*; Yulia Zhukova* and Alexey Petelin
Ecology and Geomonitoring, Russia; Lomonosov Moscow State University, Russia; EC Ecosoil-LD, Russia

P2-260 Genesis, Mineralogy and Classification of Highly Calcareous Soil of Southern Iran
Abolfazl Azadi* and Majid Baghernejad
Shiraz University, Iran

P2-261 The Effect of Topography on Soils Properties and their Classification in the Chelgerd Region, Iran
Mohammadhasan Salehi* and Mohzhgan Sarshogh Shahrekord University, Iran

P2-262 Early Alteration of Pristine Tephra Grain Induced by Microorganisms
Dian Fiantis*, Malik Nelson*; Jusop Shamsuddin*, Tee Boon Goh* and Eric Van Ranst*
1 Andalas University, Indonesia; 2 Universiti Putra Malaysia, Malaysia; 3 University of Manitoba, Canada; 4 Ghent University, Belgium

P2-263 Global Changes of the Soil-Forming Process in the North Caucasus Chemozems in the Aridoclimatic Conditions
Valeriy Tshovrebov*, Vera Faiuzova and Viktor Terpelez
1 Stavropol State Agrarian University, Russia; 2 Kuban State Agrarian University, Russia
P2-264 Effects of Land Use/cover Changes on Soil properties in a Dryland Watershed of Hirmi and its Adjacent Agro Ecosystem: Northern Ethiopia
Tsehay Mezgebe and Tsehay Mezgebe
Aksrum University, Ethiopia

P2-265 Translocation of Silicon and its Isotopic Characteristics in Granite-Derived Soils in a Typical Subtropical Ecosystem
Jin-Ling Yang and Gan-Lin Zhang
Chinese Academy of Sciences, China

P2-266 Genesis of Soils by Solodization around Degraded Saline Lakes of Pantanal Wetland, Brazil
Sheila Furquim*, Bruna Bonomo1 and Arnaldo Sakamoto2
1 Universidade Federal de Sao Paulo (UNIFESP), Brazil; 2 Universidade Federal do Mato Grosso do Sul (UFMS), Brazil

P2-267 Slope Deposits of Different Genes and Ages in the Colorado front Range (Rocky Mts.) and their Significance for Chemical Weathering fluxes within the Critical Zone (cz)
Joerg Voelkel and Juliane Huber
Technische Universitaet Muenchen TUM, Germany

P2-268 Does Pedogenetic Carbonation Play Insignificant Role in Atmospheric CO2 Sequestration? Emaheen Maryol and Chuxia Lin
1 University of Southern Queensland, Australia; 2 University of Salford, United Kingdom

P2-269 Soil Formation along a Catena in South-Eastern Caspian Sea Lowland
Ogholtsida Ghelizadeh, Farhad Khormali*, Arash Amini and Farshad Kiani
Golestan University, Iran

P2-270 Effect of Slope Aspect on Soil Formation on a Loess Hillslope in Golestan Province, Iran
Farhad Khormali*, Ebrahim Mohammad and Sedighe Maleki Gorgan University of Agricultural Sciences and Natural Resources, Iran

P2-271 Arsenic Sources in Soils of Bijar Region, Kurdistan Province, Iran
Ahmad Heidari* and Kamal Nabiliiali
1 University of Tehran, Iran; 2 University of Kurdistan, Iran

P2-272 Soil Genesis on Different Slope Positions in a Loess Hillslope in Golestan Province, Iran
Ebrahim Mohammad, Farhad Khormali*, Abolfazl Bameri, Sedighe Maleki, Mojtaba Barani Motlagh and Farshad Kiani Gorgan University of Agricultural Sciences and Natural Resources, Iran

P2-273 Soil Mineral Transformations, Weathering Rates and U/th Mobility in Moraine Deposits in an Sub-Alpine Environment in California, USA
Felipe Aburto* and Randall J. Southard
University of California, Chile

P2-274 Spatial Pedogenic Process Distribution in the Soils of Oued Righ Valley (North East Sahara) an Morphoscopic and Mineralogical Approach
Boumaraf Belkacem*, Rabah Bensaid1 and Marre Alain3
1 University of Biskra, Algeria; 2 University of Skikda, Algeria; 3 University of Reims Champagne Ardenne, France

P2-275 Rates and Controlling Factors of Magnetic Depletion and Enhancement Processes during the 1000-Year Evolution of Paddy and Non-Paddy Soil Chronosequences
Liu-Mei Chen, Gan-Lin Zhang* and Zhang-Dong Jin
Chinese Academy of Sciences, China

P2-276 Soil Profile of Yellow-Brown Earth Overlying Red Clay in Southern Anhui Province: A Pedogenic Response to the Last Glacial-Interglacial Cycle in Mid-Subtropical China
Xue-Feng Hu*, Yan Du and Yong Xue
Shanghai University, China

P2-277 Carbon Dating of Latosols (oxisols) and Implications to Soil (bio)genesis in Cerrado (savanna) Areas in Brazil
Carlos Schaefer1, Rafael Tonucci2 and Julio Cesar Lima Neves1
1 Federal University of Vicsosa, Brazil; 2 Embrapa Caprinos e Ovinos, Brazil

P2-278 Effect of Mineral Dissolution on Hydraulic and Transport Properties of Floodplain Soils
Sabine Schaefer and Kai Uwe Totsche
Friedrich Schiller University Jena, Germany

P2-279 Testing a New Method For Sequential Si-Extraction on Soils of a Temperate-Humid Climate
Anna Georgiadis, Daniela Sauer1, Ludger Herrmann1, Jorn Breuer*, Mehdi Zarei* and Karl Stahr*1
1 University of Hohenheim, Germany; 2 Karlsruhe Augustenberg, Germany

P2-280 Characteristics and Genesis of Two Profiles Developed From Amphibolite Complex Rocks in South-western Nigeria
Sikiru Muda1, Temitope Okusami1 and Oladipo Omotoso2
1 Obafemi Awolowo University, Ile-Ife, Nigeria; 2 Energy Technology & Programs Sector Natural Resources Canada, Canada

P2-281 Changes in Soil Mineral Composition by Surface-Piled Sapolite
Yongseon Zhang1, Gang-Ho Jung*, Yong-Hee Moon1, Hyere Cho1, Yeon-Kyu Son1 and Kyeong-Hwa Han1
1 National Academy of Agricultural Science, Korea; 2 National Geo-parks Secretary, Korea

C1.5-2: Quantification and Application of Uncertainty in Pedometrics

Soil Art

P2-282 Sampling Design and the Predictive Accuracy of Pedotransfer Functions
Abdur Rab*, Subhash Chandra2 and Mark Imhoff2
1 Victorian Government Department of Environment and Primary Industries, Australia; 2 Future Farming System Research Division, Australia

P2-283 Analysis of the Spatial and Depth-Wise Variation of Soil Properties Based on Horizon-Sampled Data
Thomas Orton*, Ana Horta1, Matthew Pringle1 and Thomas Bishop1
1 University of Sydney, Australia; 2 Queensland Government, Australia

P2-284 Spatial Uncertainty in 3D Modelling of Soil Properties
Laura Poggio* and Alessandro Gimona
The James Hutton Institute, United Kingdom

P2-285 Prediction of Soil Organic Carbon and Texture in Complex Areas Using Vis-Nir Spectroscopy
Ricardo Simao Diniz Dalmolin*, Andre Dotto1, Fabricio De Araujo Pedron1, Alexandre Ten Caten1 and Andrea Machado Pereira Franco1
1 Federal University of Santa Maria, Brazil; 2 Federal University of Santa Catarina, Brazil
P2-286  Grey Incidence Analysis (gia): A New Local Method for Modeling Chineses Soil Vis-Nir Spectral Library to Predict Soil Total Nitrogen Content
Qianlong Wang and Zhou Shi* 
Zhejiang University, China

P2-287  Probability-Based Harmonization of Digital Maps to Produce Conceptual Soil Maps
Istvan Sisak* and Andras Beno 
University of Pannonia Geogkon Faculty, Hungary

P2-288  Cybersolim: An Easy and Fast Online Digital Soil Mapping Prototype System
Jingchao Jiang, Axing Zhu* and Yiming An 
Institute of Geographic Sciences and Natural Resources Research, CAS, China

P2-289  A Multi-Grade Representative Sampling Strategy Using Auxiliary Environmental Variables for Regional Soil Mapping: A Case Study in Xuancheng, Anhui, China 
Lin Yang, Shuie Zhang, A-Xing Zhu and Yiming An 
CAS, China

P2-290  Uncertainties Assessment of Semivariogram Parameters and Maps Comparison for Soil Properties with Different Nugget Effects 
Joulia Meshalkina* and Vera Samsonova 
Moscow Lomonosov State University, Russia

C1.6: Paleopedology

Soil Art 
Featured artist: Smudge Studio (Jamie Kruse and Elizabeth Ellsworth), USA; Siteing the Geologic, www.smudgestudio.org

P2-291  Soil Micromorphology from Bronze Age Indus Settlements and Surroundings: Reconstruction of Mid-Holocene Environmental Conditions in Nw India
Sayantani Neogi 
University of Cambridge, United Kingdom

P2-292  Climate Change and Human Impacts on the Soils of Kufonissi, Cycladic Islands Greece
Sean Taylor 
University of Cambridge, United Kingdom

P2-293  Deep Soil Carbon: Why Should We Care? 
Podjane Sangmane*, Richard Harper, David Henry and Bernard Dell 
Murdoch University, Australia

P2-294  Buried Paleanthrosols of the Bronze Age Agricultural Terraces in Kisovodsk Basin (Northern Caucasus, Russia) 
Alexandr Borisov*, Elena Chernysheva and Dmitry Korobov2 
1 Institute of Physicochemical and Biological Problems in Soil Science of the Russian Academy of Science, Russia; 
2 Institute of Archaeology of the Russian Academy of Sciences, Russia

P2-295  Late Quaternary Environmental Changes from Aeolian and Fluvial Geoarcheologies in the Southwestern Kalahari, South Africa: Implications for Past African Climate Dynamics 
Joerg Voelkel 
Technische Universitaet Muenchen TUM, Germany

P2-296  Approach for Categorization of Highly Heterogeneous Cultural and Colluvial Sediments on Detailed Spatial Scale: Example of the Early Medieval Viking Settlement Hedeby
Svetlana V. Khamnueva*, Jann Wendt, Andrey V. Mitusov, Stefan Dreibrodt and Hans-Rudolf Bork 
Christian-Albrechts University of Kiel, Germany

P2-297  Lateglacial to Holocene Formation of Loess-Paleosol-Colluvial Deposit Sequences in Central Europe: Climate Change and Human Impact
Peter Kuhn* and Markus Fuchs 
1 Eberhard Karls University Tubingen, Germany; 2 Justus-Liebig-University Giessen, Germany

P2-298  Pedology around a 6700 Year Old Neolithic Ring Ditch System in Germany
Matthias Leopold* and Jorg Volker2
1 University of Western Australia, Australia; 2 Technical University of Munich, Germany

P2-299  Quantitative Distribution of Phytoliths as a Reliable Diagnostical Criteria of Ancient Arable Lands
Alexandra Golyeva and Natalia Svirida 
Institute of Geography RAS, Russia

P2-300  A Multi-Proxy Approach for Interpreting the Effects of Climate Change on Intensely Welded Loess-Palaeosols
K. Vancampenhout 1, 2, R. Langohr 3, J. Slaets 2, G. Dercon2, P. Buurman3, R. Swennen 3 and J. Deckers 3
1 K.U. Leuven, Belgium; 2 KU Leuven Campus Geel, Belgium; 3 Gent University, Belgium; 4 University of Hohenheim, Germany; 5 Wageningen University, The Netherlands


P2-301  Distribution of Soil Textures in Chinese Flue-Cured Tobacco Growing Regions and its Relationship with Tobacco Quality and Style
Hongzhi Shi*, Yingli Song and Yuanyuan Yang 
Henan Agricultural University, China

P2-302  Compared to the Optimum Moisture Content and Mechanical Strength of Clay and Sand under Compaction
Sahar Akhavan1 and Mahmoud Shabanpur2,3 
1 Gorgan University of Agricultural Sciences & Natural Resources-IRAN, Iran; 2 University of Guilan, Iran

P2-303  Influence of Phosphate Sorption on Dispersion and Flocculation of Kaolinite 
Shigeory Konosugi*, Takahiro Kikuski and Munehide Ishiguro 
Hokkaido University, Japan

P2-304  Energetic Aspect at Agriculture Production on Semidesert Conditions of Azerbaijan
Akil Gerayzade*1, N. Mamedov1, S. Kocharly1, Ch. Gulaliyev1, A. Jafarov2 and A. Manafova3 
1 Institute of Soil Science and Agrochemistry, Azerbaijan; 2 Baku State University, Azerbaijan; 3 Institute of Soil Science and Agrochemistry, Azerbaijan; 4 Institute of Geography Azerbaijan, Azerbaijan

P2-305  Effect of Phosphate Sorption on Ferralsol Soil Dispersion: Evaluation with Stability Ratio and Repulsive Potential Energy 
Dung Viet Pham*, Munehide Ishiguro1 and Ha Thu Thi Tran1 
1 Hokkaido University, Japan; 2 Hue University of Agriculture and Forestry, Viet Nam

P2-306  Dynamics of Soil Macropores During Shrinkage Investigated by X-Ray Microtomography 
Nicolas Bottinelli*, Hu Zhou and Xinhua Peng 
CAS, China

P2-307  The Soil-Litter Interface as Biogeochemical Hot Spot of Coupled Carbon Turnover and Mcpa Degradation 
Holger Pagel*, Christian Poll, Joachim Ingwerson, Franziska Ditterich, Aurelia Gebala, Ellen Kandeler and Thilo Streck 
University of Hohenheim, Germany

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P2-308 A New Analytical Method for Prediction of Soil Sorptivity and Cumulative Infiltration Using Particle Size Distribution Data
Ali Asghar Zolfaghari1, Mehdi Shorafa2, Mohammad Hossein Mohammad3 and Manouchehr Gorji4
1 University of Semnan, Iran; 2 University of Tehran, Iran; 3 University of Zanjan, Iran

P2-309 A Protocol for Selecting Physically Varying Soils for Basic Studies from a Limited Dataset
Anshuman Kohli,*, Kumar Rishav Raj and Swati Kumari
Bihar Agricultural University, India

P2-310 Stabilization and Storage of Carbon Using Organic Amendments
Nanthi Bolan and Ravi Naidu
University of South Australia, Australia

P2-311 Physical Fractions of Soil Organic Matter as Affected by Cover Crops and No-Till System
 Adriano Stephan Nascente1, Yuncong Li2 and Carlos Alexandre Crusciol3
1 Brazilian Agricultural Research Corporation (EMBRAPA), Brazil; 2 University of Florida, USA; 3 Sao Paulo State University (UNESP), Brazil

P2-312 Charcoal Distribution and Stability in a Sandy Soil
Eleanor Hobley, Gary Willgoose, Silvia Frisia and Geraldine Jacobsen1
1 The University of Newcastle, Australia; 2 Australian Nuclear Science and Technology Organization, Australia

P2-313 Residue and Soil Carbon Sequestration in Relation to Crop Yield as Affected by Irrigation, Tillage, Cropping System and Nitrogen Fertilization
Uendra Sainju
Agricultural Research Service, USA

P2-314 Effects of Discontinuing Long-Term Manure Use on Soil Carbon and Nitrogen Sequestrations in a Paddy Field in Niigata, Japan
Hirotomo Ohba, Ayako Kaneko and Toshimitsu Homma
Niigata Agricultural Research Institute, Japan

P2-315 Characterization of the Chemical Composition of Soil Humic Acids Using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry
Kosuke Ikeya1,*, Rachel Sleigher2, Patrick Hatcher2 and Akira Watanabe1
1 Nagoya University, Japan; 2 Old Dominion University, USA

P2-316 The Effect of Grazing Intensity on Soil C Response to Slurry and Urea Addition
Junfang Cui1 and Nicholas Mark Holden
University College Dublin, Ireland

P2-317 Effect of Fertilizer Elements (CA, MG, and K) on Soil Organic Carbon Mineralization
Anthony Aro1, Uche Nwokejavu, Lawrence Chukwu and Toy Adiele
National Root Crops Research Institute, Nigeria

P2-318 Distribution and Storage of SOC in Coastal Soil at Different Reclamation Ages
Xiangping Wang, Jingsong Yang1, Wenhui Jin, Rongjiang Yao and Shipeng Yu
Chinese Academy of Sciences, China

P2-319 C-Tool: Simple Soil Organic Carbon Model
Arezoo Taghzideh-Tooi1, Jørgen Evind Olesen, Nicholas John Hutchings, Jonas Vejlin and Bent Tolstrup Christensen
Aarhus University, Denmark

P2-320 Influence of Agricultural Land on Organic Carbon Distribution in Soil Aggregates Fractions in Ile-Ife, Southwestern Nigeria
Durodolouwa Oyelede1,*, Roberto Pini2, Enzo Sparvoli2, Ol-adapo Tijani1 and Manuele Scatena1
1 Obafemi Awolowo University, Nigeria; 2 CNR-ISE, Italy

P2-321 Architecture, Chemistry, and Mineralogy of Soil Aggregates and their Contribution to Soil Carbon Sequestration
Ganga Hettiarachchi1, Pavithra Pitumpe Arachchige, Leila Maurmann, Dorothy Menefee and Charles Rice
Kansas State University, USA

P2-322 The Intrinsic Energy of Soil Aggregates Affected by Soil Organic Matter
Zhaolong Zhu1, Budiman Minasny2 and Damien Field3
1 Northwest A&F University, China; 2 The University of Sydney, Australia

P2-323 The Impact of Land Use and Soil Management Practices on Soil Carbon in New South Wales, Australia
Sheikh Mohammad Fadzil Rabbi1, Matthew Tighe and Annette Cowie
University of New England, Australia

P2-324 Change of Organic Carbon Content in Black Soil Under Long-Term Application of Chemical Fertilizers and Recycled Organic Manure
Xiaozeng Han and Na Li
Chinese Academy of Sciences, China

P2-325 Long-Term Effects of Tillage, Crop Rotation and Fertilizer on Soil Organic Matter Quality Assessed by NMR Spectroscopy
Bal Ram Singh1,*, Bharat Man shrestha2, Claudia Forte3 and Giacomo Certinia4
1 Norwegian University of Life Sciences, Norway; 2 Agriculture and Agri-Food Canada, Canada; 3 Istituto di Chimica dei Composti Organo Metallici (ICCOM), CNR, Italy; 4 Universita di Firenze, Italy

P2-326 Quantification of Aggregated Carbon by Using Mid and near Infrared Spectroscopic Techniques
Nikusha Henakaarachchi1, Alex Mcbratney and Damien Field
The University of Sydney, Australia

P2-327 Effect of Water Management during Early Growth Stage on Nitrogen Dynamics of Paddy Field
Shah Monir Rahman, Ken-Ichi Kakuda1, Yuka Sasaki1 and Hiro Ando2
1 Hokkaido University, Japan; 2 Kyushu University, Japan

P2-328 Isotopic Characterization of Biomass Carbon Incorporation into Soil Aggregates
Song Guan1, Sen Dou1, Guan Chen1, Gang Wang1 and Jie Zhan2
1 Jinan Agricultural University, China; 2 The University of Tennessee, USA

P2-329 Geographical Distribution of Organic Carbon and its Relation with Soil Physical, Chemical Properties and Climate Condition of Hamedan Province, Iran
Nikoo Tabatabaei1, Mohammad Moez Ardalan and Mohammad Mehdi Tehrani1
1 Karaj Islamic Azad University, Iran; 2 Tehran University, Iran, 3 Soil and Water Research Institute, Iran

P2-330 Yasso07 and RothC In Predicting the Changes in Soil Carbon in Abandoned Arable Land in Russia
Jaakko Heikkinnen1,*, Irina Kurganova2, Valentin Lopes De Geryn3, Taru Palosuo1 and Kristiina Regina1
1 MTM Agrifood Research Finland, Finland; 2 Institute of Physicochemical and Biological Problems in Soil Science of the Russian Academy of Sciences, Russia
P2-354  
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**Modern Approaches to the Isolation and Characterisation of Soil Humin**  
Michael H. B. Hayes¹ and Roger S Swift²  
¹University of Limerick, Ireland; ²University of Queensland, Australia

P2-355  
**Analysis of Soil Organic Carbon and its Fractions in Biodiverse Environmental Plantings Using Mid-Infrared Spectroscopy**  
Dinesh Madhavan¹, Zoe Read² and Thomas Baker  
¹The University of Melbourne, Australia; ²Australian National University, Australia

P2-356  
**Water Budget and Short-Term Carbon Dynamics after Introducing Maize into a Paddy Rice Crop Rotation**  
Yao He¹, Jan Siemers¹, Heiner Goldbach¹, Wulf Ameiung¹, Reiner Wassmann¹, Andreas Lucke¹ and Eva Lehndorff¹  
¹University of Bonn, Germany; ²International Rice Research Institute, Philippines; ³Forschungszentrum Jülich GmbH, Germany

P2-357  
**Interactions of Al(III)/Fe(III) with Dissolved Soil Organic Molecules in an Acidic Environment**  
Kai-Yue Chen and Yu-Min Tzou  
National Chung Hsing University, Taiwan

P2-358  
**Stable Carbon Isotope Composition of Soil and Plant Under Pig Slurry Applications in Silty Loam Soil, SE Spain**  
Asuman Buyukkilic Yanardag¹, Angel Faz Cano¹, Ibrahim Halil Yanardag¹, Ahmet Mermut¹ and Melisa Gomez Garrido¹  
¹Technical University of Cartagena, Spain; ²Saskatchewan Polytechnic, Canada

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Khoi Chau¹ and Tuoi Bui  
Cantho University, Vietnam

P2-360  
**Carbon Storage in the Urban Soils of Three Hungarian Cities**  
Andras Biblio¹ and Adrienn Horvath  
University of West Hungary, Hungary

P2-361  
**The Effect of organic Fertilizers on Quality and Quantity of Soil Organic Carbon**  
Hana Karabcova¹, Pavlina Micova¹, Marie Stybnarova¹ and Lubica Pospisilova¹  
¹Agrovyzkum, Mendel University in Brno, Czech Republic

P2-362  
**Exploring Relationships Between Environmental Parameters, Microbial Communities and Molecular Composition of Soluble Organic Matter in Soils at the Regional Scale**  
Julien Guigue¹, Olivier Mathieu¹, Philippe Schmitt-Kopplin¹, Mourad Harir¹, Marianna Lucia¹, Samuel Dequiedt¹, Pierre-Alain Maron¹, Dominique Arrouays¹ and Claude Jolivet¹  
¹Univ. de Bourgogne, France; ²Analytical BioGeochimistry, Germany; ³INRA Orleans, France

P2-363  
**Characterizing Soil Organic Matter: What Can Synchrotron-Based Approaches Reveal?**  
Frani Walley¹, Kendra Purton¹, Adam Gillespie¹ and Dan Pennington  
University of Saskatchewan, Canada

P2-364  
**A Comparison of Extraction Procedures of Water-Extractable Organic Matter in Soils**  
Julien Guigue¹, Olivier Mathieu¹, Stephane Mounier¹, Yves Lucas¹, Remi Laffont¹, Pierre-Alain Maron¹, Philippe Armitage¹ and Jean Leveque¹  
¹Univ. de Bourgogne, France; ²Univ. of Sud Toulon Var, France

P2-365  
**Soil Organic Carbon Fractionation in Protected Natural Reserves under a Mediterranean Climate**  
Zahir Rawajfih and Bayan Kamis  
Jordan University of Science and Technology, Jordan

P2-366  
**Changes in Soil Carbon and Root Distribution with Depth in a Chronosequence of Perennial Pastures in South-Western Australia**  
Kanako Tomit¹, Zakaria Solaiman, Barbara Cook and Lynette Abbott  
The University of Western Australia, Australia

P2-367  
**Determination of Soil Carbon at the Microaggregate Scale Using a Combination of Hyperspectral and X-Ray Fluorescence Imaging Techniques**  
Sharon M. O’rourke¹, Alex B. Mcbratney¹ and Nicholas M. Holdén²  
¹The University of Sydney, Australia; ²University College Dublin, Ireland

P2-368  
**Organic Carbon Content and Quality among Soil Particle Size Fractions Down the Profiles under Native Woodland, Native Pastures and Cultivation in Northern New South Wales Australia**  
Christine Walela¹, Heiko Daniel, Brian Wilson, Annette Cowie and Peter Lockwood  
University of New England, Australia

P2-369  
**The Distribution of Carbon Stock in Selected Mangrove Ecosystems of Wetlands Papua, Eastern Indonesia**  
Sartji Taberima and Yvonne Kaber¹  
The State University of Papua, Indonesia

P2-370  
**Is the Scale-Dependent Variation of Soil Carbon, Nitrogen and Moisture Stationary over Time?**  
Nirmala Liyagunge¹, Thomas Bishop and Willem Vervoort  
University of Sydney, Australia

P2-371  
**Organic Carbon Storage of Cultivated Topsoil in Jilin Province**  
Shasha Yu, Sen Dou¹ and Jingmin Yang  
Jilin Agricultural University, China

P2-372  
**Soil Organic Carbon Sequestration of a Paddy Soil Chronosequence**  
Ping Wang, Yalong Liu, Genxing Pan¹ and Lianqiang Li  
Nanjing Agricultural University, China

P2-373  
**Spatial Distribution Characteristics of Soil Organic Matters in Mountain Meadow Soil at Wugong Mountain**  
Wenyuan Zhang¹, Zhi Li¹, Xiaomin Guo¹, Keyin Sheng¹, Dekui Ni¹, Shun Liu¹ and Weiping Qian¹  
¹Jiangxi Agricultural University, China; ²Pingxiang Forestry Science Institute, China

P2-374  
**Precipitation and Temperature Determine Soil Organic Carbon and Nitrogen Response to Land-Use Change in a Semiarid Region**  
Xiaorang Wei¹, Liping Qiu¹ and Xingchang Zhang  
Institute of Soil and Water Conservation, China

P2-375  
**Effects of Land-Use Change on Soil Organic Carbon and Nitrogen in Density Fractions and Soil ¹³C and ¹⁵N in Semiarid Grassland**  
Liping Qiu¹, Xiaorang Wei¹ and Xingchang Zhang  
Institute of Soil and Water Conservation, China

P2-376  
**Modelling Carbon, Water and Heat Fluxes Using a Process-Based Model in Temperate Sown Grasslands under Mowing and Grazing Management Systems**  

Nimai Senapati* and Abad Chabbi  
INRA, France

P2-377 Changes in Soil Organic Carbon and Total Nitrogen Stocks in a Chronosequence of Perennial Pastures  
Zakaria Solaiman* and Lynette Abbott  
The University of Western Australia, Australia

P2-378 Vertical Distribution of Water-Extractable Organic Carbon in a Sandy Soil as Affected by Biochemically Contrasting Organic Residues Applied Yearly for 13 Years  
Benjapon Kunlatit and Patma Vityakon*  
Khon Kaen University, Thailand

P2-379 Effect of Oil Palm Trunk Chips Application on Greenhouse Gases Flux from Tropical Peat Soil: Incubation Experiment  
Md. Zulhilmy*, Mariko Shimizu, Lulie Melling, Faustina E. Sangok and Rysusuke Hatano  
1 Tropical Peat Research Laboratory Unit, Malaysia; 2 Hokkaido University, Japan

P2-380 The Discussion on ‘black Carbon’ in Soils: A Plethora of Hypothesis  
Pavel Krasilnikov*, Maria Yurkevich, Valeria Sidorova, Anton Homicenko and Galina Demina  
1 Moscow State University, Russia; 2 Institute of Biology of Karelian Research Centre of Russian Academy of Sciences, Russia

P2-381 Fingerprint of Dissolved Organic Carbon and Hydrolytic Activity in Soil Solution as Factors to Implement Biochemical Activity in Carbon Dynamic Models  
Maria C. Hernandez-Soriano*, Ram Dalal, Neal Menzies and Peter Kopittke  
The University of Queensland, Australia

P2-382 Tracing C Fluxes through the Metabolic Network of Soil Microbial Communities by Position-Specific Labeling  
Michaela Dippold, Carolin Apostel and Yakov Kuzyakov  
Georg-August-University Goettingen, Germany

P2-383 Role of Climatic Single Events and Pedohydraulic Factors in the Mobilization and the Transport of Mobile Organic Matter in an Arable Soil  
Andreas Schmalwasser* and Kai Uwe Totsche  
Friedrich-Schiller-University Jena, Germany

P2-384 A Stepwise Modeling of Copper Sorption onto Kaolinite and Montmorillonite in Field Ph Range as Affected by Dissolved Organic Carbon  
Chia-Hsing Lee and Zueang-Sang Chen*  
National Taiwan University, Taiwan

P2-385 Recovery of Decomposing Plant Residue in Soil: An Evaluation of Three Fractionation Methods Based on Size and Density  
Edward Gregorich*, Amanda Dicroni, Benjamin Ellert, Henry Janzen, Adam Gillespie and Bobbi Helgason  
1 Agriculture Canada, Canada; 2 Lakehead University, Canada

P2-386 Changes in Light Fractions of Soil Organic Carbon after One Year Application of Raw and Composted Recycled Paper Mill Sludge  
Rosadin A.*, Che Fauziah, K Wan Rasidah and A.B. Rosenni*  
1 University of Malaya, Malaysia; 2 Universiti Putra Malaysia, Malaysia; 3 Forest Research Institute of Malaysia (FRIM), Malaysia

P2-387 Soil Disturbance Effects on Decomposition on Plant Residues in Canadian Agricultural Soils  
Edward Gregorich, Benjamin Ellert, Henry Janzen and Bobbi Helgason  
Agriculture Canada, Canada

P2-388 Carbon Sequestration Potential of Soils Under Maize Production in Irrigated Agriculture of Punjab - Pakistan  
Syeda Irum Zahra, Farhat Abbas, Muhammad Ibrahim, Wajid Ishaque and Muhammad Raza Salik  
1 Government College University Faisalabad, Pakistan; 2 Nuclear Institute of Agricultural Biology (NIAB), Pakistan; 3 Citrus Research Institute, Pakistan

P2-389 Soil Organic and Microbial Biomass Carbon Dynamics in Relation to Soil Microbial Population under Different Cropping Systems in Salt Affected Coastal Soils  
Sanjay Arora* and Nimisha Patel  
1 Central Soil Salinity Research Institute, India; 2 Veer Namad South Gujarat University, India

P2-390 Exploring Phenolic Distributions from the Tmah Thermochromogenic of Peatland Vegetation  
Jonathan Bradley*, Eanor Y. Swain and Geoffrey D. Abbott  
Newcastle University, United Kingdom

P2-391 Soil Disturbance Effects on Plant Residue Decay in Canadian Agricultural Soils  
Benjamin Ellert*, Ed Gregorich, Henry Janzen* and Bobbi Helgason  
1 Agriculture & Agri-Food Canada, Canada

P2-392 Evolution of Soil Humic Substances in Anthropogenic Disturbed Soils  
Serafim Chukov  
St. Petersburg State University, Russia

P2-393 Investigation of Chemical Interactions Between Humic Substances and Calcium Compounds in Fertile Soils  
Joyce Araujo*, Braulio Archanjo, Alexander Silva, Rodrigo Capaz, Newton Falcao, Ado Jorio, Lidia Sena, Etelvino Novotny* and Carlos Achete  
1 Quality and Technology (Inmetro), Brazil; 2 Universidade Federal do Rio de Janeiro, Brazil; 3 Instituto Nacional de Pesquisas da Amazonia, Brazil; 4 ETH Zurich, Switzerland; 5 Brazilian Enterprise for Agricultural Research, Brazil

P2-394 Carbon, Pedo-Transfer Functions and the Irish Soil Information System  
Brian James Reidy, I Simo, P Massey and R Creamer  
Teagasc, Ireland

P2-395 Carbon Stock in Different Types of Caatinga Forest in the Serniad Region of Paraiba State, Brazil  
Jacob Souto*, Bruna Souza*, Patricia Souto, Francisco Leonardo* and Lauter Souto  
1 Federal University of Campina Grande, Brazil; 2 Professional Autonomous, Brazil

P2-396 Soil Organic Carbon Sequestration Potencial for Brazilian Cerrado Pastures Estimated by Modelling  
Fernando Fernandes*, Ana Fernandes, Luis Baroni* and Rafael Silva*  
1 Embrapa Pantanal, Brazil; 2 Embrapa Informatica Agropecuaria, Brazil

P2-397 Two-Dimensional Chromatographic Characterization of Dissolved Organic Matter from Forest Floor Leachates and Ground Water  
Benny Fischer* and Kai Uwe Totsche  
Friedrich Schiller University Jena, Germany

P2-398 The Magnitude of Alkalinity Priming Induced by Organic Compounds Depends on Initial Soil Ph and Native Organic Carbon Content  
Fatima Rukshana*  
River Research Institute, Bangladesh
P2-399  Changes in Soil Organic Carbon in Response to Climate Manipulation under Cassiopea Tetragona in Zackenberg, Greenland
Ji Young Jung, Anders Michelsen, Niels Martin Schmidt and Yoo Kyung Lee
1 Korea Polar Research Institute, Korea; 2 University of Copenhagen, Denmark; 3 Aarhus University, Denmark

P2-400  Coal Fly Ash Amendment Reduced Soil Carbon Loss in Temperate Rice Paddy
Sang-Sun Lim, Han-Yong Kim, Scott X. Chang, Muhammad A. Arshad and Woo-Jung Choi
1 Chonnam National University, Korea; 2 University of Alberta, Canada

P2-401  Statistical Optimization of Medium Components for Chitinase Production by Pseudomonas Fluorescens Strain HNI205; Role of Chitinase on EGG Hatching Inhibition of Root-Knot Nematode
Yong Seong Lee, Min Hae Jung and Kil Yong Kim
Chonnam National University, Korea

P2-402  Nematicidal Activity of Lactic Acid Produced by Lysobacter capsici YS1215
Yong Seong Lee and Kil Yong Kim
Chonnam National University, Korea

P2-403  Effects of Nitrogen and Carbon Contents in Different Soils Cooperated with Organic Composts and Bio-Char during Incubation Periods
Joungdu Shin, Sun-III Lee, Wu-Gyun Park, Yong-Su Choi, Seong-Gil Hong and Sangwon Park
Rural Development Administration, Korea

P2-404  Physicochemical Properties of Soils as Affected by Minimum Tillage and Direct Seeding Cultivation on Dry Rice Paddy
Myung Chul Seo, Ki-Yeong Seong, Hyeon-Suk Cho, Min-Tae Kim, Tae-Seon Park and Hang-Won Kang
National Institute of Crop Science, Korea

P2-405  Impact of Maize Growth on Soil Carbon Dynamics in 13C-Labeled Plant Residue Incorporated Soil
Min-Jin Lee, Hee-Myong Ro and Jong-Sung Kim
Seoul National University, Korea

P2-406  Composition of Soil Organic Matter in Moist Acidic Tussock Tundra, Council Alaska
Sungjin Nam, Se Eun Kim, Hyemin Kim, Ji Young Jung and Yoo Kyung Lee
Korea Polar Research Institute, Korea

P2-407  Carbon and Nitrogen Stocks of Trees and Soils in a ‘niitaka’ Pearl Orchard
Seo-Yeon Lee, Hee-Myong Ro, Ji-Suk Park, Min-Jin Lee, Han-Chan Lee and Jang-Jeon Choi
1 Seoul National University, Korea; 2 NIHHS, Korea

P2-408  Distribution of Carbon and Nitrogen in Soil Aggregation Fraction under Long-Term Application of Rice Straw and Rice Straw Compost in Paddy Field
Seon Ah Hwang, Hui-So Bae, Soo-Hwan Lee, Jong-Gook Kang, Yang-Yol Oh, Sanghun Lee, Hong-Kyu Kim and Kyeong-Bo Lee
Rural Development Administration, Korea

P2-409  Monitoring Chemical Properties of Up-Land Soils in Chungbuk Region
Hyun-Ju Kim, Won-II Choi, Sang-Young Lee, In-Gyu Song, Tae-Jung Kim, Mi-Rang Kim and Sung-Su Kang
1 Chungbuk Agricultural Research and Extension Services, Korea; 2 National Institute of Agricultural Science and Technology, Korea

C2-3-3: Microbial Biodiversity and Ecosystem Functions in Volcanic Soils

P2-410  Effect of Cattle Manure Inoculation with an Alkaline Phytase Producing Bacilli in Organic P Mineralization, Bacterial Community and Wheat P Uptake
Daniel Menezes-Blackburn*, Milko Jorquera*, Nitza Inostroza*, Ralf Greiner*, Jacqueline Acuna* and Maria De La Luz Mora*
1 Max Rubner-Institut Federal Research Institute, Germany; 2 Universidad de La Frontera, Chile

P2-411  Relationship between Vegetation Indices and Biological Activity of Different Types of Biological Soil Crusts
Emilio Rodriguez-Caballero, Yolanda Canton*, Sonia Chamizo*, Isabel Miralles*, Raul Ortega, Francisco Domingo and Albert Sole-Benet*
1 University of Almeria, Spain; 2 CSIC, Spain

P2-412  Effect of Drying-Rewetting on Soil Microbial Biomass and Community Level Physiological Profile in Soil Amended with Wheat Straw
Hao Chen, Lu Lai, Xiaorong Zhao*, Guitong Li and Qimei Lin
China Agricultural University, China

P2-413  Effect Of Long-Term Fertilization On Soil Microbial Activities and Community Structure in Volcanic Ash Citrus Orchard Soil
Jae-Ho Joa*, Seong-Cheol Kim, Sang-Wook Koh, In-Chang Son* and Hae-Nam Hyun*
1 National Institute of Horticultural & Herbal Science, Korea; 2 Jeju National University, Korea

Kwang Kyu Kim, Keun Chul Lee, Jong-Shik Kim, Dae-Shin Kim, Suk-Hyun Ko* and Jung-Sook Lee*
1 Korea Research Institute of Bioscience and Biotechnology, Korea; 2 Gyeongbuk Institute for Marine Bioindustry, Korea; 3 Research Institute for Hallasan, Korea

P2-415  Microbial Functional Structure of Lava-Formed Gotjawal Soils in Jeju Island, Korea
Jong-Shik Kim*, Dae-Shin Kim* and Suk-Hyun Ko*
1 Gyeongbuk Institute for Marine Bioindustry, Korea; 2 Research Institute for Hallasan, Korea

P2-416  Comparison of Soil Characteristics and Soil Microbial Activities According to Sections of Hiking Trails for Hallasan National Park
Seokhyung Ko*, Jae-Ho Joa, Jong-Shik Kim*, Jong-Goon Koh, Young-Hoan Yang* and Hae-Nam Hyun*
1 Jeju Special Self-Governing Province, Korea; 2 RDA, Korea; 3 Gyeongbuk Institute for Marine Bioindustry, Korea; 4 Cheju National University, Korea

P2-417  Characteristics of Soil and Soil Microbial Distribution by Gotjawal Terrain in Jeju Island
Seokhyung Ko*, Jae-Ho Joa, Jong-Shik Kim*, Dae-Shin Kim, Chang-Hoon Shin, Young-Hoan Yang* and Hae-Nam Hyun*
1 Jeju Special Self-Governing Province, Korea; 2 National Institute of Horticultural & Herbal Science, Korea; 3 Gyeongbuk Institute for Marine Bioindustry, Uijin, Korea; 4 Cheju National University, Korea

P2-418  Effects of Cover Crops on Nutrient Contribution and Soil Microbial Community in Organic Citrus Orchard in Jeju
Yu Kyung Kim*
Jeju Agricultural Research and Extension Services, Korea
Functions Recover after Fumigants Removal in Different Soils
Chenglei Zhang, Hao Chen, Guitong Li* and Qimei Lin
China Agricultural University, China

C3.5-1: Water Conservation Technologies and Impacts on Sustainable Dry Land Agriculture

Conocarpus Waste for Improving Water Management of Calcareous Sandy Soils
Abdulrazzaud Alnom, Mohammad Alwabel and Hesham Ibrahim
King Saud University, Saudi Arabia

Drought Monitoring System for Austrian Agriculture - Agродrought Austria
Erwin Murer*, Josef Eitzinger2, Andreas Schaumberger2, Mirek Trnka2 and Carmen Krammer2
1 Federal Agency for Water Management, Austria; 2 University of Natural Resources and Life Sciences, Austria; 3 Science and GIS, LFZ Raumberg Gunternstein, Austria; 4 Global Change Research Center AS CR, Czech Republic

A New Technique Placing White Painted Water-Filled Polyethylene Bottles on Soil Surface Beside Plant Bases to Reduce High Soil Temperature Damages A: H.M. Zulfiquar Ali & Kiyoshi Ozawa1
1 University of Dhaka, Bangladesh; 2 Meiji University, Japan

Soil Hydraulic Properties and Moisture Regime as Affected by Agronomic Management Practices in a Clayey Ultisol
Jiazhou Chen* and Lirong Lin
Huazhong Agricultural University, China

The Effect of Mixing Zeolite in Soil with Application of Wastewater and Sewage Sludge on Lead in Lepidium Sativum
Mohammad Hajabbasi and Norend Hashemi
Isfahan University of Technology, Iran

How to Save Agricultural Production in Sahelian Zone Prone to Drought: Case of Burkina Faso
Tapsoba Gisèle*
Burkina Faso Soil Science Society, Burkina Faso

Shade and Water Management: A Viable Option for Soil Temperature Reduction and Root Development in Plantation Crop Establishment
Idowu Babadele Famuwaran*
The Federal University of Technology, Nigeria

Assessment of Soil Degradation Processes with the Help of the Statistical Analysis Method
Anna Fedotova, Lyudmila Yakovleva and Andrey Sorokin
Astrakhan State University, Russia

Nutrient Removal from Intensive Shrimp Farming Wastewater Using Red Seaweed (Gracilaria Verrucosa)
Lich Nguyen1*, Martin Kumar2, Nanthi Bolan3 and Tuan Le3
1 University of South Australia, Australia; 2 Flinders University, Australia; 3 Hue University of Agriculture and Forestry, Vietnam

The Contribution of Simple Irrigation Technologies to Crop Production in the Arid Lands of North Eastern Uganda
Emmanuel Mutebi
Regional Climate Change Support Initiative (RCCSI), Uganda

Boosting Crop Productivity through Irrigation Water Systems
William Kayemba
Millennium Environmental Research Alliance (MERA), Uganda

Influences of Environmental Conditions and Agricultural Conservation Practice on Growth and Yield of Cassava with No-Irrigation in Northeast Thailand
Mallika Sirisutham, Masaru Mizoguchi* and Ryoichi Doi
The university of Tokyo, Japan

Increasing Water-Use Efficiency and Crop Value through Surfactant Application in Sprinkler-Irrigated and Rain-Fed Potatoes
Helena Huiqin Ren*, Robert Glucksman*, Lisa Hui Fan, Stanley J. Kostka1 and Nicholas J. Gaeddert1
1 Witgang Agricultural & Landscape Ltd, China; 2 Witgang Agricultural & Landscape Ltd, Hong Kong; 3 Aquatrols Corporation of America, USA

Chemical Co-Precipitation of Iron And Magnesium Oxides on Biochar Produced from Conocarpus Wastes Increases NO3 Removal from Aqueous Solutions
Mohammad El-Mahrouky, Mohammad Al-Wabel*, Ahmed El-Naggar and Adel R.A. Usman
King Saud University, Saudi Arabia

Practising Conservation Agriculture and Balanced Fertiliser Use Improves the Yield and Economics of Farmers in Semi-Arid Tropical Region
Satyanarayana Talatami, Ch Srinivasarao* and Sumantha Kundu1
1 International Plant Nutrition Institute, India; 2 Central Research Institute for Dryland Agriculture, India

Indicators to Promote Sustainable Agricultural Intensification
Michelle Wandering*, Carmen M. Ugarte, Patricia Lazicki, Eduardo Mendonca and Hoyoung Kwon
1 University of Illinois, USA; 2 Nigala University, USA; 3 Federal University of Espirito Santo, USA, 4 IFPRI, USA

Simulating Dry-Season Hardening of Lowland Soils and Assessing the Impacts on Sawah Rice Performance Through Three Water Regimes
Sunday Obaluji*, J.Oppong, C.A. Igwe, M.E. Obi and T.Wakatsuki
1 University of Nigeria, Nigeria; 2 CSIR-Soil Research Institute, Ghana; 3 Kinki University, Japan

Suppression of Algae Growth by Phosphorus Removal Using Fly Ash as a Growth Medium of Plant-ed Floats
Sun-Il Lee*, Sang-Sun Lim*, Kwang-Seung Lee*, Woo-Kyun Park*, Young-Du Shin*, Kwang-Sik Yoon*, Han-Yong Kim* and Woo-Jung Choi*
1 Rural Development Administration, Korea; 2 Chonnam National University, Korea

Characteristics of Isotopic and Elemental Compositions of Potential Water Pollution Sources in Rural Area
1 Chonnam National University, Korea; 2 Seoul National University, Korea

Nutrient Sources Affected Concentration and Isotope Ratio of Nitrogen in Ponding Water of Paddy Soils in a Laboratory Incubation Experiment
Jong-Hyun Ham, Sang-Sun Lim, Kwang-Seung Lee, Byeong-Jun Jeon, Se-In Lee, Hyun-Jin Park, Kwang-Sik Yoon and Woo-Jung Choi*
Chonnam National University, Korea

Zinc Sorption on Coal Mine Drainage Sludge
Sue A Kang, Youngjae Kim, Seon Yong Lee, Choong Hyun Lee and Young Jae Lee*
Korea University, Korea
P2-441 Phosphorus Removal and Diesel Degradation by Bacillus Sp. 3434BRRU Isolated from Industrial Wastewater Keun Yook Chung\(^1\), Deok-Hyeon Kim\(^2\), Hee Jung Kim\(^1\), Jong In Kim\(^1\), Ju-Hyun Nam\(^1\), Joseph Kwon\(^1\), Jong-Soon Choi\(^1\) and Sun-Hee Woo\(^1\)
\(^1\) Chungbuk National University, Korea;\(^2\) Korea Basic Science Institute, Korea

P2-442 Effects of Ca2+ and Mg2+ on the Formation of Trichloromethane(tcm) and Haloacetic Acid(haa) during Chlorination of Drinking Water Won-Tae Jeong, Deok-Hyeon Kim, Jong In Kim, Moon-Soon Lee, Sun-Hee Woo, Jai-Joung Kim and Keun Yook Chung* Chungbuk National University, Korea

P2-443 Effect Of Environmental Factors On The Growth Of And Capacity Of Phosphorus(p) Removal By Bacillus Sp. 3434brru In The Biological Reactor Deok-Hyeon Kim, Da Hee Sin, Jong In Kim, Sun-Hee Woo, Moon-Soon Lee, Jai-Joung Kim and Keun Yook Chung* Chungbuk National University, Korea

P2-444 Characterization of the Proteins Involved in the Inhibitory Effect of Copper(cu) on the Growth and Phosphorus(p) Removal Efficiency of Bacillus Sp. 3434BRRU Da Hee Sin, Deok-Hyeon Kim, Jong In Kim, Sun-Hee Woo, Ju-Hyun Nam, Joseph Kwon, Jong-Soon Choi* and Keun Yook Chung* Chungbuk National University, Korea

P2-445 Effects of Selected Heavy Metals on the Growth of and Phosphorus(p) Removal Capacity by the Three Bacteria, Bacillus Sp. 3434 BRRU, Pseudomonas Aeruginosa, Bacillus Subtilis Da Hee Sin, Deok-Hyeon Kim, Jong In Kim, Moon-Soon Lee, Sun-Hee Woo, Jai-Joung Kim and Keun Yook Jung* Chungbuk National University, Cheongju, Korea

C3.5-2: Techniques to Manage Contaminated Arable Soils

P2-446 Temporal Analysis of Bioremediation of Crude Oil Contaminated Soil Using Remediation by Enhanced Natural Attenuation (rena) Technique in Mbodo Community, Port Harcourt, Nigeria Olatunde Eludoyin and Jennifer Oghenetega*
University of Port Harcourt, Nigeria

P2-447 Heavy Metal Transport and Accumulation in Maize Crop Grown on Battery Wastes Contaminated Site in Response to Compost and Inorganic Fertilizer Sifau Adejumo\(^1\), Adeniyi Togun\(^1\), Mary Ogundiran\(^1\), Kenta Ikazaki\(^2\) and Takashi Kosaki\(^2\)
\(^1\)University of Badan, Nigeria;\(^2\)Tokyo Metropolitan University, Japan

P2-448 Oil Tea (Camellia Oleifera Abel.), an Aluminum Hyperaccumulator, Adapts to Acid Soils Ingeniously Rong Fu Chen\(^1\), Qi Long Zeng\(^2\) and Ren Fang Shen*\(^1\)
\(^1\)Chinese Academy of Sciences, China;\(^2\)Jiangsu Province and Chinese Academy of Sciences, China

P2-449 The Cost Benefit Analysis of Using Contaminated Agricultural Land to Planting Energy Crops Ying Shen Chen*
Sinotech Engineering Consultants, Inc, Taiwan

P2-450 Evaluation of Biological Nitrate Degradation Rate by Indigenous Microorganism in Column Packed With Nitrate-Contaminated Soils Under Various Conditions Sunhwa Park\(^1\), Hyun-Gu Kim, Min-Kyeong Lee, Gyeong-Mi Lee, So-Hyun Kim, Kyungjin Han, Uijeon Hong, Moon-Su Kim, Young Kim and Tae-Seung Kim National Institute of Environmental Research, Korea

P2-451 Phytoremediation of Soil Contaminated with Petroleum Hydrocarbon Using Different Amendments Soleiman Modares, Mohammad Hajabbasi and Mehran Shrivani Soil Sciences, Isfahan University of Technology, Iran

P2-452 Phytostimulation of Maize (Zea Mays L.) in an Aged Petroleum Contaminated Calcareous Soil Incorporated with Sewage Sludge Mohammad Hajabbasi and Aboozar Asadollahi Isfahan University of Technology, Iran

P2-453 Soil Water Management to Decrease the Arsenic Content and Arsenic Speciation of Brown Rice Grown in Arsenic Contaminated Soils Tai-Hsiang Huang and Zueh-Sang Chen* National Taiwan University, Taiwan

P2-454 Soil Water Management Effect as on Concentration of Brown Rice Grown in Two Different Soil Properties of Arsenic-Contaminated Soils Hao-Yen Chang and Zueh-Sang Chen* National Taiwan University, Taiwan

P2-455 Reactions of Nonylphenol with Humic Acid in Sediment at Different pH S.W. Chang Chien\(^1\), S.H. Chen\(^2\), Min-Chao Wang\(^3\), P.R. Tsai\(^1\) and K. Seshaiyah*\(^4\)
\(^1\)Chaoyung University of Technology, Taiwan;\(^2\)Chinese Cultural University, Taiwan;\(^3\)Sri Venkateswara University, India

P2-456 High Background Levels of Cr And Ni in Serpentinitic Soil and their Uptake by Paddy Rice in Taiwan Zeng-Yei Hseu\(^1\), Yung-Jie Lai\(^2\), Pei-Chia Chuang\(^3\), Hung-Teh Tsai\(^1\), Chun-Ming Chen\(^1\), Jeng-Ren Ho\(^1\) and Chu-Hui Hsieh\(^4\)
\(^1\)National Pingtung University of Science and Technology, Taiwan;\(^2\)Apollo Technology Co, Ltd, Taiwan;\(^3\)Environmental Protection Administration, Taiwan

P2-457 Lead Immobilization in a Contaminated Soil by Phosphate Enriched Chitosan Beads Manoj Shrivastava\(^1\), Prashant Srivastava\(^2\), Nanthi Bolan\(^2\) and Ramya Thangarajan\(^2\)
\(^1\)Indian Agricultural Research Institute, India;\(^2\)University of South Australia, Australia

P2-458 The Impact of Greenhouse Vegetable Farming Duration and Soil Types on Phytoavailability of Heavy Metals and Their Health Risk in Eastern China Biao Huang*, Lanqin Yang and Wenyou Hu Chinese Academy of Sciences, China

P2-459 Accounting for Changes in the Water Retention Properties of Mine Landform Cover Material over Time Ian Hollingsworth* Horizon Environmental Soil Survey & Evaluation, Australia

P2-460 The System for Evaluation and Management of Contaminated Agricultural Soils Proposed in the Czech Republic Radim Vacha\(^1\), Milan Sanka\(^2\) and Jarmila Cechmankova\(^2\)
\(^1\)Research Institute for Soil and Water Conservation, Czech Republic;\(^2\)Masaryk University Brno, Czech Republic

P2-461 Safety Evaluation of Vegetables Grown on the High-ly Arsenic-Contaminated Soils in Northern Taiwan Shaw-Wei Su, Chun-Chih Tsai and Zueh-Sang Chen* National Taiwan University, Taiwan

P2-462 Root Uptake of Cs 134 Early After Radioactive Fallout Jan Mihalki* National Radiation Protection Institute, Czech Republic
Horse Paddocks - A Source of Water Pollution Via Excess Phosphorus (p) and Nitrogen (n) Leaching and Possible Counter Measures
Mohammed Masud Parvage*, Barbro Ulen and Holger Kirchmann
Swedish University of Agricultural Sciences, Sweden

Effect of Inorganic and Organic Amendments on the Bioavailability of Chromium in Contaminated Soils: A Sequential Study
H.R. Ahmad1, Saifullah, M. Zia ur Rehman, T. Aziz and M. Sabir
University of Agriculture, Pakistan

The Effect of Deltametrin Application on Microbial Degradation of Organic Matter and Soil Fertility
Adipati Napoleon* and Dwi Probowati Sulistyani
Sriwijaya University, Indonesia

Foliar Application of Zinc at Booting Stage can Modify Plant Growth and Decrease Cd Concentration in Bread Wheat
Saif Ullah, University of Agriculture, Pakistan

Application of Lherzolite on the Plant Growth and on Chemical Fractionation of Lead in Contaminated Soil
Md. Abul Kashem1, Shigenao Kawai1, Bal Ram Singh1 and Imamul Huq1
1 Chittagong University, Bangladesh; 2 Iwate University, Japan; 3 Norwegian University of Life Sciences, Norway; 4 University of Dhaka, Bangladesh

Effect of Rare Metals on Uptake Characteristics and Growth Response of Leafy Vegetables
Md. Shoffikul Islam1, Daisuke Ueno1, Takashi Someya2, Koichi Inoue1 and Noriko Ryuda2
1 Chittagong University, Bangladesh; 2 Saga University, Japan

The Potential of Legume Trees for Phytoimmobilization of Mercury Polluted Soils
Hanna Artuti Ekamawanti1, Yadi Setiadi2, Didy Sopandie2, Dwi Andreas Santosa2, Rocio Millan1 and Luis E. Hernandez1
1 Tanjungpura University, Indonesia; 2 Bogor Agricultural University, Indonesia; 3 Medioambientales y Tecnologicas, Spain; 4 Universidad Autonoma de Madrid, Spain

Phytoextraction of Lead Contaminated Soils with Fagopyrum Esculentum: A Field and Laboratory Scale Study
Armelle Braud1, Pierre Gaudin1, Alice Hazotte1, Elodie Leclerc1, Cecile Leguern1 and Thierry Lebeau1
1 IRSTV, France; 2 BRGM Service Geologique Regional des Pays de la Loire, France

Rhizo-Phytoextraction of Metal Contaminated Soils: An Innovative Selection Tool for Rhizobacteria
Armelle Braud1, Pierre Gaudin, Marine Hubert and Thierry Lebeau1
IRSTV, France

Cu Extractability and Uptake By Maize (zea Mays L.) and Ryegrass (lolium Perenne L.) Plants In a Contaminated Soil Amended with Manure, Compost and Compost-Derived Humic Acids
Mauricio Molina1, Ana Beatriz Torres and Rodrigo Ortega
Universidad Tecnica Federico Santa Maria, Chile

Phytoextraction-Assisted Bioaugmentation of Soils Contaminated by Cu and Cd: Role of the Bacterial Siderophore Pyoverdine
Jean-Yves Comn1, Mourad Elhabiri1, Claire Ferret1, Valerie Geoffroy1, Karine Jezequel1, Yann Leva1, Marc Lollier1, Armelle Braud1, Isabelle Schalk1 and Thierry Lebeau1

Use an Aryl Hydrocarbon Receptor (ahr) Reporter Gene Assay with the Improved Cleanup Procedure to Survey Dioxin Levels of Taiwanese Soil
Ding Yan Lin1, How Ran Chao1, Zeng Ye1 Hsue1 and Wen Yao Liu1
National Pingtung University of Science and Technology, Taiwan; 2 National Taiwan University, MWH Americas Inc., Taiwan

The Potentiality of Arabidopsis Halleri Ssp. Gemmifera to Accumulate Cd, Zn and Pb in Nutrient Solution
Md. Abul Kashem1, Shigenao Kawai1 and Bal Ram Singh1
1 Chittagong University and Asian University for Women, Bangladesh; 2 Iwate University, Japan; 3 Norwegian University of Life Sciences, Norway

One-Pot Synthesized Zerovalent Iron/activated Carbon Composite Degrades Trichloroethylene
Yu-Ling Cheng, Yuh-Fan Su, Yang-Hsin Shih* and Ying-Jie Chang
National Taiwan University, Taiwan

Cadmium Accumulation and Antioxidant Response of Wheat Cultivars to Silicon Application in Hydroponics
Asif Naem1, Saif Ullah, Muhammad Zia Ur Rehman and Tanseem Akhtar2
1 Nuclear Institute for Agriculture and Biology (NIAB), Pakistan; 2 University of Agriculture, Pakistan

Calcium Application Alleviates Nickel Phytoxicity in Rice (Oryza Sative L.)
Humera Aziz and Muhammad Sabir
University of Agriculture, Pakistan

Arbuscular Mycorrhizal Fungi in Bioremediation of Co-Contaminated Soil
Neja Hechmi1, Nadhira Ben Aissa*, Hassen Abdenaceur1 and Naceur Jedidi2
1 Water Researches And Technologies Center (CERTE), Tunisia; 2 National Agronomic Institute of Tunisia, Tunisia

Remediation of Crude Oil Polluted Soils: Effect of Organic and Inorganic Nutrient Source on the Growth of Sweet Potato (ipomea Batata)
Sunday Abaho* and Harry Isilkekhale
Ambrose All University, Nigeria

Biosolid-Based Co-Composts With Lime, Bentonite and Biochar Reduce the Bioavailability of Cadmium in Contaminated Soil
Thammarat Chusasavathi1, Nanthi S. Bolan1, Balaji Seshadri2, Chuleemas Boonthai Iwai1 and Duangrat Thongphak1
1 Khon Kaen University, Thailand; 2 University of South Australia, Thailand

Feasibility Study of Using Earthworm and Agricultural Waste as Bio-Adsorbent for Copper Contamination in Soil
Ratchanee Wongkogsoong, Chuleemas Boonthai Iwai*, and Mongkon Ta-Oun
Khon Kaen University, Thailand

Manage Different Agro-Industrial Wastes by Using Vermicomposting with Chicken Manure
Nattakit Petmuenwai, Chuleemas Boonthai Iwai*, Mongkon Ta-Oun and Thammarat Chusasavathi
Khon Kaen University, Thailand

1 INRA (Institut National de la Recherche Agronomique), UMR 1220 TCEM (Transfert sol-plante et Cycle des Elements Mineraux dans les ecossystemes cultives), France; 2 CNRS-Universite de Strasbourg, France; 3 Universite de Strasbourg-CNRS, EBS, France; 4 Universite de Haute Alsace, France; 5 Universite de Nantes, France

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P2-484 Potential of Elephant Grass in the Phytoremediation of Zinc and Cadmium Contaminated Soil
Clarice Oliveira, Vinicius Nascimento, Nelson Moura, Amaral Sobrinho, and Segundo Uliquaga
1 Universidade Federal Rural do Rio de Janeiro, Brazil; 2 Embrapa Agrobiologia, Brazil

P2-485 Organic and Microbial Evaluation of Biodegradation Capacity of Soils to Degrade Petrogenic Hydrocarbons
Suman George
1 The University of Western Australia, Australia

P2-486 Immobilization of Copper in Brown Soil Using Different Amendments
Shiwei Zhou, Zhihong Yu, Fei Lian, Zhongqi Liu, Hua Zhang and Zhengguo Song
1 Chines Academy of Sciences, China; 2 Ministry of Agriculture, China

P2-487 Phyto-Extraction of Heavy Metals from Municipal Sewage Loaded Soils of Calciorthens
Narindar Singh Bhogal, R. Sakal and Dhiraj Singh
1 Directorate of Rapeseed Mustard Research, India; 2 Rajendra Agricultural University, India

P2-488 Determination of Chemical Availability of Nickel and Copper in Soil
Mary Allagon, Paton. G.I. and Hedda. W.I.
University of Aberdeen, United Kingdom

P2-489 Improvement of Remediated Soils by Applying Different Agricultural Soils
Dong-Jin Kim, Hong-Seok Yang, Won-Jae Lee, Da-Seul Kang, Kyungmok Ahn and Jin-Ho Lee
1 Chonbuk National University, Korea; 2 Jeollabuk-Do Agricultural Research and Extension Services, Korea

P2-490 Ethylenediamine-Zeolite Hybrid for a New Approach to Phytoremediation
Kwang Seop Kim, Yun-Ju Kang, Min-Tae Kim, Jin-Hee Ryu, Jong-Seo Choi, Suk-Jin Kim, Choon-Woo Lee, Ki Do Park, Hang-Woon Kang, Owen W. Duckworth and Man Park
1 RDA, Korea; 2 Gyeongsangnabukdo Government Public Institute of Health and Environment, Korea; 3 North Carolina State University, USA; 4 Kyungpook National University, Korea

P2-491 Visible and Near Infrared Spectroscopy of Anthropogenic Soils on a Brown Coal Mining Dumpsite
Asa Gholizadeh, Lubos Boruvka, Mohammadmehdi Sabooran and Radim Vasat
1 Czech University of Life Sciences, Czech Republic; 2 University Putra Malaysia, Malaysia

C3.4-3: Physical Restoration of Soils
Soil Art Featured artist: Daniel McCormick & Mary O’Brien, Watershed Sculpture, USA, danieldmccormick.blogspot.com

P2-492 Heavy Metals Concentrations in Soil and Factors Controlling their Behavior during an Application of Raw and Composted Recycled Paper Mill Sludge
A. Rosadin, J. Che Fauzi, K. Wan Rasidah and A.B. Rosenani
1 University of Malaya, Malaysia; 2 Forest Research Institute of Malaysia (FRIM), Malaysia

P2-493 Soil Assessment at Degrading Mangrove Forests: A Case Study in Lawas, Sarawak
Wan Rasidah Kadir, Mohamad Fakhriz Ishak, Hazizikin Jumat and Suhaimei Wan Chik
1 Forest Research Institute Malaysia, Malaysia; 2 Sarawak Forestry Department, Malaysia

P2-494 Role of Arbuscular Mycorrhizal Fungi to the Phytoremediation of Metal Polluted Soils
Sebastian Meier, Nanthi Bolan, Fernando Borie, Cornejo Pablo and Naser Khan
1 Universidad de La Frontera, Chile; 2 University of South Australia, Australia

P2-495 Chicken Manure and Water Dispersible Clay of Brazilian Soils
Thadeu Rodrigues De Melo and Joao Tavares Filho
State University of Londrina, Brazil

P2-496 Interactions of Food Waste Compost with Metals and Metal-Chelant Complexes during Soil Remediation
Jingzi Beiuyuan, Josie Wu and Dan Tsang
Hong Kong Polytechnic University, Hong Kong

P2-497 A New Method for Selective Extraction of Trace Elements Occluded in Mn Oxides from Soils with a Focus on Applicability to Andisols
Aomi Suda, Tomoyuki Makino and Teruo Hijashi
1 National Institute for Agro-Environmental Sciences, Japan; 2 University of Tsukuba, Japan

P2-498 Immobilization of Arsenic and Cadmium by Oil Palm Empty Fruit Bunch Biochar
Norazlina Abu Sani and Che Fauziyah Ishak
Universiti Putra Malaysia, Malaysia

P2-499 Agroforest System Implantation for Gully Erosion Control in Pindorama Reserve, Brazil
Maria Teresa Viela Nogueira Abdo, Sidney Rosa Vieira, Antonio Lucio Mello Martins, Everton Luis Finoto, Eliane Gomes Fabri, Teresa Cristina Tarle Pissarra, Fernanda Fernandes Salazar, Mariana Barbara Lopes Bonatti, Angela Cristina Bieras Fecchi, Mauro Ferreira Machado and Maria Conceicao Lopes
1 Polo Regional Centro Norte, APTA-SAA, Brazil; 2 IAC, APTA, Brazil; 3 Polo Centro Norte, APTA, Brazil; 4 FCV, UNESP, Brazil; 5 UNIRP-Agronomia, UNIRP, Brazil; 6 IFTM campus Uberaba, Brazil

P2-500 Effect of Subsurface Drainage Pumping Station System on Soil Salinity and Drainage in the Reclaimed Tidal Flat Land
Hui-Su Baek, Sang-Hun Lee, Jong-Gook Kang, Su-Hwan Lee, Yang-Yeol Oh, Seon-A Huang, Hong-Kyu Kim and Kyeong-Bo Lee
National Institute of Crop Science, RDA, Korea

C4.2-1: Linking forest Management and Soil Processes to Ecosystem Productivity and Functions
Soil Art Featured artist: Ken Van Rees, University of Saskatchewan, Dept. of Agroforestry and Afforestation, www.kenvanrees.com

P2-501 Change in Soil Organic Matter Composition and C Transferred Pathways after Afforestation of Farmland in Northeastern China
Weiwei Cong, Tusheng Ren and Baoguo Li
1 Shenyang Agricultural University, China; 2 China Agricultural University, China

P2-502 Study of Purine Alkaloids and Phenolic Substances if Cocoa Beans Grown in Different Soils in South-eastern Bahia, Brazil
Quintino Araujo, Guilherme Loureiro, Jose O Souza Jr and Jose C Faria
1 Cocoa Research Center / Ceplac and State University of Santa Cruz, Brazil; 2 State University of Santa Cruz, Brazil

P2-503 Nutrient Cycling in Japanese Agro-Ecosystem in 1980 And 2010
Shinichiro Mishima, Kimura Sonoko Drothea, Sadao Eguuchi, Yasuhito Shirato and Kazuyo Matsumae
1 National Institute for Agro-Environmental Sciences, Japan; 2 Tokyo University of Agriculture and Technology, Japan; 3 Tohoku University, Japan
P2-504 Belowground Carbon and Nitrogen Status in a Fire-Damaged Urban Forest Landscape
Jaeyeob Jeong*, Choonsig Kim**, Hui-Yeong Seo*, Jae-Hyun Park* and Ho-Seop Ma*
1 University of South Australia, Australia; 2 Gyeongsang National University, Korea

P2-505 Carbon and Nitrogen Status of Organic Horizon by an Age Sequence of Pinus Radiata Plantations in South Australia
1 University of South Australia, Australia; 2 Forestry SA, Australia; 3 Murdoch University, Australia; 4 Gyeongnam National University of Science and Technology, Korea

P2-506 Annual Variation of Soil Respiration Rates Following Fertilizer Applications in Red Pine Stands
Jaeyeob Jeong*, Choonsig Kim**, Nanthi S. Bolani and Ravi Naidu*
1 University of South Australia, Mawson Lakes Campus, Australia; 2 Gyeongnam National University of Science and Technology, Korea

Emmanuel Attie*, U. L. Undie and M.A.Kekong
Cross River University of Technology, Nigeria

P2-508 How Does Litter Cover, Litter Diversity and Fauna Affect Sediment Discharge and Runoff?
Philipp Goebes*, Steffen Seitz*, Peter Kuhn and Thomas Scholten
Eberhard Karls University of Tubingen, Germany

P2-509 Paw-Paw Leaf Biopesticide and Pennisetum-Grassenhanced Soil Properties and Moringa Oleifera Growth
Caroline Mba*
University of Nigeria, Nigeria

P2-509 Pontoscolex corethrurus Earthworm Boostent Soil Biological And Physicochemical Properties And Induced Edible Mushroom Production
Caroline Mba*
University of Nigeria, Nigeria

P2-510 Soil Carbon Cycle in Subtropical Afforestation in Taiwan
Po-Neng Chang*, Jui-Chu Yu, Ya-Nan Wang and Yen-Jen Lai
National Taiwan University, Taiwan

P2-511 Year-Round Vegetable Production For Food Security And Livelihood Support In The Humid Tropics In The Wake of a Changing Climate And Extreme Weather
Obalimpe Obalimpe* and Samuel Agele*
1 Federal University of Technology, Nigeria; 2 Rufus Giwa Polytechnic.Owo, Nigeria

P2-512 Agriculture and Soil Conservation
Fouad Issoufa Ali* Comores ANACM, Comoros

P2-513 Pine and Oak Trees Had Contrasting Water Use Responses to Environmental Changes Caused by Industrialization in Southern Korea: Evidence from Tree Ring D13C
Kwang-Seung Lee*, Jin-Hyeob Kwak*, Hwang Dinh Viet*, Sang-Sun Lim*, Miwa Matsushima*, Scott X. Chang* and Woo-Jung Choi*
1 Chonnam National University, Korea; 2 University of Alberta, Canada; 3 Institute for Agricultural Environment, Viet Nam; 4 Chiba University, Japan

C4.5-1: The Soil Underfoot: Infinite Possibilities for a Finite Resource

P2-514 Physical and Chemical Characteristics of Rendolls in the Tigak Area of New Ireland Province, Papua New Guinea
Passingham Igu

P2-515 Climate Change Induced Effects on Water Balance, Productivity, Biodiversity and Ecosystem Functions of Arable Soils in Austria
1 Austrian Agency for Health and Food Safety, Austria; 2 University of Vienna, Austria; 3 University of Natural Resources and Life Sciences, Austria; 4 Federal Agency for Water Management, Austria; 5 Natural Hazards and Landscape, Austria

P2-516 Characteristics of Rammed Earth Fence of Samurai Residence in Kanazawa City, Japan
Masanori Okazaki*, Koyo Yonebayashi*, Naoya Katsumi*, Tomoe Nishi*, Yuichiro Nakatani* and Ikuyo Tamura*
1 Ishikawa Prefectural University, Japan; 2 History and Culture of Kanazawa City, Japan

P2-517 Exploiting Soil Sample Archives - Effects Of Long-term Storage on the Solubility of Micronutrients
Riikka Keskinnen*, Mercy Nyambura*, Keith Shepherd* and Martti Esala1
1 MTT Agrifood Research Finland, Finland; 2 World Agroforestry Centre (ICRAF), Kenya

P2-518 Total and Soluble Concentrations of Micronutrients in the Top- and Sub-soils of Sub-Saharan Africa
Riikka Keskinnen*, Mercy Nyambura*, Keith Shepherd* and Martti Esala1
1 MTT Agrifood Research Finland, Finland; 2 World Agroforestry Centre (ICRAF), Kenya

P2-519 Nanogypsum - A Promising Alternative to Remediate Sodic Soils
Santosh Kumar Manoharan*, Thiyageshwari Subramanian*, Subramaniam Kuzhaeral* and Chandra Sekaran Natesan*
Tamil Nadu Agricultural University, India; 2 Agricultural College and Research Institute, India

P2-520 The Effect of Climate Change Adaptation on Rural Community Livelihoods
Skyler Jayden Dembe
Global Initiative Uganda, Uganda

P2-521 Methodology for Classifying Post-Mining Soils for Tree Planting
Wan Rasidah Kadir*, Suaimain Wan Chik, Mohamad Fakhri Ishak and Rozita Ahmad
Forest Research Institute Malaysia, Malaysia

P2-522 Some Features Of Climate Change In Arid Regions Of Georgia And Its Impact On Soil Erosion And Degradation Processes
Teimuraz Davitashvili
Tbilisi State University, Georgia

WG4: New Approaches in Paddy Soil Management for Food Safety and Environmental Quality

P2-523 Subcellular Distribution of Cadmium in the Seedlings of Two Varieties of Hydroponically Grown Paddy Rice
Hung-Yu Lai* and Bo-Ching Chen
MingDao University, Taiwan

P2-524 Lead Uptakes by Rice Plant Related to Soil Pb Availability and Rice Genotypes as Confounded with Iron Plaque Formation

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Fang-Lin Li, Ya-Ting Chang, Ching-Ming Yang and Kai-Wei Juang* National Chiayi University, Taiwan

P2-525 Characteristics of Cracks in two Paddy Soils and their Impacts on Preferential Flow Xinhua Peng* and Zhongbin Zhang Institute of Soil Science, CAS, China

P2-526 Paddy Soil Nitrogen Mineralization: Links with Physicochemical Soil Organic Matter Fractions and Enzyme Activities Mohammed Abdul Kader1*, Steven Sleutel1, Sabina Yeasmin1 and Stefaan De Neve1 1 Bangladesh Agricultural University, Bangladesh; 2 Ghent University, Belgium

P2-527 Isolation and Identification of Ferric Reducing Bacteria and Evaluation of their Roles in Iron Availability in Two Calcareous Soils Nasrin Ghorbanzadeh1*, Amir Lakzian, Gholam Hosain Haghnia and Ali Reza Karimi Soil Biology, Iran

P2-528 Combined Effects of the Continual Application of Composted Rice Straw and Chemical Fertilizer on Rice Yield under a Double Rice Cropping System in the Mekong Delta, Vietnam Takeshi Watanabe1, Man Luu Hong1, Osamu Ito1 and Kazuyuki Inubushī1 1 Japan International Research Center for Agricultural Sciences, Japan; 2 CsU, Long Delta Rice Research Institute, Vietnam; 3 UN University, Japan; 4 Chiba University, Japan

P2-529 Uptake of Heavy Metals by Paddy Rice on Serpentine Soils Ya-Ting Ko and Zeng-Yei Hseu1* National Pingtung University of Science and Technology, Taiwan

P2-530 Effects of Consecutive Turnover of Milk Vetch on Paddy Soil Microbial Properties Xinjun Lin Fujian Academy of Agricultural Sciences, China

P2-531 Grading Plant Available Non-Exchangeable Potassium According to its Release Rate Levels Using Sodium Tetraphenylboron Ting Li, Huoyan Wang2, Haixia Sun and Jianmin Zhou Chinese Academy of Sciences, China

P2-532 Effect of Lactate and Anthraquinone-2,6-Disulfonate on Pentachlorophenol Degradation and Bacterial Community Composition in Paddy Soil Manija Chen, Pengcheng Chen and Fangbai Li1 Guangdong Institute of Eco-environment and Soil Science, China

P2-533 Estimation of Microbial Biomass Potassium in Paddy Field Soil Kohei Yamashita1, Hiroki Honjo1, Miziohiko Nishida1, Makoto Kimura1 and Susumu Asakawa1 1 Nagoya University, Japan; 2 Aichi-Prefecture College of Agriculture, Japan; 3 NARO Tohoku Agricultural Research Center, Japan; 4 Food and Agricultural Materials Inspection Center, Japan

P2-534 Effect of Irrigation Water Management on As and Cd in Rice Grain Rufus Chaney*, Merle Anders2 and Anna Mcclung3 1 USDA-ARS-EMBL, USA; 2 University of Arkansas, USA; 3 US Dept. Agric. Agricultural Research Service, USA

P2-535 Comparison of Phosphorus Species in a Chinese Paddy Soil Profile After Long-Term Continuous Pig Manure and Superphosphate Fertilization: Analysis by Quantitative 31P-Nuclear Magnetic Resonance Xingqiang Liang1*, Yi Jin1, Miaomiao He1*, Yu Liu1, Yue Zhao1, Chaodong Fu1 and Guangming Tian1 1 Zhejiang University, China; 2 Hangzhou Normal University, China

P2-536 The Evaluation of Copper and Zinc Uptake and Risk Assessment of Twelve Rice Varieties Grown in Cuo Zn-Contaminated Soils of Taiwan Horang-Yu Guo1*, C.F. Chiang2, C.L. Chu3, T.S. Liu3, Jeng-Ren Ho1, Py. Wu1, Y.J. Lai1 and Zueng-Sang Chen1 1 Taiwan Agricultural Research Institute, Council of Agriculture, Taiwan; 2 Environmental Protection Administration of Taiwan, Taiwan; 3 Apelle Technology Co. Ltd, Taiwan; 4 National Taiwan University, Taiwan

P2-537 Comparison and Distribution of Phosphorus Fractions in Surface Horizons of Two Paddy Soil Chronosequences Ping Zou1, Jianrong Fu1*, Zhihong Cao1, Jing Ye1 and Qiaogang Yu1 1 Zhejiang Academy of Agricultural Sciences, China; 2 Chinese Academy of Sciences, China

P2-538 Using Thermal Analysis to Investigate Physical Protection from Soil Aggregates under the Long-Term Fertilization Practices Xiao Fen Liu1, Chun Zeng Liu1 and Tu Sheng Ren1* 1 Henan Academy of Agricultural Sciences, China; 2 China Agricultural University, China

P2-539 Nitrogen Use Efficiency of Promising Rice Genotypes in Drought Prone Northwest Bangladesh B Karmakar1, SM Mahboob1, M. R. Sarkar1, A. Islam1 and M.A. Saleque1 1 Bangladesh Rice Research Institute (BRRRI), Bangladesh; 2 University of Adelaide, Australia; 3 Bangladesh Agricultural University, Bangladesh

P2-540 Dynamics of Soil Pore-Water Fe2+ and Mn2+ Concentrations in Rice-Faba Bean Crop Rotations K.M Shamsul Haque1*, Philip Eberbach, Leslie Weston, Julia Howitt and Mike Dyall-Smith Charles Sturt University, Australia

P2-541 Effect of Cadmium on Microorganism Urease Activity in Paddy Soil Xing Hu1*, Ying Jiang, Liting Du, Ting Qing and Xuefeng Hu Shanghai University, China

P2-542 Micronutrients Dynamics in Soil And Grain Under Long Term Application of Fertilizer and Manure in a Tropical Rice-Rice System Mohammad Shahid1, Ak Nayak, P Bhattacharyya, R Tripathi, S Mohanty, A Kumar, B Lal, Priyanka Gautam, R Raja and Bb Panda Central Rice Research Institute, India

P2-543 The Factors and Processes Relating with the Accumulation of Zn in Rice Grains Guo Wang1, Lijun Sun, Yanhui Chen and Mingkuang Wang Fujian Agriculture and Forestry University, China

P2-544 Status of Silicon and Cadmium in Paddy Soils of South India and their Effect on Growth, Yield and Uptake by Rice Tapasya Babu1 and Prakash Nagabovanna1 B 1 Louisiana State University, USA; 2 University of Agricultural Sciences (GKV), India

P2-545 Change of Antioxidant Compounds and Antioxidant Activity of Adzuki Bean by Drainage Methods in Poorly Drained Sloping Paddy Field Koan Sik Woo, Ki Yuol Jung, Jee Yeon Ko and Jae Saeng Lee Rural Development Administration, Korea

P2-546 Antioxidant Compounds and Antioxidant Activity of Proso Millet with Drainage Methods in Poorly Drained Sloping Paddy Field Koan Sik Woo, Ki Yuol Jung, Jae Saeng Lee and Jee Yeon Ko Rural Development Administration, Korea
WG6: Urban Soils - Properties, Functions and Evolution

Soil Art Featured artist: Ellie Irons, City College of New York (CCNY) Art Department, USA, The Urban Soil Appreciation Initiative, ellieirons.com/soil

P2-547 Characterization and Soil Pollution Assessment of Peri-Urban Fadama in South Western Nigeria for Food Security
Olufunmilayo Ande1*, Adetunji A. M2, Akinpelu M. E.2 and Senjobi B.A.1
1 Obafemi Awolowo University, Moore Plantation, Ibadan, Nigeria; 2 Federal College of Agriculture, Nigeria

P2-548 Soil Characterization and Pollution Assessment of Peri-Urban Fadama in South Western Nigeria for Food Security
Olufunmilayo Ande1*, Bola Senjobi2, Modupe Akinpelu2 and M Adetunji2
1 Institute Of Agric. Research And Training, OAU, Nigeria; 2 Federal University of Agriculture, Abeokuta, Nigeria

P2-549 Effect of Wastewater Irrigation on Quality of Urban Agricultural Soils in Metropolitan Kano, Nigeria
Mansur Dikk1, Abubakar Dikk2, Samaila Noma1 and Umar Aliyu
Usmanu Danfodiyo University, Nigeria

P2-550 Industrially-Contaminated Land: Soil Quality and Environmental Significance
Ini Edem1* and Oliver A. Opara-Nadi2
1 University of Uyo, Nigeria; 2 Abia State University, Nigeria

P2-551 The Capabilities of Mycological Display in Determining the Potential Level of Pollution Landscape of Heavy Metal
Klimova Viktoria
Moscow Pedagogical State University, Russia

P2-552 Heavy Metal Contamination Characteristics of Greenbelt Soil and Tree Enrichment in Harbin City, China
Wenbiao Duan, Linxin Chen* and Chao Zhang
Northeast Forestry University, China

P2-553 Sources of Heavy Metal Pollution Risk in Agricultural Soils of a Rapidly Industrialized Area in Yangtze Delta Region of China
Xianghua Xu* and Yudong Wang
Nanjing University of Information Science &Technology, China

P2-554 Soil Usage in the Construction of Local Building in Old Kuntaikun Communities in Gwagalada Area Council of the Federal Capital Territory, Abuja Nigeria
Michael Adedotun
Michael Adedotun Oke Foundation, Nigeria

P2-555 The Ways of Chernozem’s Transformation in the Conditions of Urbopedogenesis in South Russia
Sergey Gorbov* and Olga Bezuglova
The Southern Federal University, Russia

P2-556 Effectiveness of Chelator Washing of Acid-Contaminated Soils and Potential Risk of Edta Leaching to Groundwater
Qi-Tang Wu*, Xiaofang Guo, Zebin Wei and Xinxian Long
South China Agricultural University, China

P2-557 Principles of Creating a Soil Map of Urban Areas (by The Example of St. Petersburg)

Elena Sukhacheva and Boris Aparin*
The Dokuchaev Central Soil Science Museum, Russia

P2-558 Decomposition in Soil - Evaluation of Cemetery Soils
Iris Zimmermann, Heiner Fleige* and Rainer Horn*
Christian-Albrechts-University, Germany

P2-559 Pedogenesis on a Former Settling Pond of Iron Industry
Hermine Huot1*, Marie-Odile Simonnot1 and Jean-Louis Moré2
1 Laboratoire Reactions et Genie des Procedes, France; 2 Laboratoire Soils et Environnement, France

P2-560 Treatment of Acidic Mine Soils: Effects on Heavy Metal Dynamics and Growth of Corymbia Citriodora Varvariageata Seedlings
Yong Liu, Yingquan Ma1 and Chuxia Lin2
1 South China Agricultural University, China; 2 University of Salford, United Kingdom

P2-561 Evaluation of Hydraulic Properties of Urban Technosols Built with Recycled Waste
Deniz Yilmaz*, Pierre-Emmanuel Peyneau and Michel Legret
GERS, IFSTTAR, France

P2-562 Organic and Synthetic Soil Amendments Influence Soil Quality and Growth of Tropical Urban Trees
Subhadip Ghosh1*, Daniel Burcham1 and Amitava Rakshit2
1 National Parks Board, Singapore; 2 Banaras Hindu University, India

P2-563 Distribution of Organic Carbon on the Roadside Soils of a Tropical Urban City
Subhadip Ghosh1*, Muhammad Hafiz Magnus1, Lokman Yusof1, S Shenbagavalli1 and S Mahimairaja1
1 National Parks Board, Singapore; 2 Tamil Nadu Agricultural University, India

P2-564 Use Of Metal Contaminated And Edta Washed Garden Soil In Field Experiment
Domen Lestan1*, Masa Jelusic1, Erika Jez1 and Neza Finzar1
1 University of Ljubljana, Slovenia; 2 Envt Ltd., Slovenia

P2-565 Contribution of Bricks to Urban Soil Properties
Thomas Nehls1*, Sarah Rokia2, Christophe Schwartz2, Beate Mekiker1 and Gerd Wessolek
1 Technische Universitaet Berlin, Germany; 2 Universite de Lorraine, France

P2-566 Heavy Metal Investigations in the Urban Soils of a Hungarian City
Adrienn Horvath1* and András Bidlo
University of West Hungary, Hungary

P2-567 Influence of Asphalt Pavement on Major Element Forms in Subgrade Soils
Kimihiro Kida1* and Masayuki Kawahigashi
Tokyo Metropolitan University, Japan

P2-568 Effect of Population Density on Heavy Metal Concentration in Urban Areas: Differences Between Urban Soil and Street Dust
Jose A. Acosta1*, Angel Faz, Silvia Martinez-Martinez, Raul Zornoza and Maria Gabarron
Universidad Politecnica de Cartagena, Spain

P2-569 Speciation of Metals over Different Chemical Fraction in Street Dust from Different Uses as Basis for Risk Assessment
Jose A. Acosta1*, Angel Faz1, Karsten Kalbitz2, Boris Jansen2 and Silvia Martinez-Martinez1
1 Universidad Politecnica de Cartagena, Spain; 2 University of Amsterdam, Netherlands
P2-570 Soil Capping for Vegetative Establishment in Red Mud Disposal Areas
Chunhua Shi, Yingqin Ma and Chuxia Lin
South China Agricultural University, China; Chinese Research Academy of Environmental Sciences, China;
University of Salford, United Kingdom

P2-571 Heavy Metal Retention of Different Roadside Soils
Bjorn Kluge*, Moritz Werkentin and Gerd Wessolek
TU Berlin, Germany

P2-572 Modern Soils on Bronze Age Settlement in Ural Region (Russia): Genesis, Properties and Evolution
Alexandra Golysheva, Olga Khokhlova*, Nickolay Sherbakov and Iia Shuteleva
1 Institute of Geography RAS, Russia; 2 Institute of Physicochemical and Biological Problems in Soil Science, Russia; 3 Bashkir State Pedagogical University named after M. Akmulla, Russia

P2-573 Diagnosis of Heavy Metal Pollution in Urban Soils: The Case of Mexico City
Francisco Bautista*, Carmen Delgado, Ruben Cejudo, Patricia Quintana, Silvia Ramos, Avto Goguichaishvili, Bertha Aguilar and Juan Morales
1 Universidad Nacional Autonoma de Mexico, Mexico; 2 Unidad Merida, Mexico; 3 Universidad de Ciencias y Artes de Chiapas, Mexico

P2-574 Magnetic Properties of Dusts and Urban Topsoils from the Mexicali (Mexico) - Calexico (U.S.) Bina
TIONAL CONJURATION
Alexander Sanchez-Duque*, Francisco Bautista, Jaime Alonso Reyes, Fernando Amilcar Solís, Ruben Cejudo, Bertha Aguilar, Juan Morales and Avto Goguichaishvili
1 Universidad Nacional Autonoma de Mexico, Mexico; 2 Universidad Autonoma de Baja California, Mexico

P2-575 Magnetic Susceptibility and Saturation Isothermal Remanent Magnetization and their Relationship with Heavy Metals in Urban Soils in Mexico City
Ruben Cejudo, Francisco Bautista*, Bertha Aguilar, Thomas Ihl, Carmen Delgado, Juan Morales, Patricia Quintana* and Avto Goguichaishvili
1 Universidad Nacional Autonoma de Mexico, Mexico; 2 CINVESTAV Unidad Merida, Mexico

P2-576 A Comparison of the Efficiency of Sediment Control Devices on Stockpiled Material at North Turramurra Recreational Area
Pamela Hazeltone, University of Technology, Australia

P2-577 Metal Trace Elements in Fruits and Vegetables in France
Christiane Raynal-Lacroix
Centre Technique Interprofessionnel des Fruits et Légumes, France

P2-578 Biochemical and Chemical Indicators of Anthropogenic Transformations for Soils in Urbanised Areas
Ezbieita Bielinska* and Barbara Futa
University of Life Sciences in Lublin, Poland

P2-580 The Detection of Temporal Variation of Land Cover Types Using Landsat Data Fusion
Jong Chul Jeong*, GihA Lee
1Naruseoul University, Korea; 2Kyungpook National University, Korea

P3-2 Soil Phosphorus Retention Capacity of Different Amendments
Zahoor Ahmad
University of Haripur, Pakistan

P3-3 Accumulation and Leaching Potential of Soluble Nitrogen in Greenhouse Soil
Caiyan Lu**, Xin Chen, Yi Shi* and Mingfen Liu
1 Chinese Academy of Sciences, China; 2 Shenyang Jianzhu University, China

P3-4 Nutrient Stocks and C Sequestration in Forest and Forest-Derived Land Use Systems in the Rainforest Zone of Nigeria
Oliver A. Opara-Nadi**, Juliana N. Uche1, Ini D. Edem2, Friedrich O. Beese and Hubert Schulte-Bisping3
1Abia State University, Nigeria; 2University of Uyo, Nigeria; 3University of Goettingen, Germany

P3-5 Comparison of the Temperature Regime Measured inside a Containerized Lysimeter Station, Inside Lysi
meter Vessels and in Surrounding Soil
Holger Rupp, Ralph Meissner* and Sabine Berndt4
1Helmholtz Centre for Environmental Research, Germany; 2Martin-Luther-University Halle-Wittenber, Germany

P3-6 Changes in Microbial P and Related Soil Properties as Affected by Low Molecular Weight Organic Ac
ids (Imwoa) in a Neutral Soil of China
Yongzhuan Wang, Yi Shi*, Xin Chen, Caiyan Lu, Yajie Zhao and Zhi Quan
University of Chinese Academy of Sciences, China

P3-7 Effect of Cadmium on Biomass and Qualities of Differ
ent Chinese
Shuai Liu, Yi Shi*, Mingda Liu and Xin Chen
Chinese Academy of Sciences, China

P3-8 Qualitative Land Suitability Evaluation for Principal Crops of Southern Iran
Abolfazl Azadi*, Majid Baghernejad and Siros Shaker Shiraz University, Iran

P3-9 Access to Lysimeter Measurements with Afforde
able, Ready-To-Use Lysimeter Technology
Katja Richter*, Sascha Reth, Manfred Seyfarth and Michael A. Forster
1 Umwelt-Gerate-Technik GmbH, Germany; 2 ICT International, Australia

P3-10 Land Use Type as a Factor for Carbon Accumulation in Urban Soils from Elements of Green Infrastructure
Miglena Zhiyanski* and Vania Doichinova
Bulgarian Academy of Sciences, Bulgaria

P3-11 Restoration of Chernozems Fertility under the Influence of Green and Organic Fertilizers
Tamara Leah*
Ministry of Agriculture, Institute of Soil Science, Agrochemistry and Soil Protection, Moldova

P3-12 Land Use Change Effect on Carbon Stocks in Mountain Ecosystems from Rhodope Mountain, Bulgaria
Miglena Zhiyanski*, Angel Ferezliev and Jens Leifeld*
1 Bulgarian Academy of Sciences, Bulgaria; 2 Agroscope Reckenholz-Tanikon ART, Switzerland

P3-13 Quantifying Small-Scale Variability in Water Storage and Root Water Uptake on the Edwards Plateau, Texas
Ieyasu Tokumoto*
Saga University, Japan

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P3-14 Effect of Land Use Change on Soil Physical Properties of Disadvantageous Cultivated Areas
Mizuki Momose, Masahiro Nakajima and Hirotaka Saito
Tokyo University of Agriculture and Technology, Japan

P3-15 Temperature and Water Flow in an Agricultural Area under Different Land Uses
Adilson Pinheiro1,2, Vander Kaufmann1, Ralph Meissner1 and Heinz Borg1
1 Fundacao Universidade Regional de Blumenau, Brazil; 2 Helmhotz Zentrum fur Umweltforschung, Germany;
3 Martin Luther Universitat Halle Wittenberg, Germany

P3-16 The Design and Development of the Sustainable Land Management System in Ceylanpinar State Farm
Hakki Emrah Erdogan1 and Mahmut Yukse1
1 General Directorate of Agrarian Reform (GDAR), Turkey; 2 Ankara University, Turkey

P3-17 Evaluation of Land Use in the Watershed of Ribeirao Extrema, Distrito Federal, Brazil, with the Aid of Remote Sensing Techniques
Deborah Christina Moraes Mesquita1, Luiz Felipe Moreira Cassol, Manuel Pereira De Oliveira Junior, Guilherme Queiroz Micas, Bruna Goncalves Vieira and Marliusa Pinto Coelho Lacerda
1 Universidade de Brasilia-UnB, Brazil

P3-18 Properties of Fly Ash from Pha Lai Thermal Power Plant and its Influence on Properties of Haplic Acrisol Chau Ngo Thi Tuong and Thien Le Van
Vietnam National University, Hanoi University of Science, Vietnam

P3-19 Changes in Climate and Soil Temperature Regime in Korea
Kyungdae Kim
Gangwon Do Research and Development Service, Korea

IDS9: Key Processes and Factors to Mitigate Land Degradation
P3-20 Typology of Soil-Ecological Risks for Desertification
German Kust, Sergey Rozov, Olga Andreeva, Nina Kutuzova and Tatyana Trifonova
Lomonosov Moscow State University, Russia

P3-21 Effect of Reforestation Practice on Soil Carbon Sequestration: A Case Study in Seashore Windbreak Forest of Northeastern Taiwan
Chen-Chi Tsai and Yu-Fang Chang
National Ilan University, Taiwan

P3-22 Interactions between Soil, Grape Plant and Microbes in Vineyard Environment
Olga Klymenko1,2, Mykola Klymenko1, Nina Klymenko2 and Roman Akhun1
1 Nikitsky Botanical Gardens, Ukraine; 2 NASS of Ukraine, Ukraine; 3 Adam plus LTD, Ukraine

P3-23 Spatial and Temporal Variations in Soil Properties, Plant Growth and Methane Emission from Lowland Rice of Myanmar
Aung Zaw Oo, Khin Thuzar Win, Ei Ei Theint and Sonoko Dorothea Bellingrath-Kimura2
Tokyo University of Agriculture and Technology, Japan

P3-24 Anti-Wind-Erosion Characteristics and Key Influencing Factors of Bryophytic Biological Soil Crusts Chongfang Bu, Chunlei Zhao, Yongsheng Yang, Peng Zhang and Shufang Wu
1 Northwest A&F University, China; 2 Chinese Academy of Sciences, China

P3-25 Soil Organic Carbon Change due to Agricultural Land Use in the Tropics - Comparison of Case Studies in Mozambique, Vietnam and Brazil
Sonoko Dorothea Bellingrath-Kimura1, Yuii Kojba1, Mayumi Tsunoda2, Antonio Dos Santos Jr.3, Yosei Okikawa2, Iraj Aamaral Guerri1 and Masaaki Yamada4
1 Tokyo University of Agriculture and Technology, Japan; 2 Yamanashi Prefectural Dairy Experiment Station, Japan; 3 Eduardo Mondlane University, Mozambique; 4 Sao Paulo State University, Brazil

P3-26 Land Degradation and Gaseous Carbon Emission Caused by Fire in Tropical Peatland
Yohei Hamada1,2, Untung Darung2, Suwido Limin2 and Ryu-suke Hatano1
1 Hokkaido University, Japan; 2 University of Palangkaraya, Indonesia

P3-27 Effect of Manure and Fertilizer Application on Greenhouse Gas Emissions and Global Warming Potential in a Corn Field in Shin-Hidaka, Hokkaido, Japan
Iakbongo Mukumbuta, Mariko Shimizu, Arata Nagatake, Aftrified Limin, Hirokazu Nakamoto, Hiroshi Hata and Ryu-suke Hatano
Hokkaido University, Japan

P3-28 Spatial Variations and the Controlling Factors of Greenhouse Gas Fluxes from Drained Forest and Burnt Land on Tropical Peatland
Kiwarmu Ishikura1,2, Untung Darung2, Suwido Limin2 and Ryu-suke Hatano1
1 Hokkaido University, Japan; 2 University of Palangkaraya, Indonesia

P3-29 Influence of Nitrogen Fertilizer Application Practices on Nitrous Oxide Emission from Tea Soil in Japan Hou Muan1, Sonoko Dorothea Bellingrath-Kimura2, Naoko Ohtsu-Okahama1, Sozoh Suzuki1, Sachihio Arai1 and Kaori Murase2
1 Tokyo University of Agriculture and Technology, Japan; 2 Nagoya City University, Japan

P3-30 Degradation of Forest Soils with Low Acid Buffering Capacity in Cryptomeria Japonica and Chamaecyparis Obtusa Stands during Two Decades
Tokyo Tanikawa1, Ayaka Sobue2 and Yasuhiro Hirano3
1 Kansai Research Center, Japan; 2 Nagoya University, Japan

P3-31 Land Use Change Effect on Carbon Balance: From Managed Grassland to Corn Field
Aftrified Limin1, Mariko Shimizu2, Iakbongo Mukumbuta2, Hirokazu Nakamoto2, Akira Miyata2, Keiske Uno2, Masami Mano2, Hideo Wada2 and Ryu-suke Hatano2
1 Hokkaido University, Japan; 2 National Institute for Agro-Environmental Sciences, Japan; 3 National Livestock Breeding Center Niikappu Station, Japan

P3-32 Use of Soil and Nutrient Management Practices for Restoration/remediation Quality of Eroded Soil Ardeshir Adeli1, Seth Dabney, John P. Brooks and Johnie N. Jenkins
USDAs-ARS, USA

P3-33 Evaluation the Criteria and Indicators of Soil Degradation in Semi Arid Area of East Qazvin Khaled Haji Maleki1, M. Gorji2, F. Sarmadian3, H. Asadifzal4 and J. Sufyan2
1 University of tehran, Iran; 2 Tehran university, Iran; 3 Guilan university, Iran; 4 Zanjan university, Iran

P3-34 The Effect of Fertilizer and Manure Application on Greenhouse Gas from Grassland and Cornfield in Japan
Hirokazu Nakamoto1, Mariko Shimizu2, Aftrified Limin3, Iakbongo Mukumbuta2, Hideo Wada2, Ryu-suke Hatano and Hirono Kishimoto3
1 Hokkaido University, Japan; 2 National Livestock Breeding Center Niikappu Station, Japan
P3-35 Evaluation of Effect of Clean Agriculture in Upland Field in Toya and Iwamizawa, Hokkaido Japan
Shinya Iwasaki and Ryusuke Hatano
Hokkaido University, Japan

P3-36 The Research on Soil Physical Properties of Eucalyptus Plantation in Rare Earth Tailings Area
Keyin Sheng, Zhi Li, Wenyuan Zhang1, Xiaomin Guo, Dekui Niu and Guixiang Zhou
Jiangxi Agricultural University, China

P3-37 Comparison of the Effect of Manure Application on Soil CO2 Emission from Managed Grassland and Cornfield in Southern Hokkaido, Japan
Mariko Shimizu1, Ikabongo Mukumbuta, Tao Jin, Atfriyted Limin, Hiroshi Hata and Ryusuke Hatano
Hokkaido University, Japan

P3-38 Key Processes in Land Degradation and Restoration: The Role of Biological Diversity
Nicholas Dickinson*
Lincoln University, New Zealand

P3-39 Regional Assessment-Oriented Mechanistic Modeling and Multi-Site Monitoring of Water, Carbon, and Nitrogen Dynamics in Agricultural Soils Across Japan
Sadao Eguchi1, Kei Asada, Sunao Itahashi, Takeo Shima1, Yasunao Yamada1, Ayumi Tsukewakab, Masaki Tsujic, Tomoko Nagasawa1, Masaharu Ikebā, Yutaka Fujita1, Akinori Morib, Tetsuo Yagib, Seiji Shimodab, Yukiyoshi Iwata1 and Nobuhisa Kogac
1 National Institute for Agro-Environmental Sciences, Japan; 2 National Agriculture and Food Research Organization, Japan; 3 Nagasaki Agricultural and Forestry Technical Development Center, Japan; 4 Aichi Agricultural Research Center, Japan; 5 Chiba Prefectural Agriculture and Forestry Research Center, Japan; 6 Ibaraki Agricultural Center, Japan; 7 Hokkaido Research Organization, Japan

P3-40 Biogeochemical Processes of River Sediments Control a Spatio-Temporal Variation of Nutrient Concentration at River Mouths in the Lake Hachiro Watershed, Japan
Atsushi Hayakawa1, Satomi Ikeda, Ryoko Tsushima, Yuichi Ishikawaa and Shin Idakaa
Akita Prefectural University, Japan

P3-41 Effect of the Use of Pam (polycrylamide) in Clay Soils to Prevent Erosion in The Valley of Mexico, Baja California, Mexico
Maria Isabel Escobosa Garcia1, Khaled M. Baiti, Luis Fernando Escobosa Garcia1, Jesus Adolfo Roman Calleros1, Victor Alberto Cardenas Salazar1, Antonio Morales Mazac and Silvia Monica Aiviles Marin
1 Universidad Autonoma De Baja California University of California, Mexico; 2 University of California Coorporative Extension, USA; 3 Universidad Autonoma, Mexico; 4 Instituto Nacional De Investigacion Agricola Y Forestal, Mexico

P3-42 Artificial Macropore Installation in Degraded Soils for Enhancing Vertical Infiltration to Restore Soil Environment
Yasushi Mori, Atsushi Fujihara, Tetsuya Yamamotob and Kazuto Yamagishic
1 Okayama University, Japan; 2 Shimane University, Japan

P3-43 The Coupling Effects of Water and Fertilizer on the Camellia Oleifera Growth and Fruition
Dekui Niu1, Zhi Li, Xiaomin Guo1, Wenyuan Zhang1, Keyin Sheng1, Weiping Qian1 and Huiwu Peng1
1 Jiangxi Agricultural University, China; 2 Pingxiang Forestry Science Institute, China

P3-44 The Effects of Soil Water Retention for Meadow Degradation at Wugong Mountain
Yuxin Liu, Zhi Li, Dekui Niu1, Xiaomin Guo1, Wenyuan Zhang, Keyin Sheng, Jianbo Tang and Jing Zhao
Jiangxi Agricultural University, China

P3-45 Soil and Water Loss Sensitivity Evaluation Based on GIS in Yudu County
Jing Zhao, Jianbo Tang, Zhi Li, Dekui Niu1, Wenyuan Zhang1 and Xiaomin Guo
Jiangxi Agricultural University, China

P3-46 Spatial Distribution of Soil P and its Correlation with Soil Acidity in Mountain Meadow of Wugong Mountain
Xiaorui Zhao, Dekui Niu1, Xia Gong1, Jinyuan Zhang, Wenyuan Zhang, Shangshu Huang and Zhi Li
Jiangxi Agricultural University, China

IDST1: Nanotechnologies in Environmental Soil Science

P3-47 Use of Fertilizer Loaded Nanoclay-Polymer Composites (ncpcs) for Better Nutrient Recovery in Different Soils
Subhas Sarkar, Samar Datta* and Dipak Biswas
IARI, India

P3-48 Preliminary Study on Self-Assembly Behavior of Soil Organo-Mineral Complex: Self-Assembly of Glycine-Montmorillonite
Jiaming Li and Jinggui Wu*
Jilin Agricultural University, China

P3-49 Probing In-Situ Chemical Reductive Defluorination Of Perfluoroalkyl Compounds in Groundwater Impacted by Aqueous Fire Fighting Foams
Saerom Park1, Linda Lee2 and Victor Medina3
1 Purdue University, USA; 2 Army Engineer Research & Development Center (ERDC), USA

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1 EmbraPA, Brazil; 2 UFSCar, Brazil; 3 EmbraPA Instrumentacao, Brazil; 4 USDA-ARS-PSWARM, USA

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Aline Carneiro Silvero1, Maria Cristina Motta De Toledo1 and Wilson Tadeu Lopes Da Silva1
1 Embrapa Instrumentation Center, Brazil; 2 University of Sao Paulo, Brazil

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Indian Agricultural Research Institute, India

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1 IARI, India; 2 NRC on Grapes, Pune, India
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Jae-Gon Kim*, Seung-Beum Roh, Choi-MinChon and In-Hyun Nam
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Daejeon University, Korea

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Kyungpook National University, Korea

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National Research Center, Egypt

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1 Changjiang River Scientific Research Institute, China; 2 Huazhong University of Science and Technology, China

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The Southern Federal University, Russia

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Friedrich Schiller University Jena, Germany

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Nuñia Roca*
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China University of Geosciences, China

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West Virginia University, USA

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Natural Resources Canada, Canada

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1 University of Alberta, Canada; 2 Total E&P Canada Ltd., Canada; 3 Alberta Innovates Technology Futures, Canada

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Universidad Politecnica de Cartagena, Spain

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Jin Hee Park, Mansour Edraki* and Thomas Baumgartl
University of Queensland, Australia

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University of Mining and Geology ’St. Ivan Rilski’ Sofia, Bulgaria

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Erika Santos1, Maria Manuela Abreu* and Felipe Macias2
1 Universidade de Lisboa, Unidade de Investigacao de Quimica Ambiental, Portugal; 2 Universidad de Santiago de Compostela, Spain

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1 Korea Institute of Science and Technology (KIST), Korea; 2 Mine Reclamation Corporation (MIRECO), Korea

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Sun Yat-sen University, China

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Yonghong Liu, Lei Feng, Hongqing Hu* and Xinsheeng Zheng
Huazhong Agricultural University, China

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1 University of Murcia, Spain; 2 Complutense University of Madrid, Spain; 3 University of Barcelona, Spain

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1 Campus Regional de Excelencia Internacional "Campus Mare Nostrum", University of Murcia, Spain; 2 University of Murcia, Spain; 3 Complutense University of Madrid, Spain; 4 University of Barcelona, Spain

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1 Korea University, Seoul, Korea; 2 Korea Testing & Research Institute, Korea; 3 Korea Forest Research Institute, Korea; 4 Mine Reclamation Corporation, Korea

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Van Khanh Nguyen and Jong-Un Lee*
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Dasan T & C, Korea

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1 Korea University, Korea; 2 Korea Forest Research Institute, Korea; 3 Mine Reclamation Corporation, Korea

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MIRECO, Korea

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1 Sejong University, Korea; 2 Mine Reclamation Corporation(Governmental Agency of Korea), Korea

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1 Chonnam National University, Korea; 2 Gwangju Institute of Science and Technology, Korea; 3 Mine Reclamation Corporation, Korea

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1 Kangwon National University, Korea; 2 Chungnam National University, Korea; 3 Korea Mine Reclamation Corporation(MIRECO), Korea; 4 Dongguk University, Korea

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Jae E. Yang*, Sung Woo Moon, Se Jin Oh, Seung Min Oh, Rog-Yeong Kim, Sung Chul Kim, Jin-Soo Lee and Su-Jung Kim*
1 Kangwon National University, Korea; 2 Korea Mine Reclamation Corporation(MIRECO), Korea; 3 Dongguk University, Korea

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National Horticultural Research Institute, Nigeria

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The Chinese Academy of Sciences, China

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1 Tadulako University, Indonesia; 2 Hasanuddin University, Indonesia

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1 ORDA, Ethiopia; 2 Bayreuth University, Germany

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1 Mediterranean Agronomic Institute of Bari, Italy; 2 Ohio State University, USA; 3 Universidad de Valencia, Spain; 4 Universidad de Valencia, Spain; 5 University Duisburg Essen, Germany; 6 Joint Research Centre, Italy

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Centre for Natural Resources Management, India; 2 SK University of Agricultural Sciences & Technology, Jammu, India

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Muhammad Altaf Hossain
1 Soil Resource Development Institute (SRDI), Bangladesh

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Michael Okpara University of Agriculture, Nigeria

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Apolinario Jr Gonzaga, Pompe C. Sta Cruz, Agustin R Mercado Jr and Nelda Ruba Gonzaga
1 Misamis Oriental State College of Agriculture and Technology, Philippines; 2 University of the Philippines Los Baños; 3 World Agroforestry Center, Philippines

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Nanithi Bolan and Ravi Naidu
1 University of South Australia, Australia; 2 University of South Australia, CRC Care, Australia

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1 Institute of Agricultural Research and Training, Nigeria; 2 University of Ibadan, Nigeria

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Pieter Swanepoel, Chris Du Preez, Philip Botha and Henrie Snyman
1 Western Cape Department of Agriculture, South Africa; 2 University of the Free State, South Africa

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Alan Franzluembers* and Richard Haney
USDA-Agricultural Research Service, USA

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Mohammad H Golabi
College of Natural and Applied Sciences, University of Guam, USA

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Charles Asadu*
University of Nigeria, Nigeria

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Kasetsart University Chalermprakiat Sakon Nakhon Province Campus, Thailand

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Yonggang Xu and Wantai Yu*
Institute of Applied Ecology, Chinese Academy of Sciences, China

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P3-128 Enhanced Soil Health for Sustaining Higher Productivity
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P3-129 Evaluation of Soil Health, Sustainability Index, Carbon
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Ma Rosnah Rubenez1, Pj Dae Seo1, Bo Seung Kim1, Jae Sang Park1, Seon Woo Cha1, Young Sup Ahn1, Venecio Ultra Jr.2 and Sang Chul Lee3
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P3-132 Nitrogen Simple Effect on Agronomic Characteris-
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Mahdi Sadeghi Pour Marvi*
Soil Sciences, University of Tehran, Iran

P3-133 Assessing the Environmental Risk of Contaminants of
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Laosheng Wu1 and Jianming Xu2
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P3-134 A Productive Maize-Soybean Relay Intercropping
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Chun Song*, Benying Su, Taiwen Yong and Wenyu Yang
Sichuan Agricultural University, China

P3-135 Analysis of Maize Production Intensification Strategies for Heterogeneous Smallholder Farms in Kenya
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Shamie Zinjore1, Mirasl Pampolino2, Regis Chikowo3 and
Adrian Johnston4
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Sharmin Zinjore and Leonard Rusinamhodzi1
1 International Plant Nutrition Institute, Kenya; 2 CIMMYT, Zimbabwe

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1 Philippine Rice Research Institute, Philippines; 2 University of the Philippines Los Banos, Philippines

P3-138 A Comparison of Crop Response and Biomass Yield of
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P3-140 The Impacts of Extreme Weather Events on Crop
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Yui Osanai1, David Tissue2, Ian Anderson1, Michael Braunack1, Michael Bange2 and Brajesh Singh2
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Boris Vrbeč
Croatian Forest Research Institute, Croatia

P3-142 Leaching Behavior of Chlorpyrifos and its Main
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Sun Baoli
Chinese Academy of Agricultural Sciences/ Key Laboratory of Agro-Environment, Ministry of Agriculture, caas, China
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Zhejiang University, China

P3-144 Soil Spectroscopy: The Present of Soil Monitoring to Accomplish Food Security
Marco Nocita* and Luca Montanarella
European Commission - Joint Research Centre, Italy

P3-145 Growth, Yield and Physiology of Fluted Pumpkin (telfaria Occidentalis) Planted on Heavy Metal Contaminated Soil in Response to Different Organic Amendments
Sifau Adejuomo1, Samson Ogunjinmi2* and Adeniyi Togun1
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P3-146 Irrigated Lands and Food Security in Central Asia
Igor Hadjamberdiev*, Bulat Hadjamberdiev and Ibragimjon Damulajnov1
1Toxic Action Network Central Asia, Kyrgyzstan; 2Eco Clean Erghana, Uzbekistan

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Michaël Aurela1*, Bell Albi1, Heatruax Mathilde1 and Hout Sabine1
1EGC, INRA, France; 2ACTA, France

P3-148 Temporal Dynamics of Soil Physical Conditions for Crop Growth under a Range of Tillage Practices and the Impact on the Performance of Contrasting Modern Cereal Varieties
Paul Hallett1*, Ron Stobart2, Timothy S. George1, Nathan Morris1, Adrian C. Newton1, Tracy A. Valentine1 and Blair M. Mckenzie1
1University of Aberdeen, United Kingdom; 2NIAB TAG, Morley Office, United Kingdom; 3The James Hutton Institute, United Kingdom

P3-149 Phytoamendment of Biosolids-Amended Soil
Juergen Espercheck1*, Obed Lense, Nicholas Dickinson1, Craig Anderson1, Simon Bulman1, Rainer Hofmann1, Dharini Paramasivam1, Nimlesh Balane1, Timothy Clough1 and Brett Robinson2
1Lincoln University - Faculty of Agriculture & Life Sciences, New Zealand; 2Lincoln Campus, New Zealand

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Brajesh Singh
University of Western Sydney, Australia

P3-151 Identifying Microbial Drivers and Key Modulators of Soil Health in Grain Growing Systems
Pankaj Trivedi1, Ian C Anderson and Brajesh K Singh*
University of Western Sydney, Australia

P3-152 Amounts of Heavy Metals in Paddy Soils of the Khorat Basin, Northeast Thailand
Tawatchai Inboonchau1, Anchalee Sudhiprakan1, Jrb Khoeruenromme1, Somchai Amusontrompranpong1 and Robert J. Gilkes2
1Kasetserth University, Thailand; 2University of Western Australia, Australia

P3-153 Concentrations of Metals and Metalloids in Different Size Fracions of Contaminated Podzols and Their Relationship with Contents in Foodstuffs
Manuela Inacio1*, Orquidia Neves1 and Virginia Pereira1
1University of Aveiro, Portugal; 2University of Lisbon, Portugal

P3-154 Effects on AG, BE, CO, HG, SB, TH, TI, U and V in Sugar-cane from Application of Sewage Sludge in a Tropical Soil
Cassio Hamilton Abreu-Junior1*, Jose Carlos Poppo Neto1 and Ademir Franco2
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P3-155 Effects of Chromium Nitrate on Phytohormone Content and Mitotic Activity in Maize (zea Mays L.) Seedlings
Filiz Aygun Ertuk1, Guleryaz Agar2, Esra Arslan2*; Medine Guluce2, Metin Turan2 and Fikrettin Sahin2
1Department of Molecular Biology and Genetic, Turkey; 2Ataturk University, Turkey; 3Yeditepe University, Turkey

P3-156 Assessing Environmental Risks of China's Intensive Agricultural Land-Use Systems: A Case Study in Dongting Lake Basin
Dong Zhuo and Liming Liu*
China Agricultural University, China

P3-157 Soil Chemical Health Assessment of Taro Soils of Samoa
Danilo Guinto1, Seuseu Tauati1, Ataotaulelei Sae1, Hewage Perera1 and Dean Seuoti1
1University of the South Pacific, Western Samoa; 2Ministry of Agriculture and Fisheries, Western Samoa

P3-158 Assessing Economic Benefits of Arbuscular Mycorrhizal Fungi as a Universal Indicator of Soil Health
Lynette Abbott* and Sarah Lumley
The University of Western Australia, Australia

P3-159 Assessing the Qualities of Soils in Different Soil Series Using Scoring Functions and Geostatistical Methods in the Harran Plain, Southeastern Turkey
Ali Volkan Bilgii*, Mehmet Ali Cullu1, Cigdem Kucuk2 and Harold Van Es2
1Harran University, Turkey; 2Cornell University, USA

P3-160 Soil Contamination with Heavy Metals and its Impact on Food Security in China
Janwu Li and Hailong Wang*
Zhejiang A & F University, China

P3-161 Mechanisms of Non-Wetting Soils under Laboratory Conditions
Matthias Leopold*, Falko Mathes, Jeremy Bougoure and Daniel Murphy
The University of Western Australia, Australia

P3-162 Vermiculture Technology: An Eco-Tool in Sustainable Agroindustrial Waste Management and Remediation of Contaminated Soil in Thailand
Chuleemas Boonthai Iwai*
Khon Kaen University, Thailand

P3-163 Influences of Different Fertilization on the Accumulation of Nitrate Nitrogen in Swamp Cabbage and Soil Enzyme Activity
Ming-Yang Cao1*, Xue-Feng Hu2, Cheng-Long Yan3, Hui-Hui Dai4 and Jian Wang5
1Shanghai University, China; 2Agricultural Technology Service Center of Qingpu District, China

P3-164 Search for a Universal Soil Quality Index
Anil Kumar Singh*, Nishant K. Sinha1 and Usha Kiran Chopra1
1RVS Agriculture College, India; 2Indian Agricultural Research Institute, India

P3-166 Status of Zinc and Iron Content in Different Rice Genotypes (grain And Straw) and Rice Growing Soils Across Different Agro Climatic Zones of Karnataka, India Chakpram Birendrajit1 and Prakash Nagabavanalli B2
1 Central Agricultural University, India; 2 University of Agricultural Sciences, India

P3-167 Qualitative Attributes of Soil and Cocoa Forastero in Bahia, Brazil Guilherme Amorim Homem De Abreu Loureiro1, Quintino Araújo2 and Jose Claudiao Faria2 1 State University of Santa Cruz, Brazil; 2 Cocoa Research Center/ Ceplac and State University of Santa Cruz, Brazil; 2 Ceplac/ Cocoa Research Center, Brazil

P3-168 Investigation of Heavy Metal Concentrations in Upland Soils of Gangwon Province in Korea Byeon Young-Sung1, Seung Chul Choi1, Soo Jeong Lim1, Su Jeong Heo1, Jae Rok Kim2 and Seong Soo Kang2 1 Gangwon Provincial Agricultural Research & Extension Services, Korea; 2 National Academy of Agricultural Science, RDA, Korea

P3-169 Response of Lettuce to Cadmium Exposure at Different Growth Stage Jeongsik Park1, Min-Suk Kim2, Namin Koo3, Seung Mo Nam1 and Jeong-Gyu Kim4 1 Korea Testing and Research Institute, Korea; 2 Korea University, Korea; 3 Korea Forest Research Institute, Korea

P3-170 Impact of Copper and Rotenone on Seedling Growth of Chinese Cabbage and the Soil Activity Sang-Beom Lee*, Hong-Sik Nam and Jin-Ho Kim National Academy of Agricultural Science, Korea

P3-171 Proper Ranges of Soil Ph and Pe for Crop Growth Yoo Hak Kim, Seong Soo Kang, Myung Soo Kim, Myung Suk Kong, Chang Hoon Lee and Taek Keun Oh National Academy of Agricultural Science, RDA, Korea

C1.2-2: Soil Data, Spatial information Systems and Interpretation Procedures


P3-172 Land Resources Assessment for Agricultural Use in Some Areas West of Nile Delta, Egypt Khaled Mohamed Danwish1 and M. A. El-Semary2 1 City for Scientific Research and Technology Applications, Egypt; 2 National Research Center (NRC), Egypt

P3-173 Uncertainty Assessment for Mapping Changes in Soil Organic Matter Using Sparse Legacy Soil Data and Dense New-Measured Data in a Typical Black Soil Region of China Yongmou Zhao1*, Xianghua Xu2 and Xuezheng Shi3 1 Chinese Academy of Sciences, China; 2 Nanjing University of Information Science &Technology, China; 3 Institute of Soil Science, Chinese Academy of Sciences, China

P3-174 Origin and Distribution of the Gypsiferous Soil in Iraq Fouad Al-Kaabi The University of Queensland, Australia

P3-175 Assessment of Land Suitability and Availability for Food Crop Development Using a Fuzzy Set Approach in GIS Sumbangan Baja1,2, Umri Nurmiyat1, Hazairin Zubair1 and Kaimuddin Kaimuddin1 1 Hasanuddin University, Indonesia; 2 Pangksep State Polytechnic of Agriculture, Indonesia

P3-176 The Value of Soil Information for the Development of a National Forest Site Classification System Josua Louw Nelson Mandela Metropolitan University, South Africa

P3-177 Spatial Distribution and Influencing Factor of Soil Moisture in Typical Depression Area of Karst Region Jiguang Zhang, Yirong Su, Hongsong Chen*, Xiangli Kong, Wei Zhang, Jiuquan Zhang and Hongbo Liang Chinese Academy of Sciences, China

P3-178 The “Land Unit and Soil Capability Map of Sardinia (Italy)” at a 1:50,000 Scale: The Pilot Area of Pula-Capoterra Andrea Vacca and Vittorio Alessandro Marrone University of Cagliari, Italy

P3-179 Information Technology-Based Nutrient Management for Higher Crop Production in India Sudeepa Patra* Banasthali Vidyapith, Rajasthan, India

P3-180 Petrological and Analytical Characterization of the Benue Watershed Topomorphic Vertisols of North Cameroon: Spatial Analysis and Agricultural Potential Evaluation Primus Azinwi Tamfuh, Dieudonne Bitom and Emmanuel Djoufack Woumfo University of Yaounde I, Cameroon

P3-181 Soils Monitoring as an Extension Tool Simon Proust1 and Peter Bacon1 1 Formerly Nrcma S Rippingale Rd Korora, Australia; 2 Woodlots & Wetlands Pty Ltd 220 Purchase Rd Cherrybrook, Australia

P3-182 Modernizing Soil Interpretations for Changing Needs Michael Robotham*, Maxine Levin and David Hoover National Soil Survey Center, USDA Natural Resources Conservation Service, USA

P3-183 Circus Method for Modelling Soil Distribution on Hydrothermic Gradients Konstantin Baykov Institute of Soil Science and Agrochemistry, Russia

P3-184 Soil Classification Using Near Infrared Spectroscopy and Ga-Pislda Procedure Hongtu Xie*, Jinsong Zhao*, Qibing Wang*, Yueyu Su*, Shuangyi Li*, Jingkuan Wang*, Xueying Yang* and Xudong Zhang6 1 State Key Laboratory of Forest and Soil Ecology, Chinese Academy of Sciences, China; 2 Huazhong Agricultural University, China; 3 Shenyang Agricultural University, China; 4 Chinese Academy of Sciences, China; 5 Agriculture & Agri-Food Canada, Canada; 6 Chinese Academy of Sciences, China

P3-185 Priority Selection Rating of Sampling Density and Interpolation Method for Detecting The Spatial Variability of Soil Organic Carbon Dongsheng Yu*, Zhongqi Zhang* and Xuezheng Shi* 1 Chinese Academy of Sciences, China; 2 Jiangsu Normal University, China
Improving Identification and Description of Horizon Boundaries to Enhance Soil Data Quality
Einar Eberhardt*
Federal Institute for Geosciences and Natural Resources (BGR), Germany

Spatial Behavior of Soil Properties on Different Tillage Management (Case Study: A Semiarid Region, Iran)
Saeedeh Marzvan*, Hossein Asadi and Naser Davatgar
Gilan University, Iran

Sustainable Forestry: The Imperative of Soil Mapping in Forest Resource Inventory, Modelling and Management in Scotland, UK
James Hutton Institute, United Kingdom; 2 Forestry Commission, United Kingdom

Soil Climate Parameters of Russia: A Cartographic Analysis
Oleg Reshetoikov*, Oleg Khudyakov, Irina Alyabina, Dmitry Konyushkov and Tatyana Ananko
1 Russian Academy of Sciences, Russia; 2 Moscow State University, Russia; 3 Russian Academy of Agricultural Sciences, Russia

Hydrophysical Database for Brazilian Soils: Challenges and Perspectives
Marta Ottoni*, Maria Leonor Lopes Assad and Otto Correa Rotunno Filho
1 Geological Survey of Brazil, Brazil; 2 Federal University of Sao Carlos, Brazil; 3 Federal University of Rio de Janeiro, Brazil

Baselines for Near-Total and Bioavailable Macro and Micronutrients in Topsoils of Continental Portugal
Manuela Inacio* and Virginia Pereira
University of Aveiro, Portugal

Environmental Indicators as a Tool for Improving Soil And Crop Management in Cereals Growing Systems
Oscar Del Hierro, Olatz Unamunzaga, Ana Alzpurua, Roberto Perez, Ana Pilar Armesto, Alberto Lafarga and Gerardo Bessa
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Evaluating the Effects of Interpolation Method and Sample Size on Accuracy of Spatial Variability of Soil Variables And Reducing Sampling Cost
Fahimeh Khoramizadeh* and Naser Davatgar*
1 Soil Science Society of Iran (SSSI), Iran; 2 Rice Research Institute, Iran

Using Gis in Soil Science: A Framework for Use of Digital Spatial Data in Agronomic Studies
Sarah Jane Hill, Gregory Hancock and Garry Willgoose
The University of Newcastle, Australia

The Soils of the Upper Reach of the Heive River Basin in Relation to Aeolian Dust
Fan Yang, Gian-Lin Zhang*, De-Cheng Li, Yu-Guo Zhao, Jinhua Yang and Feng Liu
Chinese Academy of Sciences, China

Available Micronutrients (ZN, CU, FE, MN and B) Status and their Relationship with Soil Properties in Soils of Krishnarajpet Taluk Mandya District Karnataka, India
Blavitha N. C., Chidanandappa H. M. and Dhananjaya Bc
1 UAS Bangalore, India; 2 UAS, GKVK, India; 3 KVK, UAS Bangalore, India

Spatial Variability of Salt-Affected Soils in Northeast Thailand
Porntip Prontusang*, Roengsak Katawatin1, Kittik Panng-petch, Sununtha Kingpaiboom and Rattana Lerdusuwansri
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The Spatial Variability of Soil Heavy Metals in Xinji County, North China Plain
Renzhao Mao*, Yuzhanzhong Wang, Dongmei Li, Guijie Zhang* and Feifei Zhang
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Web Tools for Soil Data Interpretation for Urban Planning and Management
Borut Vrscaj and Tomaz Vernik
Agricultural Institute of Slovenia, Slovenia

A Web-Based Spatial Decision Supporting System (S-DSS) for Landscape Sustainable Management: The Soilconsweb Project
1 ISAFOM, National Research Council of Italy (CNR), Italy; 2 University of Naples Federico II, Italy; 3 Ariespace s.r.l., Italy; 4 Department of Agriculture, Campania Region, Italy; 5 Politechnic of Milan, Italy

Spatialtemporal Changes in Farmland Flooding and Soil Series Distribution Characteristics in Korea
Byung-Joon Jung, Kyung-Do Lee*, Suk-Young Hong, Yi-Hyun Kim and Sang-II Na
National Academy of Agricultural Science, Korea

Historical Development and Utilization of Forest Soil Information in Korea
Seung Woo Lee*, Dong Hoon Ji, Yong Suk Kim* and Jin Hyun Jeong
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Soil Data, Information System and its Interpretation in Korea
Suk Young Hong*, Yi-Hyun Kim, Kyung-Do Lee and Sang-II Na
RDA, Korea

Using Remote Sensing and Spatial Modeling Approaches for Land Evaluation in Dry Wadis, Eastern Desert, Egypt
Belal A.A.*, Mohamed E.S. and Shalaby A.
National Authority for Remote Sensing and Space Sciences, Egypt

The Progress in Development and Harmonization of Soil Classifications

Properties, Genesis, Classification and Sustainable Management of Soils from Ijebu East, South Western Nigeria
Ademola Raji*, Gabriel Oluwatosin, Abayomi Fasina* and Olubummi Shittu
1 University of Ilorin, Nigeria; 2 Institute of Agricultural Research and Training Ibadan, Nigeria; 3 Ekiti State University, Nigeria

World Soil Classification, The Systems Approach, And Multiscale GIS Mapping
Alexandra Nikiforova*, Maria Fleis* and Michail Borisov
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P3-207  Classification of Maritime Buroezms of the Southern Far East of Russia
Boris Pshenichnikov1, Nina Pshenichnikova and Anna Pshenichnikova1
1 Far Eastern Federal University, Russia; 2 Pacific Institute of Geography FEB RAS, Russia

P3-208  Correlation of Gley Soils Classified According to the Croatian Soil Classification with the WRB
Jézna Hanjik1, Vedran Rubinč1, Andžja Spoljar1 and Boris Vrbek3
1 University of Zagreb Faculty of Agriculture, Croatia; 2 College of Agriculture at Krizevci, Croatia; 3 Croatian Forest Research Institute, Croatia

P3-209  Problems of Nomenclature Correlation and Soil Classification in Amur River Basin
Nina Pshenichnikova1, Viktor Ermoshin1 and Boris Pshenichnikov2
1 Pacific Institute of Geography FEB RAS, Russia; 2 Far Eastern Federal University, Russia

P3-210  Suggestion for Modification of the Setting of Salt Affected Soils in the New WRB Classification Key
Erika Michaeli1, Marta Fuchs1, Vince Lang,1, Tamas Szegi1 and Szabolcs Szabai1
1 Szent Istvan University, Hungary; 2 Government Office for Jasz-Nagykun Szolnok County, Hungary

P3-211  Characteristics and Classification of Soils in Sabah, Malaysia, Borneo
Jutom Ongkosing, Norma Awang Besar and Jaloh M.B. Universiti Malaysia Sabah, Malaysia

P3-212  Conceptual Clustering for the Geotechnical Data Analysis
Piotr Bilski
Warsaw University of Life Sciences, Poland

P3-213  Research of Pedogenetic Features and Classified Characterization of Calcification Process in Ustic Cambisols Take Ustic Cambisols in Henan Province for Example
Bing Ju* and Kening Wu*
China University of Geosciences (Beijing), China

P3-214  Automatic Computer Estimation of Geotechnical Soil Profile Based on Cpt and Dmt Probes
Jaroslav Kurek1, Michal Kruk1, Piotr Bilski1 and Simon Rabarijoely1
Warsaw University of Life Sciences, Poland

P3-215  Indian System of Soil Classification Scheme: A Proposed Framework
Bipin Bihari Mishra*
Bihar Agricultural University, India

P3-216  Localization Study of Virgin Abies Faxoniana Forest Soils at the Kangding-Tibet, China
Li Liu, Bin Liu, Dan Ma and Cheng-De Luo*
College of Forestry in Sichuan Agriculture University, China

C2.1-1:  Quantifying Evaporative Fluxes from Terrestrial Surfaces

P3-217  Relationship between Physical and Chemical Soil Characteristics and Greenhouse Gases Emission in an Indigenous Agroforestry System in Western Honduras
Oscar Ferreira Catrileo1,2, Mariela Rivera3, Maria Del Pilar Hurtado4 and Marco Rondon4
1 Universidad Nacional de Agricultura, Honduras; 2 Centro Internacional de Agricultura Tropical, Colombia; 3 International Development Research Centre, Canada

P3-218  Lysimeter Use to Evaluate Drought Effects on Water Consumption and Growth of Trees
Juergen Mueller*
Thuenen Institute of Forest Ecosystems, Germany

P3-219  Characteristics of Stem Sap Flow of Apple Trees in the Loess Tableland
Li Wang* and Yan Mu
Northwest A&F University, China

P3-220  Separating Evapotranspiration and Precipitation from Noise - A New Filter Routine for High Resolution Lysimeter Data
Andre Peters*, Thomas Nehls and Gerd Wessolek
TU Berlin, Germany

P3-221  Simple Consistent Models for Water Retention and Hydraulic Conductivity in the Complete Moisture Range
Andre Peters*
TU Berlin, Germany

P3-222  Trends of Soil Evaporation over the Past 30 Years in South Korea
Mehmet Aydin, Yeong-Sang Jung* and Jae E Yang
Kangwon National University, Korea

C2.1-3:  Hydro-Ecological Observatories and Advances in Soil Measurements and Sensors

Soil Art  Featured artist: Maria Michails, Treia Studios, USA, treiastudios.net

P3-223  Water Retention Characteristics of Soils over the Whole Moisture Range: Evaluation and Comparison of Laboratory Methods
Henrike Mielenz1, Lisa Heise1, Kristin Jaenicke1, Hella Rosenkranz2 and Wolfgang Durner2
1 Technische Universitaat Braunschweig, Germany; presently at CSIRO Ecosystem Sciences, Australia; 2 Universidade Autonoma de San Luis Potosi (UASLP), Mexico

P3-224  The Constructed Catchment ‘chicken Creek’ as a Tool to Disentangle Feedbacks Between Soils, Surface Structures, Vegetation and Hydrology during Initial Ecosystem Development
Wolfgang Schaaf*, Michael Elmer, Werner Gerwin and Markus Zaplata
Brandenburg University of Technology, Germany

P3-225  Using Water Footprinting to Reduce the Impact of the Use of Agricultural Water and Agrichemicals on Water Resources
Indika Herath*, Steve Green1, David Horne1, Ranvir Singh1 and Brent Clothier2
1 Coconut Research Institute, Lunuwila, Sri Lanka; 2 The New Zealand Institute for Plant & Food Research, New Zealand; 3 Massey University, New Zealand

P3-226  Self-Calibrating Heat Flux Plate Improves Measurement of Soil Heat Flux Density
Xiaoyang Peng and Tusheng Ren*
China Agricultural University, China

P3-227  Comparison of Time Domain Reflectometry, Capacitance Methods and Neutron Scattering in Soil Moisture Measurements
Ali Khorasani1, Lee King Heng2, Mir Ahmad Moosavi Shalmani1, Nejat Piervi Biervanv1 and Ebrahim Moghiseh1
1 Agriculture, Medicine and Industry Research School, Iran; 2 Soil and Water Management and Crop Nutrition Section, IAEA, Austria

P3-228  Influence of Soil Electrical Conductivity and Dielectric Dispersion Parameters on Time-Amplitude Characteristics of TDR Reflectograms
Agnieszka Szyplowska*, Andrezj Wilczek, Grzegorz Sołecki, Anna Nakonieczna and Wojciech Skierucha
Polish Academy of Sciences, Poland
P3-229 Porous Ceramic Plate Sensor for Effective Non-Rainfall Tdr Measurements
Anna Nakonieczna¹, Andrzej Wilczer, Marcin Kafarski, Agnieszka Szyplowska and Wojciech Skierucha
Polish Academy of Sciences, Poland

P3-230 Errors and Improvements in Thermogravimetric Measurement of Soil Water Content
Douglas Cobos, Leo Rivero¹, Shaun Weldon¹ and Colin Campbell¹
¹ Decagon Devices and Washington State University, USA; ² Decagon Devices, USA

P3-231 Turn Critical Zone Observatory
Joerg Voelkel and Marie Eden
Technische Universität Muenchen TUM, Germany

P3-232 The Mechanism of Subsurface Flow Generation at a Hillslope Farmland of Entisol, Sw China
Pei Zhao and Xiangyu Tang⁴* ¹CAS(Chinese Academy of Sciences), China

P3-233 The Evaluation of Soil Hydraulic Conductivity Using Fractal Dimension of Soil Particle Size Distribution and Geostatistics
Leila Rezaee⁵ and Naser Davatgar⁶ ¹ Rice Research Institute of Iran (RRII), Iran

P3-234 Soil Freezing and Thawing Processes of Three Landscapes in the Middle Reaches of Heihe River Basin, China
Jun Yi, Ming-an Shao¹* and Ying Zhao¹ ¹Northwest A&F University, China

P3-235 Saturated Field Hydraulic Conductivity, Ksat Estimation of Tropical Peat in Sarawak, Malaysia Using Modified Auger Hole Method and Empirical Hazen’s Formula
Guan Xhuan Wong¹*, Ayob Katimon² and Lulie Melling¹ ¹Tropical Peat Research Laboratory Unit, Malaysia; ² University Malaysia Perlis (UniMAP), Malaysia

P3-236 The Effect of Biochar on Water Vapor Movement in Soil during Winter Period Revealed with Stable Isotope Technology
Yijie Wang, Guoting Li¹ and Baoguo Li² ¹China Agricultural University, China

P3-237 Characterisation of Hydro-Mechanical Properties of Soil Using Ultrasonic Waves
Jeanne Luong*, Marie-France Destain and Benoît Mercatoirs ¹University of Liege, Belgium

P3-238 Comparison of Field Measured Unsaturated Hydraulic Conductivity with Four Estimating Models Based on Texture for Two Soils in Khuzestan, Iran
Kobra Makvandi¹, Alireza Zahirnia² and Hydar Ali Kashkuli¹ ¹Saman Abrar Company, Iran; ² Sugarcane and by Products Development Company, Iran; ³ Shahid Chamran University, Iran

P3-239 Variability in Water Footprints: A Case Study of New Zealand Wines
Indika Herath¹, Steve Green², David Horne³, Ranvir Singh¹ and Brent Clother² ¹Coconut Research Institute, Sri Lanka; ² New Zealand Institute for Plant and Food Research, New Zealand; ³ Massey University, New Zealand

P3-240 Mulching Influences on Soil Water, Temperature, and Frost Depth are Related to Crop Sequence in a No-Till Maize/Soybean Rotation
Zhengchao Tian and Tusheng Ren* ¹China Agricultural University, China

P3-241 Comparing Water and Nitrogen Use Efficiencies under Different Cropping Systems in the North China Plain Based on Model Approach
Kelin Hu¹, Huanyuan Wang², Yongping Wei¹, Baoguo Li³, Liang Jin¹ and Karl Stahr² ¹ China Agricultural University, China; ² Key Laboratory of Degraded and Unused Land Consolidation Engineering, the Ministry of Land and Resources of China, Xi’an, Shanxi Province, China; ³ the University of Melbourne, Australia

P3-242 Application of Penta-Needle Heat Pulse Probe for Variably Saturated Water Flux Estimation
Masaru Sakai¹ and Scott Jones² ¹ Mie University, Japan; ² Utah State University, USA

P3-243 Assessment of Agricultural Land Capability Using Gis and Radar Imagery, Central Province, Papua New Guinea
Matt Dell, Doyle Richard* and Colin Birch ¹University of Tasmania, Australia

P3-244 Soil Water Carrying Capacity for Vegetation in a Small Watershed on the Loess Plateau of China
Mingan Shao* ¹Institute of Geographic Sciences and Natural resources research, CAS, China

P3-245 Evaluation of Least Limiting Water Range by Vegetative and Physiological Parameters of Pistachio Seedlings
Daveoud Zarehaghi²*, Mohammad Reza Neyshabouri¹ and Manoucher Gorji² ¹University of Tabriz, Iran; ² Soil Science, University of Tehran, Iran

P3-246 Determination Moisture Stress Pistachio Tree by Using Sap Flow Measurement
Daveoud Zarehaghi¹, Mohammad Reza Neyshabouri¹ and Manoucher Gorji² ¹University of Tabriz, Iran; ² University of Tehran, Iran

P3-247 Estimating Precipitation and Actual Evaporation from Precision Lysimeter Measurements
Frederik Schrader¹, Wolfgang Durner²*, Johann Fank³, Thomas Putz² and Ute Wollschlager² ¹ Johann Heinrich von Thunen Institut, Germany; ² TU Braunschweig, Germany; ³ Joanneum Research, Austria; ² Forschungszentrum Julich GmbH, Germany; ³ Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany

P3-248 Estimation of Soil-Water Characteristic Curve Using One-Point Measurement
Ali Asghar Zolfaghari¹*, Mehdi Shorafa², Mohammad Hossein Mohamadi² and Manouchehr Gorji² ¹ University of Semnan, Iran; ² University of Tehran, Iran; ³ University of Zanjan, Iran

P3-249 Assessment of Soil Chemical Properties (EC, SAR, pH) in Downstrems of a Qanat and Well (Case Study: Meibod)
Mohammad Hossein Mokhtari*, Mohammad Zare Ermangi, Mohammad Ali Hakim Zadeh and Safoora Kargar Sharouki Yazd University, Iran

P3-250 A Multi-Frequency Approach to Inexpensive, Accurate Dielectric Measurements of Soil Water Content
Colin Campbell, Paolo Castilione, Gaylon Campbell, Jolene Lafferty, Douglas Cobos and Matthew Galloway* ¹Research and Development, Decagon Devices, Inc., USA
P3-251 Using Hyper-Spectral Data to Estimate the Van Genuchten-Mualem Soil Hydraulic Properties
Ebrahim Babaeian 1, Mehdi Homaei 2, Harry Vereecken 3, Carsten Montzka 4 and Ali Akbar Norouzi 5
1 Tarbiat Modares University, Iran; 2 Agrosphere (IBG-3), Forschungszentrum Julich GmbH, Germany; 3 Soil Conservation and Watershed Management Research Institute (SCWMRI), Iran

P3-252 Water Content Extraction in Eucalyptus Plantation
Dalvan Reinit, Julianna Prevedello, Neiva Gelain, Claudine Barcellos and Frederico Fleig
Federal University of Santa Maria, Brazil

P3-253 Retrieving Soil Surface Water Content from Envisat/Asar Radar Data
Ebrahim Babaeian 1, Mehdi Homaei 2, Ali Akbar Norouzi 5 and Maryam Dehghan 1
1 Tarbiat Modares University, Iran; 2 Soil Conservation and Watershed Management Research Institute (SCWMRI), Iran; 5 Shiraz University, Iran

P3-254 Monitoring of Water Fluxes by Sp and Tdr in the Unsaturated Vadose Zone during an Intense Cyclone
Frederic Feder 1, Anthony Finizola 1, Marie Crovisier 1, Ali Akbar Norouzi 5 and Nicolas Payet 6
1 CIRAD, UPR ‘recyclage et risque’, Senegal; 6 Universite de la Reunion, France

P3-255 Fdr Probe Structure Influence on the Soil Dielectric Spectrum Measurement
Jinghui Xu
Northwest A&F University, China

P3-256 Multi-Season, Continuous Measurements of Redox Potential, Value, Methods and Challenges
Michel Vorenhout
University of Amsterdam & MVH Consult, Netherlands

P3-257 Estimation of Soil Moisture Content in Corn Field Using L-, C-, X-Band Scatterometer Data
Yihyun Kim, Sukyong Hong, Kyoungdo Lee and Sangil Na
NAAS, RDA, Korea

P3-258 Satellite Remote Sensing-Based Evapotranspiration in Northeast Asia
Keunchang Jang 1 and Sinkyu Kang
Kangwon National University, Korea

P3-259 Automated Irrigation System Using Soil Moisture Sensor in Horticulture
Jongyun Kim 1
Pai Chai University, Korea

P3-260 Comparison Pore Structure and Physical Properties between Anthropogenic Paddy Field Soil and Natural Soil
National Academy of Agricultural Science, RDA, Korea

P3-261 Sub-Milli Observation of Reduction and Reoxidation of Flooded Soil with Different Water Flow Rate
Megumi Takeuchi, Kunio Watanabe 1 and Nobuo Toride
Mie University, Japan

P3-262 Assessing Organic Carbon Dynamics in Salt-Affected Soils Amended with Gypsum and Plant Residues
Sedda Amini 1, Hossein Ghadiri 2, Chengrong Chen 1 and Petra Marschner 1
1 Griffith University, Australia; 2 University of Adelaide, Australia

C2.3-2: Life in Soils - Distribution and Function of Soil Microorganisms in a Changing Environment

P3-263 In Vitro Phosphate Solubilization Study by Phosphate Solubilizing Microorganisms Isolated from Citrus Rhizosphere
Romi Hirekhan 1 and Chaitanya Deshpande
2 Soil Science National Research Centre for Centre, India

P3-264 Optimization of Environmental Factors Affecting Biodegradation of Chlorpyrifos in Soil Slurry by Enterobacter Sp. Swlc2
Zia Chishti 1, KhaIq Ur Rehman Arshad 2, Sarfraz Hussain 1 and Muhammad Arshad 1
1 University of Agriculture, Faisalabad, Pakistan; 2 Institute of Soil Chemistry and Environmental Sciences, Faisalabad, Punjab, Pakistan

P3-265 Evaluation of Phosphorus Bioavailability Using Soil Enzyme Activities: Comparison with Chemical Extraction Methods and Crop P Content
Hitoshi Moro 1, Takashi Kunito 2 and Tsubiyoshi Sato 1
1 Shinshu University, Japan; 2 Nagano Agricultural Experiment Station, Japan

P3-266 Efficacy of Auxin Producing Bacillus Strains in Changing the Root Architecture of Arabidopsis Thaliana and Growth Promoting Ability in Wheat Plant
Atia Iqbal and Shahida Hasnain
University of the Punjab, Pakistan

P3-267 Soil Ph and Ammonium Concentrations Affect Acid Soil Microbial Nitrification Process
Jing Che 1, Xue Qiang Zhao 1, Xue Zhou 2, Zhong Jun Jia 3 and Ren Fang Shen 4
1 State Key Laboratory of Soil and Sustainable Agriculture, Chinese Academy of Sciences, University of Chinese Academy of Sciences, China; 2 State Key Laboratory of Soil and Sustainable Agriculture, Chinese Academy of Sciences, China

P3-268 Molecular Diversity and Colonization of Arbuscular Mycorrhizal Fungi Associated with Rhizosphere of Cowpea (vigna Unguiculata (L.) Walp.) as Affected by Edapho-Climatic Conditions
Jean-Martial Johnson 1, Pascal Houngnandan 2, Aboubacry Kane 3, Odile Chatagnier 4, Kadidia Sanon 4, Marc Neyra 5 and Diederik Van Tuinen 6
1 Universite d’Abomey-Calavi, Benin; 2 Universite Cheikh Anta Diop de Dakar, Senegal; 3 INRA/Agropuces/Universite de Bourgogne, France; 4 Institut de l’Evironment et des Recherches Agricoles, Burkina Faso; 6 Institut de Recherche pour le Developpement, France

P3-269 Which Biotic Agent Responsible for Ammonia Oxidation in the Pine Forest Stand of Jinyun Mountain, Chongqing?
Sarwee Joe-Wia Faelfen 1 and Xianjun Jiang 2
1 Southwest University, China; 2 Key Laboratory of Eco-Environments in Three Gorges Reservoir Region (Ministry of Education), Southwest University, China

P3-270 Rhizobium Inoculation for Mitigating the Salinity Stress in Maize (zea Mays) under Gnotobiotic Conditions
Qasim Ali 1, Zahir Ahmad Zahir, Hafiz Naeem Asghar, Muhammad Javed Akhtar, Muhammad Kamran, Muhammad Yahya Khan and Sanaullah Yasin
University of Agriculture, Pakistan

P3-271 Screening Of Bacterial Endophytes for Carbonic Anhydrase Activity and Drought Tolerance of Wheat
Ana Aslam 1, Zahir Ahmad Zahir, Muhammad Naveed and Hafiz Naeem Asghar
University of Agriculture, Pakistan
P3-272 Abundance of Root Seeding Michoryza Infection in Tragulasi Coastal Forest Vegetation Area Alas Purwo National Park Banyuwangi Marietta Zahra* 1 Padjadjaran University, Indonesia

P3-273 Phosphorus or Nitrogen Limitation in Microorganisms in Some Japanese Forest Soils Hitoshi Moro, Takashi Kunito, Yuriko Komukai and Hideshige Toda 1 Shimshu University, Japan

P3-274 The Potential of flexibacter Sp. Isolated from an Oil Palm Plantation on Peat in Sarawak, Malaysia as a Biological N2O Mitigation Strategy Sharon Yu Ling Lau1; Lulu Melling2 and Yasuyuki Hashidoko3 1 Hokkaido University, Japan; 2 Tropical Peat Research Laboratory, Unit, Malaysia

P3-275 Invasive Plants Enrichment of Soilborne Pathogens Affecting Native Plant Species Anthony Caesar1*, Thecan Caesar-Ton-That2 and Diane Larson3 1 U. S. Department of Agriculture, Agricultural Research Service, USA; 2 U. S. Geological Survey, Northern Prairie Wildlife Research Center, USA

P3-276 Effect of Cd Contamination on Soil Microbial Community Structure in Fluë-Cured Tobacco Rhizosphere Lin Gao, Jiqiang Zhang and Guoming Shen* Tobacco Research Institute of CAAS, China

P3-277 Development of Soil Microbial Community Structure at the Primary Developing Stage of Parent Material of a Mollisol by Different Land Uses and Aggregate Sizes Na Li1; Bin Zhang2 and Xiaozeng Han3 1 Northeast Institute of Geography and Agroecology, CAS, China; 2 Chinese Academy of Agricultural Sciences, China

P3-278 Genetic and Physiological Structures of Bacterial Communities in Agricultural Soil Irrigated with Untreated Wastewater for more than 40 Years Tianlin Shen1, Jiulian Dai2, Min Zhang3 and Renqiang Wang4 1 Shandong Agricultural University, China; 2 Shandong University, China

P3-279 An Investigation on Whether the Presence of Mycorrhizae Influences the Response of Cocoa Seedlings to Water Stress G. U. Chibule1* and A. J. Daymond2 1 University of Nigeria, Nigeria; 2 The University of Reading, Whiteknights, Reading, United Kingdom

P3-280 The Role of Characteristic Archaean Community in Nitrogen Circulation of the Boreal Forest Bed Soil Reika Iisada1, Shintaro Hara2, Teemu Tahvanainen3* and Yasuyuki Hashidoko4 1 Hokkaido University, Japan; 2 University of Eastern Finland, Finland

P3-281 Effects of Agricultural Practices and Crop Residue Management on Earthworm Communities and Soil Physico-Chemical Properties in Cultivated Fields (belgium) Abouikacem Lemtiri1*, Gilles Colinet1, Taofic Alabi1, Claire Olivier1, Yves Brostaux2, Jerome Pierreux2, Bernard Bodson3, Eric Haubruge2 and Frederic Francis1 1 University of Liege, Gembloux Agro BioTtech, Belgium; 2 Walloon Agricultural Research Centre, Belgium

P3-282 Degradation of Iprodione and 3,5-Dca by Degrading Bacteria Isolated from Ryegrass (Lolium Perenne) Rhizospheric Soils Marco Campos1*, Sebastian Elgueta1, Cynthia Urrutia1, Dimitrios Karpouzas1 and Maria Cristina Diez1 1 Centre of Environmental Biotechnology, BIOREN, Universidade de La Frontera, Chile; 2 University of Thessaly, Greece

P3-283 The Study of Indigenous Thyme Plant Rhizosphere Bacterial Isolates in the Availability of Iron in Calcareous Soils Faiza Hossaini1*, Ahmad Ali Pourbabae, Hossein Ali Alikhani and Leila Mohammadi1 University of Tehran, Iran

P3-284 Beneficial Effects of Phosphate-Solubilizing Bacteria Isolated from Acid Sulfate Soils of East Coast of Peninsular Malaysia on Rice Seedlings Grown at Different Aluminium Concentrations Radziah Othman1*, Qurban Pahwar2, Shamsuddin Jusop1 and Umme Aminun Naher3 1 Universiti Putra Malaysia, Malaysia; 2 Bangladesh Rice Research Institute, Bangladesh

P3-285 Compositions and Properties of Microbial Residues Formed by Three Single Species Fungi and Mixed Strains in Cellulose-Containing Liquid Media Shuai Wang, Sen Dou1, Lina Ma, Yan Li and Shasha Yu Jilin Agricultural University, China

P3-286 Organic Amendments Supply Nitrifiers and Enhance Nitrification in Soil Ramya Thangarajan1*, Nanthi S Bolan1, Ravi Naidu2 and Aravind Surapaneni3 1 CERAR/ CRC CARE, University of South Australia, Australia; 2 South East Water, Australia

P3-287 Vertical Divergence of Microfungal Communities through the Depth in Different Soil Formations in the Western Negev Desert, Israel Isabella Grishkan1* and Giora Kidron2 1 University of Haifa, Israel; 2 The Hebrew University of Jerusalem, Israel

P3-288 Evaluation the Effect of Two Herbicide’s Ingredients on Some Soil Microbiological Parameters Zsolt Sandor1*, Agnes Zsuposne Ohlah, Janos Katali and Magdolna Tallai University of Debrecen, Hungary

P3-289 Molecular Characterization of Groundnut (arachis Hypogaea) Rhizosphere and Nodule Bacteria to Improve Crop Yield Rabia Khalid1, Rifat Hayat, Saafar Ali and Ummay Amara2 PMAS-Arid Agriculture University, Pakistan

P3-290 Dynamics of Soil Amino Sugars during Maize Growing Season under Different Management Lu Huijie1*, He Hongbo2 and Zhang Xudong2 1 Zhejiang University, China; 2 State Key Laboratory of Forest and Soil Ecology, Chinese Academy of Sciences, China

P3-291 Effects of 1-Octyl-3-Methylimidazolium Chloride ([omim]Cl) Ionic Liquid on the Functional Diversity of Soil Microbial Communities and Enzymatic Activities Pengpeng Guo, Lusheng Zhu1, Jinhua Wang1, Jun Wang2 and Hui Xie1 1 Shandong Agricultural University, China

P3-292 Soil Microbial Diversity and Community Structure as Affected by Endosulfan Residual Pengpeng Guo, Lusheng Zhu1, Jinhua Wang1, Jun Wang2 and Hui Xie1 1 Shandong Agricultural University, China

P3-293 Bacterial Versus Fungal Contributions to Microbial Community Structure in Grasslands of Differing Management History

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Corey Palmer* and Louise Egerton-Warburton1
1Northwestern University, USA; 2Chicago Botanic Garden, USA

P3-294 Phenotypic Composition of a Key Grass Species and Soil Processes in a Semiarid Grassland after a Rain Pulse Event
Eduardo Medina-Roldan1*, Elisabeth Huber-Sannwald2 and J. Tulio Arrendondo3
1Xi’an Jiaotong-Liverpool University, China; 2Instituto Potosino de Investigacion Cientifica y Tecnologica, Mexico

P3-295 Effects of ZN, CU and Al Metals on Tetracycline Antibiotic Resistance in the Chicken Manure
Mei-Hsia Huang and Yu-Min Tsou*
National Chung Hsing University, Taiwan

P3-296 Evaluate Nematode Assemblage Analysis as Indicators of Long-Term Organic Amendments on Soil Quality: A Comparison between Upland and Paddy Field Soil
Manqiang Liu1*, Yudi Liu1, Xiaoyun Chen1, Mingwei Wang1, Daming Li1, Qianru Huang1, Xin Xin Li1 and Feng Hu1
1Nanjing Agricultural University, China; 2Jiangxi Institute of Red Soil, China

P3-297 Modeling Carbon and Nitrogen Mineralisation from Diverse Crop Residues Measured from Incubation Studies
Hai Nguyen Trung*, Merv E. Probert1 and Anthony M. Whitbread1
1University of Goettingen, Germany; 2CSIRO Ecosystems Sciences, Australia

P3-298 Detection of Soil Microbial Activity by Infrared Thermography (irt)
Bjoern Kluge1*, Andre Peters1, Jaane Krueger1 and Gerd Wessolek1
1TU Berlin, Germany; 2Albert-Ludwigs-Universitat-Freiburg, Germany

P3-299 No Correlation between Plant Diversity and AMF Diversity but Significant Variations of AMF Community Along Karst Vegetation Restoration
Yueming Liang, Xunyang He, Yirong Su1 and Xiangbi Chen
Institute of Subtropical Agriculture Chinese Academy of Sciences, China

P3-300 Winter Behaviors of Soil Microbial Biomass P and Alkaline Phosphatase as Affected by Tillage and Fertilization
Yichao Shi, Noura Ziad1 and Roger Lalande
Agriculture and Agri-Food Canada, Canada

P3-301 Biofortification of Iron in Chickpeas by Plant Growth Promoting Rhizobacteria
Saira Khalid1*, Ana Aslam, Hafiz Naeeem Asghar and Zahir Ahmad Zahir
University of Agriculture, Faisalabad, Pakistan

P3-302 Studying the Population Variability of Microorganisms Adapted to the Conditions of Soil Degradation
Lazia Gafurova1*, Sayyora Murudova and Yuulduzhon Abdullayeva
National University of Uzbekistan, Uzbekistan

P3-303 Soil Enzymatic Activities and Microbial Functional Diversity under Different Agricultural Management Practices in Northern France
Nadia Bennegadi-Laurent1*, Marie-Paule Norini, Wassila Riah, Isabelle Trisoutrot-Gattin and Karine Laval
Esistpa- Ecole d’ingenieurs en Agriculture, France

P3-304 Soil and Climate Effects on Cowpea Rhizobial Diversity in Pernambuco

Thiago Pontes Lira, Amanda Cordeiro Melo Souza, Tamiris Kempner and Mario Andrade Lira Junior*
Federal Rural University of Pernambuco, Brazil

P3-305 Relationships between the Soil Chemical Properties and Microbiological Activity in a Long-Term Field Experiment in Hungary
Janos Katai, Agnes Olah Zsuposne, Magdolna Tallai and Zsolt Sandler
University of Debrecen, Hungary

P3-306 Regulatory Role of Microbes in Soil Microaggregate Formation and Carbon (c) Sequestration
Vivek Ravindran, Pankaj Trivedi and Brajesh K Singh*
University of Western Sydney, Australia

P3-307 Impact of Different Cultural Rotations (pastures-Crop) on Microbial Community in Agricultural French Context
Marc Legras1*, Caroline Baillaul, Christophe Gangneux1, Joselin Bodils1, Nadia Laurent1, Jeanne-Chantal Dur1, Nathalie Chevron1, Wissala Ria1, Karine Laval2 and Isabelle Gattin2
1Esitpa - Ecole d'Ingenieurs en Agriculture, France; 2Universite de Rouen, France; *UR 251, Research Center Versailles-Grimon, France

P3-308 Soil Bacterial Community Structure Associated with Perennial Vegetation on Agricultural Land in South-Western Australia
Kanako Tomita1*, Sharlene Boey1, Christine Whiteley1, Debrah Bowie1, Charlotte Pows1, Andrew Whiteley1, Barbara Cook1 and Lynette Abbott1
1The University of Western Australia, Australia; 2South Coast Natural Resource Management Inc., Australia

P3-309 Biodegradation of Phenanthrene in Saline Soils by New Consortium of Halophilic Bacteria
Ahmad Ali Pourbabaee1 and Malek Hossein Shahriari
University of Tehran, Iran

P3-310 The Thallus Formed by Streptosporangium with Cellulose and its Alkal Extraction Components
Xiangling Tian, Sen Dou1, Yan Li, Tingting Cui and Miao Yu
Jilin Agricultural University, China

P3-311 Hybrid Rice Promotes Ammonia Oxizing Bacteria Relative to Ammonia Oxidizing Archaea in Rhizosphere at Different Growing Stages
Qaiser Hussain1 and Genxing Fan2
1Pir Mehr Ali Shah Arid Agriculture University, Pakistan; 2Nanjing Agricultural University, China

P3-312 Microbial Reductive Dechlorination of Polychlorinated Dibenzo-P-Dioxins in Soils and Sediments from Areas Sprayed with Agent Orange
Vien M. Duong1*, Haggblom Max M.2, Joong-Wook Park2 and Young-Beom Ahn1
1Cantho University, Viet Nam; 2The State University of New Jersey, USA

P3-313 Role of Microbial Inoculums on Jatropha Curcas L. Growth and Soil Carbon Stock
Pankaj Srivastava and Nandita Singh
CSIR-National Botanical Research Institute, India

P3-314 Effects of Artificially Putting Frogs into Paddy Fields on the Prevention of Pests and Diseases of Rice
Qing Teng1*, Xue-Feng Hu2*, Ming-Yang Cao1, Fan Luo1 and Min-Yong Yang2
1Shanghai University, China; 2Agricultural Technology Promotion Center of Jinze Town, China
P3-315 The Status of Arbuscular Mycorrhiza Fungi at the Different Vegetation in Tailing Deposition Areas of Freeport Indonesia, Timika
Imanda Aiko Fitri Djuana*, Nunang May and Maria Massora
The State University of Papua Manokwari, West Papua Province-Indonesia

P3-316 Soil Microbial Population and Distribution as Affected by Various Farming Systems in Batangas, Philippines
Rosario Monsalud, Marilyn Brown and Florentino Monsalud
University of the Philippines Los Banos, Philippines

P3-317 Exploration of Oligotrophic Bacteria from Soils in Taiwan
Yi-Ying Kao, Yu-Hsuan Huang, Fo-Ting Shen* and Chiu-Chung Young
National Chung Hsing University, Taiwan

P3-318 Hydrolytic Characterization of Root Nodulating Bacteria Hung-Wei Pi, Fo-Ting Shen* and Chiu-Chung Young
National Chung Hsing University, Taiwan

P3-319 Development of Ppgr Consortium for Potential Yield of Scented and Non-Scented Rice during Nascent Stage of Organic Farming on Indo-Gangetic Plains of India
Janardan Yadav
Banaras Hindu University, India

P3-320 Isolation and Evaluation of Inoculation Effects of Beneficial Microorganisms on Growth of Corn and on Soil Nutrient Content in Ten Field Sites
Jocelyn Zarate*, Jenny Rose Trinidad, Peter John Gabo*, Lovely Luar*, Reynaldo Dela Cruz*, Severino Tumamang* and Edita Sunio
1 University of the Philippines, Philippines; 2 Cagayan Valley Integrated Agricultural Research Center (CVIARC), Philippines; 3 Cagayan Valley Lowland and Marine Research Outreach Station (CVLMROS) Agricultural Pilot Center (APC), Philippines

P3-321 Spatial Ecology of Bacteria at the Microscale in Soil Xavier Raynaud* and Naosio Nunan
1 Universite Pierre et Marie Curie, France; 2 CNRS, France

P3-322 Bio-Remediation of Salt Affected Soils through Halophilic Microbes
Sanjay Arora*, Meghna J. Vanzara*, Chirag Shuva* and Purvi N. Patel
Regional Research Station, India; 1 Veer Narmad South Gujarat University, India; 2 CSSRI, India

P3-323 Controls on Microbial Activity in Chromium Contaminated Abandoned Agricultural Soils: A Case Study of Kasur, Pakistan
1 Government College University Faisalabad, Pakistan; 2 Nuclear Institute for Agriculture and Biology Faisalabad, Pakistan; 3 Radboud University Nijmegen, Netherlands

P3-324 Integrated Effect of Fly Ash and Chemical Fertilizers on Phosphate Solubilizing Bacteria Isolated from a Rhizospheric Soil of Forestry Species
Sudha Jala Kohli* and Dinesh Goyal
1 Tilkamanjhi Bhagpal University, India; 2 Thapar University, India

P3-325 Microbial Population in the Rhizosphere Soil of Various Crop Plants as Affected by Salinity
Difluza Egamberdieva*, Difluza Jabborova and Vyacheslav Shurigin
National University of Uzbekistan, Uzbekistan

P3-326 Effects of Long-Term Swine Slurry Applications on Inoculum Potential of the Arbuscular Mycorrhizal Fungi in Soil under Conventional and No Tillage, South of Brazil
Arnaldo Colozzi-Filho*, Andre Shigueyoshi Nakatani* and Dina Souza Andrade
1 Instituto Agronomico do Parana, Brazil; 2 EMBRAPA Soja, Brazil

P3-327 Comparison of Three Macrophytes to Remediate Co-Contaminated Soils with Polycyclic Aromatic Hydrocarbons (pahs) and Trace Elements (tes), Implications for Green Urban Infrastructures
Marie-Charlotte Leroy*, Marc Legras*, Franck Lederf*, Vincent Moncond'huy*, Stephane Marcotte* and Florence Koltalo
1 INFRA Services, France; 2 Estipa - School of Agricultural Engineering, France; 3 IUT d’Eveux - Universite de Rouen, France; 4 INSA de Rouen, France

P3-328 Weathering of Illitic Soil in the Presence of Arbuscular Mycorrhizal Fungi Glomus Mosseae and Glomus intraradices and Pseudomonas Fluorescens Bacteria with Corn Plant
Farshad Alishahi, Ahmad Heidari, Hossein Ali Alkhani*, Leila Mohammadi and Faiza Hossaini
University of Tehran, Iran

P3-329 Biological Activities in the Rhizosphere Soils of Medicinal Plants from Chatkal Biosphere Reserve of Uzbekistan
Difluza Egamberdieva, Sayora Muradova, Lazizakhon Gasurova and Gulchekhra Nabieva
National University of Uzbekistan, Uzbekistan

P3-330 Suitability of Ergosterol as Soil Fungal Indicator Depending on Extraction and Sampling Date in Arable and Grassland Soils
Marc Legras*, Caroline Bailleul, Isabelle Gattin and Karine Laval
1 Estipa - Ecole d’Ingenieurs en Agriculture, France

P3-331 Diversity of Soil Invertebrates in Sugar Cane Area after Land Application of Sugar Factory Distillery Spent Wash
Duangrat Thongphak*, Chuleemas Boonthai and Mongkon Ta-Oun
Chulalongkorn University, Thailand

P3-332 Isolation and Conservation of Fluorescent Pseudomonads Strains from Rhizosphere of Wheat Azadre Bapiri*, Nazanin Khakipoor and Atena Alipour Dehaki
1 Islamic Azad University, Savadkooh, Iran

P3-333 Seasonality of Arbuscular Mycorrhizal Fungi and Mineral Nutrition in Temperate Fruit Trees
Andre Freire Cruz*, Marcio De Carvalho Pires*, Maria Lucrécia Gerosa Ramos* and Luiz Edurado Bassay Blum
1 Kyoto Prefectural University, Japan; 2 Universidade de Brasilia, Faculdade Agronomia e Veterinaria, Brazil; 3 Universidade de Brasilia, Brazil

P3-334 Spatial Variation of Soil Microbial Indicators in Different Soil Textural Classes Planted with Elaeis Guineensis (Oil Palm)
Tasren Nazir Mahomoth*, Sree Sian Tan*, Petronella Gerald* and Kah Joo Goh*

P3-335 Bioaugmentation Assisted Phytoextraction of Co, Pb and Zn By a Phosphate Solubilizing Bacteria Isolated from Metal-Contaminated Mines
Buddhi Charana Walpola*, Kiki Arunakumara*, Chan-Jung Lee* and Min-Ho Yoon**
1 Chungnam National University, Sri Lanka; 2 University of Ruhuna, Sri Lanka; 3 RDA, Korea; 4 Chungnam National University, Korea
P3-336  Long-Term Monitoring of Chemical Properties from Upland Soils in Chugnum Province
Moon-Tae Choi, Seong-Soo Kang, Yeo-Uk Yun, Jin-Il Lee, Won-Keun Lee and Yun-Kyu Nam
ChungCheongnam-do Agricultural Research and Extention Services, Korea; 1 NAAS, Korea

P3-337  Indolacetic Acid Production and Phosphate Solubilization Ability of Several Microorganisms Isolated from Panax Ginseng Rhizosphere
Khalid Hussein Hussein, Yeong Sang Jung Jung, Seong Bae Park and Jin Ho Joo Joo*
Kangwon National University, Korea

P3-338  Plant Growth Promotion by Rhizobacteria Isolated from Pinus Koraiensis on Chinese Cabbage (brassica Rapa)
Khalid Hussein Hussein and Jin Ho Joo Joo*
Kangwon National University, Korea

P3-339  Isolation and Detection of Genes Responsible for Pyoverdines Biosynthesis in Pseudomonas Putida KNUK9
Khalid Hussein Hussein and Jin Ho Joo Joo*
Kangwon National University, Korea

C2.4-1: Mineralogy and Reactivity of Soil Microsites
Soil Art  Featured artist: Sarah Hirneisen, USA, glass and soil studies, www.sarahhirneisen.com

P3-340  Study of Genesis, Morphology and Clay Mineralogy in Kakon Area, Kohgiluyeh-Va-Buyer-Ahmad Province, Iran
Soroush Shakeri1, Seyed Ali Abtahi1, Hamidreza Oowlia2 and Abolfazl Azad1
1 Payame Noor University, Shiraz University, Iran; 2 Shiraz University, Iran; 3 Yasouj University, Iran

P3-341  Characterization of Phosphorus Species in Allophanic and Non-Allophanic Andisols Using Density Separations, Chemical Fractionation, Solution 31p NMR, And Xanes Spectroscopy
Akira Takamoto1, Yohey Hashimoto1* and Rota Wagai2
1 Tokyo University of Agriculture and Technology, Japan; 2 National Institute for Agro-Environmental Sciences, Japan

P3-342  Transformation Processes in Bentonites- Epsp and Mock-Up Cz In-Situ Experiments
Irena Hanusova1, Marketa Dvorakova and Marek Venc1
Radioactive Waste Repository Authority, Czech Republic

P3-343  Comparative Analyses of Soils Formed on Carbonate Rocks
Eszter Nemeth1, Istvan Sajo2 and Andras Bidlo1
1 University of West Hungary, Hungary; 2 Hungarian Academy of Sciences, Hungary

P3-344  Mineralogical Investigation of Soils Formed on Carbonate Rocks in the Bukk-Highlands (hungary)
Eszter Nemeth1, Istvan Sajo and Andras Bidlo1
1 University of West-Hungary, Hungary; 2 Hungarian Academy of Sciences Research Centre for Natural Sciences Institute of Materials and Environmental Chemistry, Hungary

P3-345  Mineralogical and Chemical Characterization of Arid Granitic Soils after Prolonged Exposure to Acid Mine Drainage
Ian H. Smuts, Catherine E. Clarke* and Ailsa G. Hardie
University of Stellenbosch, South Africa

P3-346  Palygorskite in Soils of Arid Regions
Nataliya Chizhikova1
V.V.Dokuchaev Soil Science Institute, Russia

P3-347  Effects of Termites on Clay Composition and Properties of Ferralsol Materials in the Upper Katanga (d.r. Congo)
Basile Mujinya Bazirake1, Florence Mbes1, Geet Baert1 and Eric Van Ranst1
1 University of Lubumbashi, Gheit University, Zaire; 2 Royal Museum for Central Africa, Belgium; 3 Gheit University, Belgium

P3-348  Chemical Speciation and Dissolution of Cd in Paddy Soils in Various Redox Gradients
Mitsuhiro Furuya1, Yohey Hashimoto1* and Noriko Yamaguchi2
1 Tokyo University of Agriculture and Technology, Japan; 2 National Institute for Agro-Environmental Sciences, Japan

P3-349  Recycle of Crop Residues in Fields through Fermentation
Cheng-Long Yan, Xue-Feng Hu*, Ming-Yang Cao, Hui-Hui Dai and Fan Luo
Shanghai University, China

P3-350  Solubility and Chemical Speciation of Arsenic and Lead in a Contaminated Soil Using Amendments Containing Zeolite, Iron and Magnesium Oxides
Kentaro Kameda and Yohey Hashimoto*
Tokyo University of Agriculture and Technology, Japan

P3-351  Solubility of Silver Derived from Nanoparticles and Silver Nitrate in Oxidized and Reduced Soils
Satoshi Takeuchi, Yohey Hashimoto* and Satoshi Mitsunobu2
1 Tokyo University of Agriculture and Technology, Japan; 2 University of Shizuoka, Japan

P3-352  A Study on Impacts and Mechanism of Mechanical Activation (planetary milling) of Yichang Phosphate Rock Samples
Jin Lii, Wang Lingli1 and Shi Yuanliang2
1 Liaoning Forestry Vocation-Technical College, China; 2 Chinese Academy of Sciences, China

P3-353  Comprehensive Chemical Investigations in the Sopron Wine Region (hungary)
Eszter Nemeth, Imre Horvath, Andras Bidlo1 and Tamas Hofmann*
1 University of West Hungary, Hungary; 2 Palos Wine Cellar, Hungary

C2.4-3: Minerals as Regulators of Carbon Flow Through Soils
Soil Art  Featured artist: Peter Ward, UK, North Devon Earth Pigments, peterwardearth.carbonmade.com

P3-354  Effect of Change in Throughfall on Soil Respiration under a Temperate Mature Forest, Northeastern China
Xu Xingkai1, Duan Cuntao1, Chen Xin1, Wu Haohao2, Wang Lu1, Luo Xianbao1 and Fang Jingyuan1
1 Chinese Academy of Sciences, China; 2 Chang'an University, China; 3 University of the Chinese Academy of Sciences, China; 4 Peking University, China

P3-355  Influence of Simulated Precipitation on Dryland Soil Respiration in the Loess Plateau, China
Jun Wang1, Quanquan Liu, Rongrong Chen1 and Upendra M. Saini2
1 Northwest University, China; 2 USDA-ARS, USA

P3-356  Temperature and Rhizosphere Interaction Regulates the Dynamics of Inorganic and Organic Carbon in a Limed Acidic Soil
Waqar Ahmad, Reke A. Dijkstra, Ram C. Dalal2 and Balwant Singh1
1 The University of Sydney, Australia; 2 Innovation and the Arts, Australia

C3.3-2: Advances in Rhizosphere Regulation and Soil Nutrient Management
P3-357 The Effect of Mycorrhiza Fungi (vam) on Phosphorus Absorption by Corn Plant at Northern Khuzestan, Iran Ali Gholami* Islamic Azad University, Iran

P3-358 Effect of Combined Biologic and Priming Seed Treatments on Growth Indices of Nigella Sativa L. Mohammad H. Sayyari-Zahan*, Mohammad Ali Behdani, Fateme Cheraghi and Hojatollah Azarpayvand Department of Biology, University of Birjand, Iran

P3-359 Increasing Rate of Decomposition of Sugarcane Bagasse by Decomposer Fungi and Helping Bacteria Azotobacter for Preparation Multipurpose Biological Fertilizer Ladan Razikdormahaleh* Department of Environment, Iran

P3-360 Utilization of Agricultural Wastes as a Raw Material for Organic Fertilizer Applied on Paddy Rice Planted in an Acid Sulphate Soil Dedik Budianta* University of Sriwijaya, Indonesia

P3-361 Research Progress on Usage of Agricultural Wastes in Soilless Growing Medium Production Ruqin Fan and Zhenhua Zhang* Jiangsu Academy of Agricultural Sciences, China

P3-362 Activity of Urease, Phosphatase and Dehydrogenase in Submerged Soil under Integrated Nutrient Management with Transplanted Rice Pc Rao*, Ch S Ramalakshmi* and G Padmaja 1 Acharya NG Ranga Agricultural University, India; 2 Soil Science, RARS, Anakapalle, India; 3 ANGRAU, India

P3-363 Effects of Calcium on Copper Rhizotoxicity to and Accumulation in Grapevines in Solution Culture Kai-Wei Juang1, Hung-Yu Lai2, Pei-Yi Chen1 and Bo-Ching Chen2 1National Chiayi University, Taiwan; 2MingDao University, Taiwan

P3-364 Chemical Mechanism of Potassium Release from Soil as Influenced by Root Exudates Tiezhao Yang, Bing He, Gang Xue and Yunji Zhu* Henan Agricultural University, China

P3-365 Improving Nutrient Use Efficiency and Yield of Canola in Eastern Canada Bao-Luo Ma*, D.J. Smith1, J.I. Shang1, J. Whalen2, C. Caldwell3, H. Earl4, A. Vanasse5 and P. Scott6 1Eastern Cereal and Oilseed Research Centre, Canada; 2McGill University, Canada; 3Dalhousie University, Canada 4University of Guelph, Canada; 5Laval University, Canada

P3-366 Effect of Nitrate Influx and Efflux on Nitrate Accumulation in Lettuce and Spinach Zahra Gheshlaghi*, Reza Khorsrossi, Gholamhosain Haghi* and Mohamad Kafi Ferdowsi University of Mashhad, Iran

P3-367 Nutrient Availability in Rice Rhizosphere under Conventional and Drip Irrigation with Film Mulch Cultivation Changzhou Wei*, Qichao Zhu, Yongwen Lei, Juan Wang and Jinlong Zhu Shihzei University, China

P3-368 Potassium Management of Fen Soils with the Habitant Type 6510 Sabine Bernsdorf1, Stefan Schob1 and Rupp Holger2 1Martin-Luther-Universitat Halle-Wittenberg, Germany; 2Helmholtz-Zentrum fur Umweltforschung-UFZ, Germany

P3-369 Techniques for Enhancing Fertilizer Use Efficiency in Sugarcane Dhondiram Phonde*, Preeti Deshmukh, Jyoti Kharade and Rutuja More Vasantdada Sugar Institute, India

P3-370 Integration of Chemical and Biofertilizers Improved the Availability of Nitrogen and Phosphorus in Soil but Did Not Influence the Growth of Young Natural Rubber Plants Mercykitty Joseph, Kochuthriamsamma Joseph and Jacob Mathew Rubber Research Institute of India, India

P3-371 Burkholderia Kururiensis as an Important Root-Associated, Diazotrophic Bacterium for a High Productive Cross-Hybrid Rice Cultivated in Unfertilized Paddock Yasuyuki Hashidoko1,2, Gyeryeong Bak1, Reika Isoda1 and Masahiko Maekawa1 1Hokkaido University, Japan; 2Okayama University, Japan

P3-372 Rock Phosphate Enriched Compost Vis-A-Vis Mineral Fertilization: Effect on Soil Chemical and Biological Properties Dipak Ranjan Biswas* and Pravash Chandra Moharana Indian Agricultural Research Institute, India

P3-373 Influence of Diazotrophic Bacterial Inoculation in Combination with Nitrogen on Growth, Biomass Production, Yield and Nutrient Concentration of Rice A. R. M. Saloiman1, M. A. Baset Mia and G. M. A. Hossain Bangabandhu Sheikh Mujibur Rahman Agricultural University, Bangladesh

P3-374 Modelling of Nutrients Release from Water-Borne Polymer Coated Controlled Release Fertilizers Yazhen Shen, Changwen Du* and Jianmin Zhou Institute of Soil Science Chinese Academy of Sciences, China

P3-375 Long-Term Effects of Chemical Fertilizer and Recycled Manure on Soil Chemical and Biological Properties Hua Zhou, Wantai Yu*, Qiang Ma, Chunming Jiang and Yonggang Xu Chinese Academy of Sciences, China

P3-376 Impact of Tillage and Crop Residues Restitution on Phosphorus Distribution within Topsoil in Loamy Soils of Wallonia (Belgium) Sophie Barbieux*, Malorie Renneson, Florian Cobert, Bernard Bodson and Gilles Colinet Universite de Liege (GxABT), Belgium

P3-377 Phosphorus Uptake via Am Fungi from Phytate in Organic Matter: Possible Involvement of Phytate Degrading Bacteria Shintaro Hara, Toshinori Shimizu, Toru Uno, Ryosuke Taira, Toyoaki Ito and Masanori Saito* Tohoku University, Japan

P3-378 Rhizosphere Nitrification Inhibition by Australian Native Vegetation Ramya Thangarajan1,2, Nanthi S Bolan1, Ravi Naidu3 and Julianne O'reilly-Wapstra1 1University of South Australia, Australia; 2University of Tasmania, Australia

P3-379 Effects of Clay Type, Rate and Placement on Nutrient Availability and Crop Productivity in Sandy Terrain of Southern Central Coastal Vietnam Truc T.T Do*, Richard W. Bell1 and Surender Mann2 1Institute of Agricultural Sciences for Southern Vietnam, Viet Nam; 2Murdoch University, Australia
P3-380 Synchronizing Crop Demand and Soil Supply Ensures High Nitrogen Use Efficiency
Chunjian Li1, Peng Ning, Yurifeng Peng and Sa Li
China Agricultural University, China

P3-381 Adaptive Strategy of Three Typical Plant Species Over Majella Massif (central Italy): Differences in Microbial Community and Nutrient Uptake
Luisa Massaccesi1*, Alberto Agnelli2, Giovanni Gliotti2, Stefania Cocco2 and Giuseppe Corti1
1 University of Perugia, Italy; 2 Polytechnic University of Marche, Italy

P3-382 Response of Coffee Plantations to the Phosphate Fertilization
Herminia Martinez1*, Edson Saraiva, Julio Neves and Junia Clemente
Universidade Federal de Vicoso, Brazil

P3-383 Effect of the Application of Compost, Compost-Derived Humic Substances and Vermicompost on Zn Extractability and Growth of Walnut Trees (juglans Regia) in An Alkaline Soil
Mauricio Molina1*, Manuel Araya2 and Rodrigo Ortega1
1 Universidad Tecnica Federico Santa Maria, Chile; 2 Magister en Gestion y Tecnologia Agricola USM, Chile

P3-384 Phosphorus Acquisition by Maize and Cotton in Low Phosphorus Soil
Meena Sadasivam1*, Rajeswari Ramanathan and Malarvizhi Paliannap
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P3-385 Isolation of Putative Endophytic Bacteria from Selenium-Supplemented Wheat Plants and Their Potential Use for Biofortification and Biocontrol of a Soil Borne Pathogen
Paola Duran1, Jacqueline Acuna1, Milko Jorquera1, Rosario Azcon1, Cecilia Paredes1 and Maria De La Luz Mora1
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P3-386 Nitrate Leaching in Potato Rotation Field under the Influence of Manure Application in New Brunswick, Canada
Sheng Li and Zisheng Xing
Agriculture and Agri-Food Canada, Canada

P3-387 Challenges and Opportunities in Application of Nanotechnology in Enhancing Nutrient Use Efficiency—An Overview
Kuldeep Singh*
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P3-388 P-Rich By-Products as Sources of Plant Available P - Comparison of Different Test Methods
Kari Yliruairio1*, Johannes Jermakka1 and Eila Turtola1
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P3-389 Crop Nitrogen Status Investigate Using a Digital Camera
Yuan Wang and Dejian Wang*
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P3-390 Plant Uptake of Phosphorus Recycled from Human Waste Water and Sewage Sludge Ashes
Gregor Meyer1*, Simone Nanzer1, Christophe Bonvin1, Kai Uder1, Bastian Eter1, Paul Maeder1, Cecilie Thonar1, Emmanuel Frossard1 and Astrid Oberson1
1 ETH Zurich, Switzerland; 2 Swiss Federal Institute of Aquatic Science and Technology, Switzerland; 3 FiBL, Switzerland

P3-391 Contents of Total Iron and Different Iron Forms Distribution of Harran Plain, Southeast of Turkey
Asuman Buyukkilic Yanardag1, Ibrahim Halil Yanardag1, Tuba Cinar Buyukkilic2, Ali Seyrek2, Ahmet Mermut1 and Angel Faz Cano1
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Chunjie Li1, Haigang Li and Fusuo Zhang
China Agricultural University, China

P3-393 Morphological Responses of Grapevine Root to Copper Stress Given Different Calcium Nutritional Levels
Pei-Yi Chen1, Kai-Wei Juang2, Bo-Ching Chen1 and Yung-I Lee1
1 National Chiayi University, Taiwan; 2 MingDao University, Taiwan; 3 National Museum of Natural Science, Taiwan

P3-394 Isolation of Phytase-Producing Rhizobacteria from Extreme Environments
Jacqueline Acuna1, Stefanie Gabler2, Daniel Menezes-Blackburn2, Ralf Greiner2, Milko Jorquera1 and Maria De La Luz Mora1
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P3-395 Importance of Straw Residue Management for Silicon Supply to Rice Plants in Contrasting Southeast Asian Regions
Thimo Klotzbuecher1*, Anika Marxen2, Doris Vetterlein2 and Reinhold Jahn1
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Hannah Franklin, Nicholas Dickinson and Brett Robinson
Lincoln University, New Zealand

P3-397 Urea Deep Placement for Paddy Rice: The Scientific Foundations
Eric Craswell1*, Paul Vlek2 and Upendra Singh1
1 Australian National University, Australia; 2 University of Bonn, Germany; 3 IFDC—An International Center for Soil Fertility and Agricultural Development, USA

P3-398 Modeling of Phyto-Extraction on Pot Experiments
Francesco Lugli and Claudio Mahler*
Federal University of Rio de Janeiro, Brazil

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University of Ibadan, Nigeria

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Fan Luo1, Xue-Feng Hu1, Qing Tang1, Ming-Yang Cao1 and Min-Yong Yang1
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Xiao-Wei Liu, Zhao-Ming Chen, Huo-Yan Wang* and Jian-Min Zhou
University of Chinese Academy of Sciences, China

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Hayato Maruyama and Jun Waisa*
Hiroshima University, Japan

P3-404 Boosting Smallholder Cowpea and Soil Productivity through Use of Green Input in the Guinea and Sudan Savannah Zones of Ghana
Obianuju Emmanuel*, E.Y Safo and F.M Tetteh2
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2 Soil Research Institute, Ghana

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Hafeez Ur Rehman, Faiz Rasool, Shahzad M A Basra and Abdul Wakeel
University of Agriculture, Pakistan

P3-406 Accumulation of Major Nutrients in Calcareous Soils under Intensive Cultivation and Pressurized Irrigation Practices in Jordan
Sayed Khatari*
The Jordan University-faculty of Agriculture, Jordan

P3-407 Isolation of Phosphate Solubilizing Bacteria from Two Types of Calcareous Soil and Evaluating Their Ability to Solubilize Various Sources of Rock Phosphates
Farshad Alishahi, Hossein Ali Alikhani*, Ahmad Heidari, Leila Mohammadi and Faiza Hossaini
University of Tehran, Iran

P3-408 Soil Nutrient Dynamics and Maize Yield as Influenced by Integrated Nutrient Management
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College of Agriculture- Oyo State College of Agriculture Igbobora, Nigeria

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Mario Miyazawa*, Maria Bruna de Almeida, Sarah Sasaki Jurkevicz* and Cesar Francisco Araujo-Junior*
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P3-410 Effect of Different Potassium Level on Growth and Fruit Yield of Camellia Oleifera Chang-Lin Series
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Jiangxi Agricultural University, China

P3-411 Nutrient Contents in Various Purple Soils and Their Effects on Nutrient Distribution in Flue-Cured Tobacco in Jiangxi Province
Xianrang Tang*, Zuzhang Li and Guangrong Liu
Jiangxi Academy of Agricultural Sciences, China

P3-412 Effect of Molybdenum on Nitrogen Fixation and Rhizobial Diversity of Hairy Vetch (vicia Villosa Roth) in Korean Soil
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Gyeongsang National University, Korea

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Hak-Won Yoon1, Min-Hui Son2, Jae-Hwan Kim1, Sung-Hee Seo1, Hong-Joo Son1 and Yoon-Seok Chang*1
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Myung Sook Kim*, Yoo Hak Kim, Seong Soo Kang, Myung Suk Kong, Chang Hoon Lee, Taek Keun Oh and Deog Bae Lee
RDA, Korea

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Tae Young Kim, Farduil Alam, Song Yeob Kim and Yong Bok Lee*
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Jamiu Azeez* and Ololade Olununko
Federal University of Agriculture, Nigeria

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In Edem and Uduak Udoinyang
University of Uyo, Nigeria

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University of Tabriz, Iran

P3-419 Effects of Different Fertilizer Treatments on Nutrient (phosphorus) Release Pattern in an Ultisol of Anyigba, Kogi State
Amahkhan Sunday and Abuh S.S
Kogi State University, Nigeria

P3-420 Soil Organic Phosphorus Transformations along a Coastal Dune Chronosequence under New Zealand Temperate Rain Forest
Leon Condon1 and Benjamin Turner2
1 Lincoln University, New Zealand; 2 Smithsonian Tropical Research Institute, Panama

P3-421 Changes in P Pools over Three Months in Two Soils Amended with Legume Residues
Md. Alamgir* and Petra Marschner
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University of Agriculture, Pakistan

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Dalel Abdi1,*, Barbara J. Cade-Menun2, Noura Ziadi2, Gaëtan F. Tremblay1 and Leon-Etienne Parent1
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P3-426 Unbiased Statistical Analysis of Soil P Forms Determined by 31P-Nmr Spectroscopy
Dalel Abdi1,*, Barbara J. Cade-Menun2, Noura Ziadi2 and Leon-Etienne Parent1
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P3-427 Phosphorus Availability in an Organically Amended Vegetable Soil
Nor Ashikin Ahmad1, Hossein Ghadiri1, Chengrong Chen1 and Simon Eldridge2
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P3-428 Applicability and Limitations of Enzyme Addition for the Characterisation of Soil Organic Phosphorus across a Range of Soil Types
Klaus Jarosch1, Ashlea Doolettle2, Ronald Smernik2, Emmanuelle Frossard and Eite K. Buenemann1
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P3-429 A Comparison of Phosphorus Characterization in Animal Manure by Conventional Procedures and Solution Phosphorus-31 Nuclear Magnetic Resonance Spectroscopy
Guohua Li, Haigang Li1 and Fusuo Zhang
China Agricultural University, China

P3-430 What Effect Does Pig Waste Have on Microbes Involved in the Phosphorus Cycle in Soil?
Anjani Weerasakara1, Lynette Abbott, Sasha Jenkins, Ian Waite, Bede Mickan and Anthony O'donnell
University of Western Australia, Australia

P3-432 Phosphorus Losses from Tile Drained Agricultural Lands in Canada, an Overview
T.Q. Zhang1, C.S. Tan, Craig Drury and Tom Welacky
Agriculture & Agri-Food Canada, Canada

P3-433 Unravelling Microbial P Cycling in Soils Receiving Organic P Fertiliser Inputs
Sasha Jenkins1, Ian Waite1, Tony Craddock2 and Anthony O'donnell1
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P3-434 Organic Phosphorus Contribution and Chemical Characterization of Residual Fraction Derived from Hedley Fractionation in Andisol
Gabriela Velazquez1, Yoanathan Redel1, Patricia Poblete1, Cornelia Rumpel1, Benjamin Turner2 and Maria De La Luz Mora3
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P3-435 Assessment of the Aluminium, Iron and Silicium Role on Phosphorus Fractions in Grasslands Andisols
Yoanathan Redel1, Paula Cartes, Gabriela Velazquez, Patricia Poblete and Maria De La Luz Mora
Universidad de La Frontera, Chile

P3-439 Impact of Manure, Phosphorus Fertilizer Fortified with Molybdenum on Nitrogen Fixation in Cowpea (vigna Unguiculata (L.) Walp.) in the Northern Guinea Savanna of Nigeria
Ambrose Amba1, A. Garba, S. Mustapha, A.S. Fagam, U. L Muhammad and T. Sunday Muhammad
Abubakar Tafawa Balewa University, Nigeria

P3-442 Overcoming Manure, Straw and Nitrogen Application on Phosphorus Fractionation in Soil and Leachate in Greenhouse Vegetable Field
Yan Zhengjuan1, Chen Shuo1, Li Chao2, Li Junliang3 and Chen Qing4
1 China Agricultural University, China; 2 Qingdao Agricultural University, China

P3-444 Impact of Manure, Straw and Nitrogen Application on Phosphorus Cycle in Soil
Jun Young Kim, Hee-Sung Kwak, Tak-Hyun Kim*, Seung-Joo Lim, In-Hwan Shin and Youn-Mook Lim
Korea Atomic Energy Research Institute, Korea

P3-445 The Soil Environment Factor Affecting Vegetation-Diversity at Pond Wetland in Agricultural Landscape, Korea
Banghun Kang1, Donghyun Kang2, Namchoon Kim1, Minjae Kong1 and Jinkwan Son1
1 Rural Development Administration, Korea; 2 Dankook University, Korea
P3-447 Conservation Agriculture for Enhancing Resource Use Efficiency, Carbon Sequestration, Soil and Crop Productivity
Umakanta Behera1 and A R. Sharma2
1 Indian Agricultural Research Institute, India; 2 Directorate of Weed Science Research, India

P3-448 Effects of Rice Straw Managements with Fertilizer Types on Enhancing Growth, Yield and Carbon Stock in Rice
Suphachai Amkha, Bangon Ubon, Supapan Tangjai and Thongchai Ma1
Kasetsart University, Thailand

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P3-449 General Characteristic of Soils in Ecologically Vulnerable Mining Areas around Kajaran Town in Armenia
Karen Ghazaryan1, Hasmik Movsesyan1, Naira Ghazaryan1, Gor Georgyanyan2 and Karlen Grigoryan3
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P3-450 The Role of Reclamation Research in Re-Establishing Functional Ecosystems in the Oil Sands Region of Northeastern Alberta
Carmela Arevalo, Suncor Energy Inc, Canada

P3-451 Soil and Mining Problem in the Kyrgyzstan
Bekmamat Djenbaev*, Kalibdaibev B.K.* and Zholbolduev B.T Institute Biology & Pedology of National Academy of Sciences of Kyrgyz Republic, Kyrgyzstan

P3-452 Reclamation Cover System Design Based on Environmental Impact Evaluation due to Phosphate Mining Activities
Xin Song, Chinese Academy of Sciences, China

P3-453 Monitoring of Soils in Ecologically Vulnerable Mining Areas around Shamlnogl Town in Armenia
Karen Ghazaryan, Natela Gevorgyan and Sergey Avetisyan Yerevan State University, Armenia

P3-454 Trace Metal Concentrations in Schoolyard Soils; Talcahuano, Chile
Pedro Tume1, Elizabeth Gonzalez2, Robert King2, Guillermo Bustamante1 and Jaume Bech"1
1 Universidad Catolica de la Santisima Concepcion, Chile; 2 University of Barcelona, Spain

P3-455 Mineralogy Characteristics of the Soils in the Site Stockpiled by Chromite Ore Process Residues (corp) and its Decontamination by Ex-Situ Washing
Haibo Zhang, Xinhua Liu, Lei Zhang, Longhua Wu and Yongming Luo*, Chinese Academy of Sciences, China

P3-456 Development of Microbial Community Diversity during Remediation of Alkaline, Saline Tailings: Towards Improved Remediation Strategies
Talitha Santini1 and Lesley Warren2
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P3-457 Lead Accumulation in Native Plants Growing on Mining Soils of Peruvian Andes
Jaume Bech1, Nuria Rocca2*, Rafael Boluda3, Pedro Tume4, Paola Duran2, Wilfredo Poma4 and Isidoro Sanchez6
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P3-458 Heavy Metal Extraction by Spontaneous Plants Growing on Multi-Metal Contaminated Site in South Brazil
Cacio Boechat, Vitor Pistoia, Gesio Gianello and Flavio Camargo* UFRGS, Brazil

P3-459 Leaching of Nutrients and Plant Growth in Bauxite Residue Sand after Addition of Amendments
Richard Haynes1*, Benjamin Jones1 and Ian Phillips2
1 The University of Queensland/CRC CARE, Australia; 2 Alcoa of Australia, Australia

P3-460 Characterization of Soils in Wetlands of the Lower Basin Babahoyo River (Ecuador)
Wilson Pozo1, Gloria Carrera2, Francisco Pardo3*, Teoelfio Sanfelui*, Manuel Miguel Jordan1, Ana Belen Vicente1 and Jaume Bech1
1 University of Guayaquil, Ecuador; 2 Instituto Nacional de Investigaciones Agropecuarias, Ecuador; 3 Jaume I University, Spain; 4 Miguel Hernandez University, Spain; 5 University of Barcelona, Spain

P3-461 Spatial and Temporal Variability of Salinity Soil in Rice Wetlands of the Lower Guayas Basin (Ecuador)
Wilson Pozo1, Gloria Carrera2, Francisco Pardo3*, Ana Belen Vicente1, Teoelfio Sanfelui*, Manuel Miguel Jordan1 and Jaume Bech1
1 University of Guayaquil, Ecuador; 2 Instituto Nacional de Investigaciones Agropecuarias, Ecuador; 3 Jaume I University, Spain; 4 Miguel Hernandez University, Spain; 5 University of Barcelona, Spain

P3-462 Using Landform Evolution Models to Assess the Erosional Stability of Waste Encapsulation Structures at the Millennial Timescale
Garry Willgoose* and Gregory Hancock
The University of Newcastle, Australia

P3-463 The Fluvial Transport of Lead (pb) from an Orebhead in an Arid Australian Landscape
Stephen Cattle1, Angus Lees and Kai Yang
The University of Sydney, Australia

P3-464 Geochemistry of Heavy Metals in Soils of Mineralized and Non-Mineralized Areas, Western Thailand
Kasetsart University, Thailand; 2 University of Western Australia, Australia

P3-465 Effect of Amendments and Microorganisms Application in the Evolution of Spontaneous Plant Colonization in Tailing Ponds
Jose A. Acosta*, Angel Faz, Sebila Kabas, Raul Zornoza and Silvia Martinez-Martinez
Universidad Politecnica de Cartagena, Spain

P3-466 Assessment of Heavy Metal Contamination of Soils and Water Properties in and around Open Cast Mines of Enyigba Area, Ebonyi State, Nigeria and the Implication for Landuse Management
Chukwuebuka Okolo*, Franklin Akamigbo, Peter Ezeaku and Jude Ene
University of Nigeria, Nigeria

P3-467 Quantifying the Wind Speed Amplification Effect on Tailings Storage Facilities
Douw Bodenstein1*, Piet Van Deventer1, Stuart Piketh1 and Fanus Van Wyk4
1 North-West University, South Africa; 2 Agenco Environmental Services, South Africa

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Maria Manuela Abreu1,2, Erika Santos3, Maria Clara F. Magalhães4 and Eliana Fernandes5
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P3-469 Content of Potentially Toxic Elements in Dumpsite Soils after Brown Coal Mining as Affected by the Reclamation Method
Lubos Boruvka*, Josef Kozak, Karel Nemecek, Antonín Nikodem, Martin Kocarek, Vaclav Tejnecky, Christopher Ash and Ondrej Drabek
Czech University of Life Sciences Prague, Czech Republic

P3-470 Comparative Restoration Potential and Soil Carbon Sequestration Efficiency of Certain Indigenous and Exotic Woody Species Planted on Coal Mine Habitats in a Dry Tropical Environment, India
Anand Narain Singh* Panjab University Chandigarh, India

P3-471 Smectite Formation in Mine Tail Soils Affects Macroporosity, Hydrological Properties, and Pollutants Flow
Jose Penas1, Gregorio Garcia1, Sergio Pellegrini1, Nadia Vignozzi1 and Edoardo Costantini2
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P3-472 The Potential and Risks of Biosolids Application in Opencast Mine Restoration
Stephane Boyer*, Benjamin Waterhouse, Karen Adair and Stephen D. Wratten
Lincoln University, New Zealand

P3-473 Geochemical Mapping of Polluted Soils and Environmental Risk Assessment: A Comparison Case Study in the Province of Huelva (Spain) and the Zambales Mountain Range (luzon Island, the Philippines)
Maria Clara Zuluaga1, Stefano Albanese1, Benedetto De Vivo2, Jose Miguel Nieto2, Alfredo Mahar Francisco Lagmay3 and Gianluca Norini4
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P3-474 General Characteristics of Organic Matter in Reclaimed Soils
Maria Sokolovska1, Miglena Zhiyanski1, Evguenia Slavtcheva1, Nuriya Roca1 and Jaume Bech2
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P3-475 Speciation and Bioavailability of Metals and Metalloids in Managing Health Risks of Mine Wastes for Rehabilitation
Barry Noller1,2, Jack C. Ng1, Violet Diacomanolis1, Rajelie Taga1, Hugh H. Harris1, Jiayi Zheng1 and Trang Huynh1
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P3-476 Plant Microbe Associations for Reclamation of Oil Sand Mining Sites in Canada
Eduardo Mitter, Renato De Freitas and Jim Germida* University of Saskatchewan, Canada

P3-477 Characterization of Soils around an Old Abandoned Smelter at Jang Hang, Korea
Choong Hyun Lee, Seon Yong Lee, Youngjae Kim and Young Jae Lee*
Korea University, Korea

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P3-478 Soil Water Retention and Water Use Efficiency of Cotton under Plastic Mulched Drip Irrigation in Soils of Different Salinities in the Tarim River Basin
Xiaoning Zhao1, Tereza Schiller2, Karl Stahr3, Hussein Othman4, Chenyi Zhao5, Yu Sheng6 and Shamaila Zia7
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P3-479 Modeling Sorghum Response to Irrigation Water Salinity at Early Growth Stage
Saeed Saadat1 and Mehdi Homaeizadeh2
1 Soil and Water Research Institute(SWRI), Iran; 2 Tarbiat Modares University (TMU), Iran

P3-480 Interactive Effects of NaCl Salinity and Waterlogging on Availability of Copper, Iron, Manganese and Zinc in Two Different Soils
Norstadollah Najafi University of Tabriz, Iran

P3-481 Impact Study on the Application of Vinasse to Cambisol and Vertic Luvisol in Ethiopia
Frederic Feder1 and Julie Sansoulet1
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P3-482 Effect of Drip Irrigation on Corn (zea Mays) Growth in Reclaimed Tidal Saline Soil
Sanghun Lee*, Hui-Soo Bae, Soo-Hwan Lee, Jong-Gook Kang, Seon-A Hwang, Yang-Yeol Oh, Hong-Kyu Kim and Kyeong-Bo Lee
RDA, Korea

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Gary Pierzynski Kansas State University, USA

P3-484 Experiences with Developing and Implementing Watershed Scale Projects to Improve Water Quality in East Tennessee, USA
Forbes Walker*
University of Tennessee, USA

P3-485 Exploring Relevance of Agro Input Dealers in Dissemination and Communication of Soil Fertility Management Knowledge: The Case of Siaya and Trans Nzoia Counties, Kenya
Tiberious Etyang1, Shamie Zingore2, Ann Mugure3, Boaz Waswa1 and Frankline Mairura1
1 University of Nairobi, Kenya; 2 International Plant Nutrition Institute (IPNI), Kenya; 3 Alliance for Green Revolution in Africa (AGRA), Kenya; 4 International Centre for Tropical Agriculture (CIAT), Kenya

P3-486 Soil Zinc Deficiency and its Impact on Human Health in India: An Overview
Kuldeep Singh*
Amity University Uttar Pradesh, India
P3-487 Education and Social Awareness in the City of Sao Paulo-Brazil
Deborah De Oliveira
University of Sao Paulo, Brazil

P3-488 “Library of Rocks”: An Important Tool for the Learning of Soils
Fabio Carvalho Nunes1, Enio Fraga Da Silva2, Rute Dos Santos Guimarães1, Vanessa Souza Rotondano1, Vanessa Teixeira De Matos1, Angelia Andrade Calhaú1 and Sebastiao Barreiros Calderano2
1 Instituto Federal Baiano, Brazil; 2 Embrapa Solos, Brazil

P3-489 Process for Soils Museum Preparation
Somsak Sukchan
MOAC, Thailand

P3-490 Behavior of Farmers under Climate Change in Eastern Algeria
Miloud Hafsi and Amar Rouabhi
The University of Setif, Algeria

P3-491 Interactive Extension Techniques Effectively Engage Audiences Regarding Agriculture and Water Quality in Manitoba, Canada
Mitchell Timmerman
Manitoba Agriculture, Food and Rural Development, Canada

P3-492 Understanding Soils: Inspiring the New Generation towards Agricultural and Environmental Sustainability. A Workshop for School Students in Oman
Said Al-Ismaiy1 and Ali Al-Maktoumi
Sultan Qaboos University, Oman

P3-493 Improving Soils Knowledge through an Intelligent Platform for Knowledge Transfer and Data Management in Agriculture
John Bennett*
University of Southern Queensland, Australia

P3-494 Influencers of Food Security and Food Dietary Diversity in Rural Semi-Arid Communities
Roger Maxi Ddungu
Rural-Urban Environmental Agency (RUEA), Uganda

P3-495 Reconnecting the Public with Soils and Agriculture in Manitoba, Canada is Achieved through the Use of Interactive Extension Techniques
Mitchell Timmerman
Manitoba Agriculture, Food and Rural Development, Canada

P3-496 "Appy Days in Communicating Soil Science"
Claire Harris and Mike Grundy
CSIRO Sustainable Agriculture Flagship, Australia

P3-497 Educational Program with Agricultural Practice and Sensor Data Analysis for Primary School Students in Tokyo-Dr. Doroemon Project
Hanae Yokokawa and Masaru Mizoguchi
University of Tokyo, Japan

P3-498 Open Society and Soil Inventory
Toshiaki Ohkura
National Institute for Agro-Environmental Sciences, Japan

P3-499 Interactive Soil Map of Russia
Sergey Khokhlov1, Maria Gerasimova2, Dmitri Konyushkov1 and Maria Bogdanova2
1 V.V. Dokuchaev Soil Science Institute, Russia; 2 Moscow State University, Russia

P3-500 Creating Awareness on Importance and Management of Soil by Rural Farmers in Nigeria: Role of Naerls Adopted Villages Project
Bashir Sani*, Yusuf Abdullahi, Aliyu Amman, Hajara Ahmadu, Adamu Yakubu and Ismail Ibrahim
Ahmadu Bello University, Nigeria

P3-501 Presenting an International Educational Poster on World Soil Distribution
Jonathan Gray†, Jozef Deckers1, Brian Murphy1 and Stefan Dondneye
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2 Catholic University of Leuvan, Belgium

P3-502 Colours of the Earth
Meinhard Breiling*
BIENE - Soil and Bioenergy Network in Europe, Austria

P3-503 Soil Atlas of Latin America: An Innovative Tool for Policy Development and Awareness Raising
Ciro Gardi*, Arwyn Jones1, Luca Montanarella1, Ronald Vargas* and Carlos Cruz*
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2 Soils, Food and Agriculture Organization of the United Nations, Italy; 3 INEGI, Mexico

P3-504 Generating Interest in Soil Science through Collegiate Soils Contests
Chris Baxter* and Joseph Valentine
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P3-505 Soil Scientists Communicate Research Findings during Annual Field Days: Best Practices for Public Presentations
Ann D. Jabro* and Jalal D. Jabro1
1 Robert Morris University, USA; 2 ARS-U.S.D.A., USA

P3-506 Instruments to Raise Soil Awareness in Schools and Support National Soil Protection
Sigbert Huber1, B. Birli†, M. Tulipan1, G. Prokop1 and A. Baumgarten1
1 Environment Agency Austria, Austria; 2 Austrian Agency for Health and Food Safety, Austria

C4.4-2: Widening the Soil Science Course to the Various Directions of Scientific and Humanistic Area
Soil Art Featured artist: Claire Pentecost, School of the Art Institute of Chicago, USA, www.publicartschicago.org

P3-507 Learning Soil Classification through Virtual Learning Environment
Nuria Roca*
Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina

P3-508 Soil Judging as an Instrument for Community-Building in the Discipline of Soil Science
Stephen Cattle1,2, Cristine Morgan2, Maxine Levin1 and Kye-Hoon Kim4
1 The University of Sydney, Australia; 2 Texas A&M University, USA; 3 United States Department of Agriculture, USA;
4 The University of Seoul, Korea

P3-509 The Value of Soil Science Information and Opportunities for Informing Policy Decisions
Sheryl Kunickis*
USDA, USA

P3-510 Introducing Soil and Plant Science: Undergraduates Learning through Experiences
Cristine Morgan* and Damien J Field1
1 Texas A&M University, USA; 2 Univeristy of Sydney, Australia

June 8-13, 2014 Jeju, Korea
P3-511 Terragenome-The Soil Metagenome Network
David Myrold∗1, Mark Bailey∗1, Janet Jansson∗1, Folker Meyer∗1, James Tiedje∗1, Eric Triplett∗1 and Timothy Vogel∗1
1 Oregon State University, USA; ∗ Center for Ecology & Hydrology, United Kingdom; ∗ Lawrence Berkeley National Laboratory, USA; ∗ Argonne National Laboratory, USA; ∗ Michigan State University, USA; ∗ University of Florida, USA; ∗ Universite de Lyon, France

P3-512 Alternatives for Mushroom Cultivation Casing Soil
Salomeh Seyedalkhani∗1 and Saeed Massih∗1
1 Member of Karaj Young Researchers Club, Iran; ∗ Justified of Assistant Professor of Elmi Kurbordi University, Javan-shir Branch, Iran

P3-513 Technical Soil Science Research Results in the Poster Format: Best Practices for Effective Communication
Ann D. Jabro∗1 and Jalal D. Jabro∗1
1 Robert Morris University, USA; ∗ ARS-U.S.D.A., USA

P3-514 Soil Science in Religion, Arts, Society and History
Hee-Myong Ro
Seoul National University, Korea

WG1: Monitoring for Man and Environment Safety
P3-515 Creating Surface Soil Texture Map with Indicator Kriging Technique: A Case Study of Central Iran Soils
Khaled Zaeri∗1
1 Faculty of Agronomy Aceh Darussalam, Indonesia

P3-516 Regional Evaluation of Potential Landslide Earthquake and Wave Vibration Effect Based Relative Method (REM) and Geotechnical Mapping
Bayu Nugrah∗
Faculty of Geological Engineering, Indonesia

P3-517 Development of Land Use and Land Cover Areas of Nangroe Aceh Darussalam Province around 10 Years after the Tsunami Disaster
Nisa Latifa∗, Tatu Rizkia and Richardo Sihotang
Soil Science, Bogor Agriculture University, Indonesia

P3-518 Land Degradation in the Philippines Based on the Fao-Lada Land Use System Approach
Rodelio Carating
Bureau of Soils and Water Management, Philippines

P3-519 Classification and Distribution of Iraqi Soils
Ahmad Muhammed, Kasim Salim′i and Ahmad Muhammed′
1 Baghdad University, Iraq; ∗ Soil, Ministry of Agriculture, Iraq; ∗ Baghdad University, Iraq

P3-520 Long-Term of the Consecutively Monocultured Peanut Obiously Alters the Community Composition of Soil Nematodes in the Red Soil Region of Southern China
Xiao-Gang Li and Xing-Xiang Wang∗
Chinese Academy of Sciences, China

P3-521 Haiti Pilot Soil Survey Initiative
Thomas Reinsch∗, Charles Kome, Paul Reich, Shawn Mcvey, Zamir Libohova and Tom D’avello
Natural Resources Conservation Service, USA

P3-522 Assessment of Soil Losses from Managed and Unmanaged Sites in A Subcatchment of Rawal Dam, Pakistan Using Fallout Radionuclides
Muhammad Rafaq∗1, Manzoor Ahmad∗1, Naveed Iqbal∗1 and Naseer Ahmad∗1
1 Pinstech, Pakistan; ∗ Iaea, Austria; ∗ University of Punjab, Pakistan

P3-523 Effects of Humic Acid in Remediation of Heavy Metals (pb And Cd) with Canola Plants (Brassica Napus L.)
Ashlan Esringu∗1, Metun Turan∗1, Mielek Ekinci1 and Sezai Ernilli∗
1 Ataturk University, Turkey; ∗ Yeditepe University, Turkey

P3-524 Soil Properties Prediction of the Main National Italian Soil Typologies by Means of Mid-Infrared Diffuse Reflectance Spectroscopy
Luigi P. D’ac qui∗1, Alessandra Bonetti1, Simone Priori1, Giovanni Labate1 and Edoardo A.C. Costantini1
1 Consiglio Nazionale Delle Ricerche - CNR, Italy; ∗ Consiglio per la Ricerca e la Sperimentazione in Agricoltura - CRA, Italy

P3-525 Map Scale Effects on Soil Phosphorus Storage Estimation in the Uplands of Eastern China
Liming Zhang∗1, Jiajia Li∗1, Dongsheng Yu∗1, Xuezheng Shi1, Shih Xing1, Shengxiang Xu1, Yongjun Zhao∗1 and Fengyun Zhang1
1 Fujian Agriculture and Forestry University, China; ∗ Chinese Academy of Sciences, China; ∗ Heze University, China

P3-526 (Moved to O65-6) Interpretation of Vegetation and Topographic Features Related to Soil Types in Amazon Forest: Comparison of Two Watersheds by the Use of Remote Sensing Data and GIS
Osvaldo Jose Ribeiro Pereira∗1, Celia Regina Montes∗2, Yves Lucas∗2 and Adolpho Jose Meli∗
1 Universidade de Sao Paulo, Brazil; ∗ Universite du Sud Toulon-Var, France

P3-527 Space-Time Digital Mapping of Gypsum Horizons Micromorphotypes in Arid Region (Piedmont Plain of Turkestan Ridge (Uzbekistan) as Example)
Dmitri Golovanov∗ and Irina Yannova∗
1 Geographical Faculty of Lomonosov Moscow State University, Russia; ∗ Dokuchayev Soil Science Institute, Russia

P3-528 Efficiency of Sulfur Application on Soybean in Two Types of Oxisols in Southern Brazil
Adonis Moreira∗1, Gedi Sfredo∗1, Larissa Moraes∗1 and Nand Fageria∗1
1 Embrapa Soybean, Brazil; ∗ Embrapa Rice and Bean, Brazil

P3-529 Comparison of Sample Preparation Methods for the Fluoride in Soil Material
Hyong Seop Kim, Jeong Ki Yoon, Ji In Kim, Tae Seung Kim∗ and Hyung Wook Ko
National Institute of Environmental Research, Korea

WG2: WRB-Lessons Learned from the Development of the Third Edition 2014
P3-530 Update of the Wrb Soil Classes in the 250k Soil Database of Finland: Expression of Soil Moisture Regime in Mineral Soils
Markku Yli-Halla∗∗ and Age Nyborg∗
1University of Helsinki, Finland; ∗ Norwegian Forest and Landscape Institute, Norway

P3-531 Converting Legacy Soil Map of Turkey into the World Reference Base (WRB) for Soil Resources - Case Study; Gaziantep, Turkey
Hakki Emrah Erdogan, Mehmet Sahin, Yuksel Sahin and Sebahattin Keskin
General Directorate of Agrarian Reform (GDAR), Turkey

P3-532 Specific Features of Pedogenesis in Thermokarst Depressions (alases) of the Permafrost Zone and the Place of Alas Soils in the World Reference Base for Soil Resources
Roman Desyatkin∗ and A.R. Desyatkin
Institute for Biological Problems of Cryolithzone SBRAS, Russia
WG3: Understanding Acid Sulfate Soils: The Key to Their Proper Management

P3-533 World Distribution of WRB Reference Soil Groups presented on New Educational Poster
Jonathan Gray*, Jozef Deckers, Brian Murphy and Stefaan Dondeyne
NSW Office of Environment and Heritage, Australia

P3-534 Estimates of the Rates and Processes of Development of Texture Profiles in Some Australian Soils - Implications for the Definition of an Agric Horizon
Brian Murphy*
Office of Environment and Heritage, Australia

P3-535 New Qualifier in WRB Based on Brazilian Soils with High Iron Contents
Lucia Helena Anjos*, A. Samuel-Rosa and P. Schad
UFRRJ, Brazil; 1 Federal Rural University of Rio de Janeiro, Brazil; 2 Technische Universitaet Muenchen, Germany

P3-536 Genesis and Variability of Anthrosols in the Campine Area of Belgium
Karen Vancampenhout*, Stefaan Dondeyne, Jan Bastiaens, Tom Coussens and Jozef Deckers
1 University of Leuven, Belgium; 2 Agentschap Voor Onroerend Erfgoed, Belgium; 3 Soil Service of Belgium, Belgium

P3-537 Digging Deeper in Soil Classification: Could Buried Palaeosols be Adequately Represented in the World Reference Base System?
Karen Vancampenhout* and Jozef Deckers
University of Leuven, Belgium

P3-538 Symbols for Diagnostic Horizons: Experience of the Russian Soil Classification System and Proposals for WRB
Nikolay Khitrov* and Maria Gerasimova
V.V.Dokuchaev Soil Science Institute, Russia

P3-539 Application of WRB 2014 (fao) in the Greenhouse Gas Emissions Inventory for the Biennial Report in Land Use and Forestry of Mexico
Carlos Omar Cruz Gaistardo*, Rodrigo Vargas*, Lucio Santos*, Jorge E. Morfin-Rios**, Jose Maria Michel Fuentes**, Gustavo Rodriguez Alcaraz**, Vanessa Maldonado Monto*o and Oswaldo Carrillo Negrete**
1 Instituto Nacional de Estadistica y Geografia, Mexico; 2 University of Delaware, Mexico; 3 United Nations Development Programme–Comision Nacional Forestal, Mexico; 4 Food and Agriculture Organization of the United Nations–Comision Nacional Forestal, Mexico

P3-540 Suggestion For Modification Of The Setting Of Salt Affected Soils In The New WRB Classification Key
Erika Michelli*, Marta Fuchs*, Vince Lang*, Tamas Szegi* and Szabolcs Szabari*
1 Szent Istvan University, Hungary; 2 Government Office for Jasz Nagykun Szolnok County, Hungary

P3-541 Ph and Limitation of Soils on the Dike and on the Drained Pond Bottom of a Fish Pond on an Acid Sulfate Soils in Leyte, Philippines
Arvin Talacay Ricacho*, Aimee Tante Permito* and Faustino Villamayor**
1 Visayas State University Alangangal Campus Alumini, Alangangal, Philippines; 2 Visayas State University, Philippines

P3-542 Correction of Sulfate Soils
Mouhamadou Diop
Soil Science, Saeed, Senegal

P3-543 Response of Aluminium Dissolved in Soil Solution and Drainage Water on the Waterlogging of Cultivated Boreal Acid Sulphate Soils
Seija Virtanen*, Asko Simojoki, Jaana Uusi-Kampja, Peter Osterholm and Markku Yli-Halla
1 University of Helsinki, Finland; 2 MTT Agrifood Research Finland, Finland; 3 Abo Akademi University, Finland

P3-544 Sulphidic Sediments and Acid Sulfate Soils in Sweden
Gustav Solhein*, Nelly Aroka, Hanna Wahlen, Jo Uhlback* and Jan Aberg
Geological Survey of Sweden (SGU), Sweden; 2 County Administrative Board of Vasterbotten, Sweden

P3-545 Some Aspects of Acidification of the Coastal Saline Soils in Poland
Piotr Hulisz, Nikolaus Copernicus University, Poland

P3-546 Geochemical Characteristics of Acid Sulfate Soils in Thailand
Tanabhat Alakorn Sukitprapan*, Anchalee Sudhipramarn*, Irb Kheouruenorne, Somchai Anusontpornerm 1 and Robert J. Gilkes*
1 Kasetsart University, Thailand; 2 University of Western Australia, Australia

P3-547 Management of Sulfide Induced Acidity in Peat Extraction (suhe)
Mirkka Hadzic*, Heini Postila*, Peter Osterholm, Rivta Nilvaara-Koskela, Minna Arola, Miriam Nystrand, Anssi Karppin, Juna Kunnas*, Bjorn Klove* and Raimo Ihme*
1 Finnish Environment Institute (SYKE), Finland; 2 University of Oulu, Finland; 3 Abo Akademi University, Finland; 4 Rovaniem Unitt, Finland

P3-548 Changes in Soil Chemical Properties of an Acid Sulfate Soil in Malaysia with Addition of Calcium Silicate under Submerged Condition
Elsa Azura Azman*, Seishi Ninomiya, Roslan Ismail and Shamsuddin Jusop*
1 University of Tokyo, Japan; 2 Universiti Putra Malaysia, Malaysia

P3-549 Coarse-Grained Low-Sulfur Acid Sulfate Soil Materials in Finland
Anton Boman*, Peter Eden, Peter Osterholm, Jaakko Auri* and Stefan Mattback*
1 Geological Survey of Finland, Finland; 2 Abo Akademi University, Finland

P3-550 Revised Acid Sulfate Soil Mapping Procedures Aand Classification in Finland
Peter Eden*, Anton Boman, Jaakko Auri, Emmi Rankonen, Peter Osterholm*, Markku Yli-Halla and Amelie Beucher*
1 Geological Survey of Finland (GTK), Finland; 2 Abo Akademi University, Finland

P3-551 Evaluation of Laboratory Methods For Determining Lime Requirement of Philippine Acid Upland Soils
Rona Dellontas*, Pearl Sanchez* and Rodrigo Badayos*
1 Philippine Rice Research Institute, Philippines; 2 University of the Philippines Los Banos, Philippines

P3-552 Spatial Modelling Techniques for Acid Sulfate Soil Mapping in Finland
Amelie Beucher*, Peter Osterholm*, Soren Frojdo, Annu Martinkaupp and Peter Eden*
1 Abo Akademi University, Finland; 2 Geological Survey of Finland, Finland

P3-553 Subsurface Chemization of Acid Sulfate Soils - Effects on Water Quality
Peter Osterholm*, Miriam Nystrand, Sten Engblom and Pekka Steri
WG9: Proposals for the Classification of Hydromorphic Soils in the Universal Soil Classification System
Cornie Van Huyssteen*
University of the Free State, South Africa

P3-561
A New Global Soil Regions Map
Paul Reich* and Thomas Reinsch
U.S. Department of Agriculture Natural Resources Conservation Service, USA

P3-562
Diagnostics for the Classification of Tropical Soils
Ben Harms*, Lucia Anjos* and Thomas Reinsch
1 DSITIA, Australia; 2 UFRJ, Brazil; 3 USDA, USA

P3-563
Soil Climate Regimes and the Global Application in Soil Taxonomy
Phillip Owens1, Edwin Winzeler1, Zamir Libohova1 and Michele Duarte De Menezes2
1 Purdue University, USA; 2 United States Department of Agriculture Natural Resources Conservation Service, USA;
3 Universidade Federal Rural do Rio de Janeiro, Brazil

P3-564
Harmonizing Humus-Enriched Soil Groups in Different Soil Classification Systems Using Taxonomic Distance
Alexey Sorokin*, Vince Lang*, Erika Micheli†, Phillip Owens*, Jonathan Hempel* and Pavel Krasilnikov
1 Lomonosov Moscow State University, Russia; 2 Szent Istvan University, Hungary; 3 Purdue University, USA;
4 USDA-NRCS, USA

WG10: Cryosols on a Changing Planet: Properties, Processes, Regimes and Functions
Soil Art
Featured artist: Betty Beier, Earth Print Archive, Germany, www.erschollenarchive.de

P3-565
Organic Carbon and Nitrogen Storages in Permafrost-Affected Soils of Yedoma-Underlain Areas of the Lena River Delta
Sebastian Zubrzycki*, Lars Kutzbach1, Anne Morgenstern2, Guido Grosse3 and Eva-Maria Pfeiffer1
1 Universitaet Hamburg, Germany; 2 Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Germany

P3-566
Mineralogical “portraits” of Cryosols of Different Climates from Northern Eurasia
Sofia Lessovaia* and Sergey Goryachkin2
1 St-Petersburg State University, Russia; 2 Russian Academy of Sciences, Russia

P3-567
Toposequence of Salt-Affected Soils from Northern Part of Seymour (marambio) Island, Antarctica
Carlos Schaefer, Davi Gjorup, Felipe Simas and Katia Kero-line Delpupo Souza
Federal University of Vicsa, Brazil

P3-568
Impacts of Human Activity on Antarctic Soils: A Review
Megan Balks*, Tanya O’neill and Jackie Asibalie2
1 University of Waikato, New Zealand; 2 Landcare Research Ltd, New Zealand

P3-569
Transformations of Cryolithozone Soil Cover under the Influence of Natural and Anthropogenic Factors
Roman Desyatkin*
Institute for Biological Problems of Cryolithozone SBRAS, Russia

P3-570
Soils Thermal Regime in Sporadic Permafrost Areas (Russia, Western Siberia)
Anna Bobrik*, Olga Goncharova and George Matyshak
Lomonosov Moscow State University, Russia

P3-571
Humus Specificity of Shimaher Oasis Soils (East Antarctica)
Maria Dergacheva1 Dmitriev Fedorov-Davydov1 and Elia Zazovskaya
1 The Russian Academy of Sciences, Russia; 2 Institute of Geography RAS, Russia

P3-572
Cryogenic Transformation of Soil Solutions and the Formation of Salt Profiles in Solonchaks of Mongolia: Modeling Results and Interpretation
Nadezhda Kiyashko, Ilya Komarov and Dmitrii Golovanov
Lomonosov Moscow State University, Russia

P3-573
Influence of Cryogenesis on Peatland Soils in the North of Western Siberia: Bare Peat Spots, Features and Functioning
Ogneva Olga* and Matyshak George
Lomonosov Moscow State University, Russia

P3-574
Soilscapes at the Volcanic Rocks of Lions Rump, Maritime Antarctica
Carlos Schaefer†, Ivan Carreiro Almeida† and Raphael Alves Fernandes1
1 Federal University of Vicsa, Brazil; 2 Federal Institute- Januaria, MG, Brazil

P3-575
Biological Productivity of Some Natural Ecosystem Soils of Yamal Forest-Tundra
Tatiana Radelchenko, Olga Nekrasova, Victor Valdayskikh and Anton Uchaev
Ural Federal University, Russia
WG12: Unique Contributions of Hydropedology to Integrated Soil and Water Sciences

P3-576 Soils and Landscapes on Quartzite and Associated Drift at the Heritage Range, Ellsworth Mts, Continental Antarctica
Carlos Schaefer, Ulisses Bremer, Karoline Delpupou Souza, Eduardo Senral and James Bockheim
1 Federal University of Vicsosa, Brazil; 2 Federal University of Rio Grande do Sul, Brazil; 3 University of Wisconsin-Madison, USA

P3-577 Soil Temperature Regime of Taiga-Altas Landscapes in Central Yakutia
Alexey Desyatkin*
Institute for Biological Problems of Cryolithzone SB RAS, Russia

P3-578 Optimal Soil Moisture Monitoring Design Based on Hierarchical Cluster and Temporal Stability Analyses
Qing Zhu*, Kiahua Liao and Fei Xu
Chinese Academy of Sciences, China

P3-579 Flood and Dikes Spatial and Temporal Changes Delineation Affecting Rice Soil Ecosystems in the Lower Mekong Using Modis Satellite Images
Vo Quang Minh* and Cao Quoc Dat
Can Tho University, Viet Nam

P3-580 Uncertainty Analysis in Near-Surface Soil Moisture Estimation at Two Typical Hillslopes in Taihu Lake Basin, China
Kaihua Liao, Qing Zhu* and Fei Xu
Chinese Academy of Sciences, China

P3-581 Nonchemical Water Treatment in Water Treatment
Nemat Mamedov, G. Garibov, Sh. Alekberov, A. Sariyev and Chingiz Gulaliyev*
1 Baku State University, Azerbaijan; 2 Institute of Geography of National Academy of Science of the Azerbaijan, Azerbaijan

P3-582 Evaluation of Soil Water Retention PTFS for Tropical Mekong Delta Soils
Minh Phuong Nguyen*, Khoa Le Van*, Yves-Dady Botula*, Linh Tran Ba and Wim Cornelis*
1 Ghent University, Belgium; 2 Can Tho University, Viet Nam

P3-583 Spatio-Temporal Variability and Temporal Stability of Profile Soil Moisture at a Hillslope Scale
Lei Gao, Xinhua Peng and Hu Zhou
Chinese Academy of Sciences, China

P3-584 Effects of Initial Aquifer Thickness and Extent of Water Application on Propagation of Water Pressure along Shallow Groundwater in a Simple Slope
Takuei Yamasaki*, Hiromi Imoto and Taku Nishimura
The University of Tokyo, Japan

P3-585 Soil Organic Matter Controls of Soil Hydrological Functions in an Alpine Ecosystem in the Qinghai-Tibet Plateau
Fei Yang, Gan-Lin Zhang*, Jin-Ling Yang and Min Yang
University of the Chinese Academy of Sciences, China

P3-586 PGIS Tool for Erosion Susceptibility and Soil Conservation Planning in a Watershed of Nepal
Krishna Prasad Bhandari* and Prem Sagar Bhandari*
1 Western Region Campus, Tribhuvan University, Nepal; 2 Birendra Multiple Campus, Tribhuvan University, Nepal

P3-587 Developing Pedotransfer Functions to Simulate Wetting and Drying Branch of Soil Water Characteristic Curve
Mohammad Reza Neysabouri* and Roya Tolutee
University of Tabriz, Iran

P3-588 Survey and Mapping of Soil Moisture in Northeast Thailand
Sumittra Watana*, Yoopayow Susajun, Saranya Norkeaw, Aniruth Pothichan and Somsaik Sukhan
Office of Soil Survey and Soil Resources Research, Thailand

P3-589 Relationship between Stream Water and Groundwater Using Time Series Analysis in the Lower Nancondong River Basin, South Korea
Yun-Yeong Oh*, Se-Yeong Hammi*, Gyoo-Bum Kim*, Chung-Mo Lee*, Hong-Il Kwon*, Yeon-Woo Choo* and Ming Liang Wei*1 Pusan National University, Korea; 2 Korea Water Resources Corporation, Korea; 3 Korea Rural Community Corporation, Korea

Poster Session 4 (P4) June 13 (FRI)

C2.2-3: Behavior and Fate of Pollutants Entering the Soil Environment

P4-1 Chemical Properties of Tsunami Sediment and Risk Assessment of Heavy Metals by the Great East Japan Earthquake of March 2011
Yoshishige Kawabe*, Junko Haru, Tetsuo Yasutaka, Yasuhide Sakamoto, Ming Zhang and Takeshi Komai
1 Aist, Japan; 2 Tohoku University, Japan

P4-2 Assessing Risk of Heavy Metals from Human Activity on Rural Soils: A Case Study
Nuria Roca* and Noelia Ramos
Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina

P4-3 Effect of Conjoint Application of Sewage Sludge and Fertilizers on Trace Metals Accumulation in Plant and Soil under Rice Cultivation
Satish Kumar Singh* and Ashish Lalare
Banaras Hindu University, India

P4-4 Effect of Fe(ii)/Cu(ii) Interaction on Reductive Transformation of Pollutants and Copper Aging Enhancement
Liang Tao* and Fang-Bai Li
Guangdong Institute of Eco-environmental and Soil Sciences, China

P4-5 (Moved to O69-8) Uptake of Pharmaceuticals by Soil Minerals
Zhaohui Li*, Wei-Teh Jiang* and Guocheng Lv
1 University of Wisconsin - Parkside, USA; 2 National Cheng Kung University, Taiwan; 3 China University of Geosciences, China

P4-6 Fate of Munitions Constituents in the Environment by the Influence of the Cesium Charge Sites in Soils Rosalina Gonzalez, Herb Allen and Dominic Di Toro
University of Delaware, La Salle University, USA

P4-7 The Bean (Phaseolus Vulgaris L.) Rhizospheric Effect on the Desorption Kinetics of Zinc in Sewage Sludge Amended Soils
Hamidreza Motaghi* and Alireza Hosseinpour
1 Shahrekord University, Iran; 2 Soil science, Iran

P4-8 Cadmium Contents of Soils and Cocoa Beans from Ghana Kwasi Ofori-Frimpong
Ghana Cocoa Board, Ghana

JUNE 13 (FRI)
Arsenic Immobilization in Soil Using Iron-Based Amendments; Process Optimization by Response Surface Methodology
Adel Rehaymanlabor, Elham Naseri and Shahin Oustan
University of Tabriz, Iran

Environmental Fate of Fluoride Applied to Soil and Plants
J. Bernhard Wehr9, Lisa Scholz1, Peter M. Kopittke1, F. Pax C. Blamey1, Ya-Feng Zhou2, David C. Macfarlane3, Scott A. Dalziel4 and Neal W. Menzies5
1 The University of Queensland, Australia
2 Santos Ltd, Australia

Zonation of Heavy Metals (CD, PB, NI, ZN, FE, MN and CU) in Arable Land of the Alborz Dam Downstream Basin-Iran
Ali Cherati6, Benafshe Sarafl7 and Behnoosh Jafar8
1 Soil and Water Research Institute -IRAN, Iran; 2 Former Student of Islamic Azad Univ. (Science and Research Branch) -IRAN, Iran; 3 Mazandaran Agricultural Research Center - IRAN, Iran

Approaches to Revealing Relationships between the Heavy Metals Sorption and the Formation of Their Compounds in Soils
Tatiana Minkina9, Saglara Mandzhieva1, Galina Motuzova2, David Pirskii2 and Tatiana Bauer1
1 Southern Federal University, Russia; 2 Moscow State University, Russia; 3 Chemical and Biological Problems of Soil Science RAS, Russia

Inhibitory Effect of Silver Nanoparticles on Ryegrass Growth and Soil Enzyme Activity
Chengliang Li1, Yanli Liu and Min Zhang
Agricultural University, China

Sorption of Heavy Metals, Pb (ii), Cu (ii), ZN (ii), and Ni (ii) on Pine Bark Based Composts
Elias Gichangi1, PN S Mkeni and P Muchaonyerwa
Kenya Agricultural Research Institute, Kenya

Plant-Soil Interactions as Promoter for Increased Soil Function, Structure and Diversity in a Crude Oil Polluted Agricultural Field
Eucharha Nwaichi1, Magdalena Frac2, Eugene Onyeike3 and Ngozi Amadi4
1 University of Port Harcourt, Nigeria; 2 Institute of Agrophysics Lublin, Poland; 3 University of Port Harcourt, Poland; 4 University of Port Harcourt, Nigeria

The Assessment of Arsenic Availability in Soils Using the In-Situ Diffusion Gradients in Thin Films Technique (dgt) - A Comparison Study of Dgt and the Typical Extraction Methods
Jinjin Wang1, Lingyu Bai, Xibai Zeng2, Shiming Su, Ran Duan and Yuanyuan Sun
Chinese Academy of Agricultural Sciences, China

Polycyclic Aromatic Hydrocarbons in Post-Pyrogenic Soils of Drained Peatlands (Moscow Region, Russia)
Anna Tisbat1, Alexander Gennadiev and Timur Koshovskii
Moscow State University, Russia

The Bean (Phaseolus Vulgaris L) Rhizospheric Effect on the Desorption Kinetics of Copper Using Dtpa in Amended Soils with Sewage Sludge
Aileza Hosseinpur and Hamidezra Motaghi
Shahrekord University, Iran

Btx Analysis Using a Headspace Gc-Ms In Soil and the Germination and Radicle Growth Inhibition by Btx
Sungjin Lim, Jinhyo Kim, Geunhyoung Choi, Yubin Kwon, Namjune Cho and Byungjun Park

Rural Development Administration, Korea

Adsorption of Anionic Surfactant on Silica
Pengxiang Li* and Munehide Ishiguro
Hokkaido University, Japan

Chemical Interaction and Control of Antibiotic Tylosin in Soil/Sediment Systems
Jim Wang5, Louisiana State University, USA

Adsorption of PB(ii) on Goethite-Bacteria-Humic Acid Composites
Ke Dai*, Huazhong Agricultural University, China

Mercury Bioavailability as Affected by Organic Ligand in Aqueous Environment
Xianghua Xu1, Wenjuan Shi2, Tony Zhuang3, Tingting Xu4, Steven Ripp5, Fumin Menn6, Alice Layton7, Jie Zhuang8 and Gary Sayler9
1 Nanjing University of Information Science and Technology, China; 2 Xi’an University of Technology, China; 3 Rice University, USA; 4 The University of Tennessee, USA; 5 Chinese Academy of Sciences, China

Identification of Arsenic Speciation and Accumulated Organic Species in Different Environment of Organic Sedimentation
Junko Hara1, Susumu Noreta2, Yasuyuki Kakhira3, Yoshisige Kawabe1 and Ming Zhang4
1 National Institute of Advanced Industrial Science and Technology, Japan; 2 Geological Survey of Hokkaido, Japan; 3 National Institute of Advanced Industrial Science and Technology, Japan

Predicting Mineral Nitrogen Leaching Behavior of Soil Using Electrical Conductivity in Leachate Water Samples
Keshav Raj Adhikari1* and Zueng-Sang Chen2
1 Tribhuvan University, Nepal; 2 National Taiwan University, Taiwan

Spatialization of Pollution by Trace Metals in Urban Soils of Gounti Yena Valley, Niamey, Niger
Abdourahamane Tankari Dan-Badjo1, Yadji Guero2, Nomaou Dan Lamos2, Ibrahim Ousseni Zakaria3, Cyril Feidt4, Guillaume Echevarria Echevarria5 and Thibault Sterckeman6
1 Universite Abdou Moumouni de Niamey, BP, Niger; 2 Universite de Lorraine, INRA, France

Adosorption of Selected Pharmaceuticals in Representative Soils of the Czech Republic Radka Kodesova1, Martin Kocarek1, Ales Klement1, Miroslav Fer2, Oksana Golovko3 and Roman Grabic4
1 Czech University of Life Sciences Prague, Czech Republic; 2 University of South Bohemia in Ceske Budejovice, Czech Republic

Spectroscopic and Chemical Speciation of Chromium in Contaminated Paddy Soils
Liang-Ching Hsu1, Yu-Min Tsou2, Yu-Ting Liu3* and Chiung-Fen Chang4
1 National Chung-Hsing University, Taiwan; 2 Tunghai University, Taiwan

Bioavailability of Heavy Metal Compounds in the Soils Contaminated by Emissions from the Power Station
Saglara Mandzhieva1, Tatiana Minkina, Victor Chapligyn and Marina Baruchevskaya
Southern Federal University, Russia

Sorption Behavior of Bisphenol S (4,4'-Sulfonyldi-phenol) on Agricultural Soils
Younejong Choi and Linda S. Lee*, Purdue University, USA
Batch and Column Methods Comparison on Sorption and Desorption of Zinc in a Sandy Soil
Habib Ramazanzadeh, Shahin Oustan, Mohammad Reza Neyshabouri and Adel Reyhanitabar*
University of Tabriz, Iran

Effect of Temperature and Sewage Sludge on Macro and Micro Nutrient Availability in Different Soils of India
Pramod Sharma
Institute of Agricultural Sciences Banaras Hindu University, India

Mobility of Cu and Co in Metalliferous Ecosystems of Katanga: Comparison of Soil Profiles And Experimental Results
Donato Kaya Muyumba1, Olivier Pouret1, Gregory Mahy2, Michel N’gongo* and Gilles Colinet1
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Kinetics of Arsenic Oxidation by Manganese Oxide Minerals: The Influence of Origin and Structure on Reactivity
Matthew Fischel1, Jason Fischel1, Brandon Lafferty* and Donald Sparks1
1 University of Delaware, USA; 2 United States Army Corps of Engineers, USA

Evaluation of Heavy Metals Concentration in Shoormast Lake
Nazanin Khakipour* and Ehsan Badri
Islamic Azad University, Iran

Effects of Halogenation and Nitrogen(n)-Heterocyclic Aromatics on Estimating the Persistence of Future Pharmaceutical Compounds in the Sub-Surface
Seung Lim*
Korea Atomic Energy Research Institute, Korea

Plant Toxicity and Uptake of Rdx and TNT by Sweet Sagewort (Artemisia Annua)
Hannah Oh, Nurolik Rosikin and Won Sik Shin*
Kyungpook National University, Korea

Optimizing Concentrations of Hemoglobin and Hydrogen Peroxide for Remediation of Benzo(a)pyrene (b[a]p) Contaminated Soils
Hyein Keum, Kapsong Park, Jeffrey S Owen and Gugyong Kang*
Hankuk University of Foreign Studies, Korea

Leaching of Metallic Elements from Abandoned Mine Soils Depending on Various Flow Conditions
Juhee Kim* and Seunghun Hyun
Korea University, Korea

Role of Recycled Water Sources in the (im)mobilization and Bioavailability of Copper in Soils
Anitha Kunhikrishnan*, Nanthi Bolan1, Ravi Naru1 and Won-il Kim
1 National Academy of Agricultural Science, Korea; * University of South Australia, Australia; 4 Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, Australia

Enhanced Bioavailability of Hexabromocyclododecane (HBCD) Diastereoisomers to Plants by Humic Acids
Min-Hu Son, Jae-Hwan Kim, Hak-Won Yoon and Yoon-Seok Chang*
POSTECH, Korea

Effect of Liming on Chemical Speciation of Phosphorus in a Deforested Soil
Ji-Suk Park and Hye-Myong Ro*
Seoul National University, Korea

Establishment of Efficient Sample Pre-Treatment Method for the Analysis of Pesticide Residue in the Soil Using with Hplc-Ms/ims
Ji Hyeong Kwon1, Taek-Kyum Kim2, Su Myung Hong1, Ki Seong Kyung3, Dae Young Jang1, Eun Kyung Seo1 and Hye Young Kwon3
1 NAAS, RDA, Korea; 2 Chungbuk National University, Korea

Changes in Gene Expression under the Controlled Exposure on Soil Nematode Caenorhabditis Elegans
Ji-Young Roh and Jung-Hwan Kwon*
Korea University, Korea

Assessment on the Content of Cu and Zn in Citrus Orchard Soils in Jeju of Korea
Ho-Jun Kang*, Sang-Ho Yang, Yu-Kyoung Kim, Shin-Chan Lee, Bong-Chan Kim and Sang-Soon Lee
Jeju Special Self-governing Province Agricultural Research and Extension Services, Korea

Effect of Various Stabilization Additives on the Cationic and Anionic Metal Stabilization in Contaminated Soils
Jae E. Yang*, Seung Min Oh*, Rog-Young Kim2, Se Jin Oh*, Sung Wook Moon* and Jong-Hoon Kim1
1 Kangwon National University, Korea; 2 Chungnam National University, Korea; 3 Korea Mine Reclamation Corporation(MIRECO), Korea; 4 Dongguk University, Korea

Efficiency of Stabilization Methods Applied to Paddy Soil for Stabilization Cadmium in Soil and Crop Safety
Jae E. Yang*, Se Jin Oh*, Sung Chul Kim*, Yong Sik Ok*, Jin Soo Lee* and Su-Jung Kim1
1 Kangwon National University, Korea; 2 Chungnam National University, Korea; 3 Korea Mine Reclamation Corporation(MIRECO), Korea; 4 Dongguk University, Korea

Phytoaccumulation of Veterinary Antibiotics with Varied Cultivation Condition
Sae Byul Park, Yong-Gyu Hong, Sun Ju Kim and Sung Chul Kim*
Chungnam National University, Korea

Soil Toxicity of Titanium Dioxide Nanoparticles and Arsenic in the Nematode Caenorhabditis Elegans
Jinhee Choi, Dong-Young Lim and Jae-Sung Jung
University of Seoul, Korea

Roles of Minerals as Suppliers and Regulators of Plant Nutrients

Clay Mineral Transformation Controlling the Availability of Cr and Ni in Paddy Soils
Zeng Ye* Hsu1, Franz Zehntner* and Franz Ottner2
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Bio-Based Polymer Composites Derived from Corn Stover and Feather Meals as Double-Coating Materials for Controlled-Release and Water-Retention Urea Fertilizers
Yuechao Yang*, Zhaohui Tong*, Yuncong Li*, Yuqiong Geng* and Min Zhang1
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Phosphorus Speciation in Poultry Litter during the Composting Process Determined by P K-Edge Xanes, 31p-NMR and Sequential Fractionation
P4-76 Change in Availability Of Phosphorus, Cadmium and Zinc Applied in Monoammonium Phosphate after Termination of Fertilizer Application
Cynthia Grant, *Ahmad Raza Sheik Hosseini*, Don Flassen, Olalekan Akinnremi, Olwatoyo Janbola, and Suhdev Malhi
Agriculture and Agri-Food Canada, Canada; 2 University of Manitoba, Canada

P4-77 Evaluation of Integrated Use of Sewage Sludge and Fym with Chemical Fertilizers on Yield and Quality of Carrot (Daucus Carota)-Bhendi (Abelmoschus Esculentus) Cropping System
Kalvakuntla Jeevanrao* and Shilaja V
ANGRAgricultural University, India

P4-78 Arsenic and Cadmium Bioavailability to Rice Correlated with Silica Speciation in Paddy Soil
Shrong Zhang, Chuanping Liu, Xianghua Xu and Fangbai Li* Guangdong Institute of Eco-Environmental and Soil Sciences, China

P4-79 The Relationship between Plant Growth and Nutrients
Peter Ghaali* and Paul Barumbingirire*
1 Support Needy Lovely Centre, Uganda; 2 Save the Marginalized, Uganda

P4-80 Redox-Related Role of Mineral Oxides on Zn Solubility Dynamics in Flooded Rice Soils
Michelle Anne Bunquin, Susan Tandy, Rainer Schulin, Alamgir Hossain, Francis Rubianes, and Sarah Johnson-Beebout
1 International Rice Research Institute, Philippines; 2 Institute for Terrestrial Ecosystems, Switzerland; 3 Bangladesh Rice Research Institute, Bangladesh

P4-81 Investigation of Potassium Distribution in Agricultural Soils by Combination of Micro X-Ray Fluorescence and X-Ray Absorption Near-Edge Spectroscopy (xanes) Full-Field Imaging
Camille Rivard*, Bruno Lanson, Barbara Fayerd, Emeline Pouyet, and Marine Cotte
1 European Synchrotron Radiation Facility, France; 2 Université Grenoble Alpes - CNRS, France; 3 Université Paris-Sud, France

P4-82 Effects of Active Aluminium and Iron on Phosphate Extractability with Special Reference to Soil Micro- and Meso-Pores
Tetsuhiro Watanabe*; Emiko Hase, Shinya Funakawa, and Takashi Kosaki
1 Kyoto University, Japan; 2 Tokyo Metropolitan University, Japan

P4-83 Stable Cesium Uptake by Rice Plant with Different Amendments under Flooded and Temporal Upland Condition
Shun Nishiyama, Masanori Okazaki*, Koyo Yonebayashi and Tomoe Nishi
Ishikawa Prefectural University, Japan

P4-84 Remineralization, Remediation and Recovery: A New Route for Sustainability
Suzi Theodoro, Othon Leonardis, Daniel Carneiro, and Fernanda Medeiros
1 University of Brasilia, Brazil; 2 IPoEMA, Brazil

P4-85 The Diversity of Plants in Subalpine Meadows of Wugong Mountain in Jiangxi Province of China
Zhi Li, Wenyuan Zhang, Dekui Ni*, Xiaomin Guo*, Xia Gong, Xiaohua Wei, Weiping Qian, and Huiwu Peng
Jiangxi Agricultural University, China; 2 University of British Columbia (Okayagan campus), Canada; 3 Pingxing Forestry Science Institute, China

P4-86 Chemical and Mineralogical Characteristics of the Wonosegoro Clays Java Island Indonesia
Mohammad Nurcholis and Aris Buntu
Universitas Pembangunan Nasional ‘Veteran’ Yogyakarta, Indonesia

P4-87 Organic Inputs and Mineral Fertilizer Effects on Soil Chemical Properties, and Maize Productivity in Mbeere District, Kenya
Mucheru-Muna MW, Ngetich F*, Mugendi DN*, Mugwe JN, Franklin Mairura*, Vanlauwe B*, Jan Diels* and Merckx R*
Kenyatta University, Kenya; 2 Embu University College, Kenya; 3 Institute of CIAT, Kenya; 4 International Institute for Tropical Agriculture, Kenya; 5 K.U. Leuven, Kenya

P4-88 Proximate, Mineral and Vitamins
Ngwu O.E.* and Ikenwuba P.C.
Enugu State University of Science and Technology, Nigeria

P4-89 Effects of the Applications of the Clay Minerals on the Early Growth of Red Pepper in the Horticultural Bed Soil
Keun Yook Chung*, Ji-Joung Kim, Sun-Hee Woo, Moon-Soon Lee, Deok-Hyeon Kim, Dong-Gi Lee, Jong-Soon Choi, and Ju-Hyun Nam
1 Chungbuk National University, Korea; 2 Korea Basic Science Institute, Korea

P4-90 Effects of the Additions of Clay Minerals Illite and Zeolite as Inorganic Materials on the Growth of Chinese Cabbage in Horticultural Bed Soil
Deok-Hyeon Kim, Jong In Kim, Da Hee Sin, Sang-Moon Kwon, Hee-Kee Cho, Moon-Soon Lee, Sun-Hee Woo, Keun Yook Chung* and Ji-Joung Kim
1 Chungbuk National University, Korea; 2 YongKyung Media Company, Korea

P4-91 Mineralogical Characterization of Tremolite Asbestos-Containing Soils of S. Korea
Hoju Lim*, Dong Jin Kim, Chae Hyung Lee* and Yul Roh
1 Wonju Regional Environmental Office, Korea; 2 Chonnam National University, Korea

C2.5-1: Advances in Techniques to Investigate Chemical, Physical and Biological Interfaces in Soils

Soil Art
Featured artist: Laura Parker, Taste of Place, Laura Parker Studio, USA, www.lauraparkerstudio.com

P4-92 Effect of Long-Term Spentwash Application on Soil Physical, Chemical and Biological Properties
Vittal Kuligod*, Rubeena C. M. and Mahamedali Doddamanari
University of Agricultural Sciences Dharwad, India

P4-93 Influence of Long Term Fertilization on the Evolution of Soil Organic Matter Evaluated by Mid-Infrared Photoacoustic Spectroscopy
Du Changwen*, Zhau Jianmin and Keith Goyne
1 Institute of Soil Science Chinese Academy of Sciences, China; 2 University of Missouri, USA

P4-94 Advances in Techniques to Study the Influence of Earthworms on Soil Structure
Nickolas Bottinelli, Pascal Jouquet*, Ivan Capovoliez* and Xinhua Peng
CAS, China; 2 Indian Institute of Science, India; 3 INRA, France
P4-95 Characterization of Ethyl Acetate Extract of Neurospora Crassa Using Gas Chromatography-Mass Spectrometer Adewole Ezekiel* 1 and Lajide L. 1 1Afe Babalola University, Ado-Ekiti (Abuad), Nigeria; 2Federal University of Technology, Nigeria

P4-96 The Fe Uptake Mechanisms of Paddy Rice in Different Concentrations of Fe(iii) and Fe(II) Hydroponic Solutions Chuan-Fu Kao, Zsin-Fang Chang, Der-Chuen Lee, Jang-Hung Huang* and Shan-Li Wang 1 1National Chung Hsing University, Taiwan; 2National Taiwan University, Taiwan; 3Institute of Earth Sciences, Academia Sinica, Taiwan

P4-97 Electrochemical Analytical Method for Determination of Available Cadmium in Soil with Screen-Printed Carbon Electrodes Chang Jie Cheng and Shan-Li Wang* National Taiwan University, Taiwan

P4-98 The Use of Soil Thin Sections for the Study of Organic Matter Stabilisation Clare Wilson* 1, Gloria Falsone 2, Joanna Cloy 3, Kate Smith 4, Margaret Graham 5 and Eleonora Bonifacio 6 1University of Stirling, United Kingdom; 2Università di Bologna, Italy; 3SRUC, United Kingdom; 4ADAS UK Ltd, United Kingdom; 5University of Edinburgh, United Kingdom; 6Università degli studi di Torino, Italy

P4-99 Soil Olsen-P Accumulation Models and Prediction Estimation of Soil Olsen-P Accumulation by Models in China Jumei Li, Yibing Ma* and Bin Wang 1 1Chinese Academy of Agricultural Sciences, China; 2Xinjiang Academy of Agricultural Sciences, China

P4-100 Chemical Compositions of Iron Plaque and Root Exudates of Different Rice Cultivars Grown in Fe(iii) and Fe(iii) Hydroponic Solutions Zin-Fang Chang, Chun-Hui Yu, Der-Chuen Lee, Yen-Fang Song, Jyh-Fu Lee and Shan-Li Wang* 1National Taiwan University, Taiwan; 2Institute of Earth Science, Academia Sinica, Taiwan; 3National Synchrotron Radiation Research Center, Taiwan

P4-101 Time Course Analysis of Fe Uptake and Translocation in Rice Plants Chun-Hui Yu, Kuo-Chen Yeh* and Shan-Li Wang 1 1National Taiwan University, Taiwan; 2Agricultural Biotechnology Research Center, Academia Sinica, Taiwan

P4-102 Investigation of the New Soil Substrates for Cultivation Legume-Rhizobia Symbiosis under Simulated and Real Microgravity Arsen Viter* MMGryshko National Botanical Garden of N.A.S. of Ukraine, Ukraine

P4-103 The Role of Total and Active Calcium Carbonate Equivalent in Availability of Some Soil Micronutrients Ahmad Heidari* University of Tehran, Iran

P4-104 The Effect of Incremental Acidification on the Solubility of Phosphorus in Alkaline Vertisols Karl Andersson* 1, Matt Tighe, Chris Guppy, Paul Milham 2 and Tim McLaren 3 1University of New England, Australia; 2University of Western Sydney, Australia; 3The University of Adelaide, Australia

P4-105 Coupling Arsenic Mineralogy to Seasonal Arsenic Mobilization in Groundwater in Southwest Taiwan Yi Lin, Chun-Chi Lee and Shan-Li Wang* National Taiwan University, Taiwan

P4-106 Fog li - A New Innovative Portable Instrument for the Total Calcium Carbonate Soil Testing Pantelis Barouchas* Technological Educational Institute of Western Greece (TEIWG), Greece

P4-107 Predicting Soil Lime Requirements Using Agro-Informatics Practices Pantelis Barouchas*, Ioannis Tzimas,Aglaia Liopa-Tsakali-dis, Nikolaos Malafos and Ioannis Tsirogianis 1 1Technological Educational Institute of Western Greece, Greece; 2Technological Educational Institute of Epirus, Greece

P4-108 The Role of Particle Shape and Texture in Amplifying Hydrophobic Behavior at the Soil-Water Interface Sujung Ahn*, Sujin Song, Chul-Ho Kang, Eun-Joo Jung, Hyeong-Seob Lee and Youngsu Min* 1Kangwon National University, South Korea; 2Institute of Applied Bio-Resources, Pohang University of Science and Technology, South Korea; 3Korea Institute of Geoscience and Mineral Resources, South Korea; 4Institute of Agriculture and Resources of Land and Water, South Korea; 5Institute of Applied Bio-Resources, Pohang University of Science and Technology, South Korea

P4-109 Nutrient Expert® - A Nutrient Management Decision Support Tool For Smallholder Cereal Farmers of South Asia Kaushik Majumdar* 1, Sudarshan Dutta, Satyajit Venkateswaran, Sondhi Shahi, Manish Pantelis Barouchas* and Leandro Rodriguez Sponza 1 1International Plant Nutrition Institute, India; 2International Plant Nutrition Institute, Malaysia; 3International Maize and Wheat Improvement Center, India; 4International Plant Nutrition Institute, Canada

P4-110 Soil Attributes and Arboreous Vegetation Characterization in the Biological Reserve of Pendorama, Sao Paulo State, Brazil Maria Teresa Vilela Nogueira Abdó, 1 Sergio Valiengo Valeri, 1 Antonio Sergio Ferraudo, 1 Sidney Rosa Vieira, 1 Antonio Lucio Mello Martins 1 and Leandro Rodrigo Sponti 1 1APTA-UNICAMP, Brazil; 2FCAV-UNESP, Brazil; 3IAC, APTA, Brazil

P4-111 Which Vineyard Practices in Order to Assist Sustainable Champagne. Results from the Vitiecobi- sol Programme, a Long Term Study (25 Years) Daniel Cluzeau, Remi Chaussoz, 1 Rachida Nouam, 1 Olivier Garcia, 1 Cedric Georget, 1 Laurent Panigai, 1 Arnaud Descotes 1 and Guenola Peres 2* 1Université Rennes 1 UMR CNRS EcoBio, France; 2INRA Dijon, France; 3Comité Interprofessionnel des Vins de Champagne (CIVC), France; 4INRA Agrocampus Ouest UMR SAS, France

P4-112 Research on Magnetic Field Strength of Electromagnetic Soil Conductivity Meter and Correlation Coefficient Between Electromagnetic Response and Soil Analysis Value on Main Claimed Land Polder Soil Janghee Lee, Jaeheuk Jeong, Sun Kim, Weonyoung Choi and Kyeongbo Lee Rural Development Administration, Korea

P4-113 Pyrosequencing-Based Assessment of the Bacterial Community Structure along Different Crops in Upland Fields Young Han Lee*, Han-Yeon Weon, 1 Seong-Tae Lee, 2 Kwang-Pyo Hong, 2 Sang-Dae Lee and Hyun-Yul Shin 1 1Gyeongsangnam-do Agricultural Research and Extension Service, Korea; 2Rural Development Administration, Korea

P4-114 Long-Term Monitoring of Chemical Properties from Upland Soils in Gyeongnam Province Young Han Lee*, Seong-Soo Kang, 1 Seong-Tae Lee, 1 Kwang-Pyo Hong, 1 Sang-Dae Lee and Hyun-Yul Shin 1
Biomarker Discovery Using Seldi-T of Ms In Environmental Nanotoxicology
Eun Sil Park and Sung Eun Lee*
Kyungpook National University, Korea; * Rural Development Administration, Korea

A Rapid Bio-Assay Technique for Phytotoxicity Assessment Using Photophenomics and Rhizospheric Imaging
Sung Yung Yoo, So Hyun Park, Tae Seok Ko, A Ram Kim, Kyong Mi Choi and Tae Wan Kim*
Hankyong National University, Korea; * Rural Development Administration, Korea

Photochemical Assessment of Rice (oryza Sativa L.) Seedlings Grown under Abiotic Stresses Using Photophenomics Technique
Sung Yung Yoo, June Young Park, Su Min Hwang, Min Ju Lee, So Hyun Park, Yong Ho Lee, Godfrey Njuguna Kagia and Tae Wan Kim*
Hankyong National University, Korea

How do Interactions with Organo-Mineral Surfaces Alter the Dynamics and Properties of Microbes and Macromolecules in Soil?

Role of Surface Reactivity in Kinetics of Soil Chemical Process
Camila Edelwiny* and A. M. Zaghloul
National Research Centre, Egypt

Dependence of the Electron Transfer Capacity on the Kinetics of Quinone-Mediated Fe(III) Reduction by Iron/humic Reducing Bacteria
Tongxu Liu, Xiaomin Li and Fangbai Li*
Guangdong Institute of Eco-Environmental and Soil Sciences, China

Iron Cycles Link with Arsenic Availability in Rice for Food Safety from South China
Fang Bai Li*, Chuan-Ping Liu and Min Hu
Guangdong Institute of Eco-Environmental and Soil Sciences, China

Soils as Interfacial, Low Entropy Systems with Resilience Based on Maximum Entropy Production
Bruce James* and Winfried Blum*
1 University of Maryland, USA; 2 University of Natural Resources and Life Sciences (BOKU), Austria

Effect of Some “live” and “mixed Dry Organic” Mulches on Selected Soil Physical and Chemical Properties and Yields of Two Coccoyam (xanthosoma Sagittifolium (L.) Schott) Cultivars in Akwa Ibom State, N Uche Amalu and Peter Usua*
1 University of Calabar, Nigeria; 2 University of Uyo, Nigeria

Toposequence for Distribution and Transformation of Phosphorus Fractions in Humid Subalpine Forests Shih-Hao Jien, Yue-Ming Chen*, Chih-Chieh Hu*, Tsai-Huei Chen* and Chih-Yu Chiu*
1 National Pingtung University of Science and Technology, Taiwan; 2 Biodiversity Research Center, Academia Sinica, Taiwan; 3 National Taiwan University, Taiwan; 4 Taiwan Forestry Research Institute, Taiwan

Modified Bentonite Assisted Bioremediation of Pahs in Mixed Contaminated Condition: Micrrobial Viability and Biodegradation of Phenanthrene Bhabarandana Biswas*, Binoy Sarkar*, Asit Mandal* and Ravi Naidu*
1 University of South Australia, Mawson Lakes Campus, Australia; 2 Indian Institute of Soil Science, India

Influences of Soil Active Particles on Bacterial Activities
Huayong Wu, Wenli Chen, Peng Cai, Xingmin Rong, Ke Dai and Qiaoqyun Huang*
Huazhong Agricultural University, China

Adhesion to Kaolinite and Goethite of Pseudomonas Putida at Different Growth Phases
Huayong Wu, Wenli Chen, Peng Cai, Xingmin Rong, Ke Dai and Qiaoqyun Huang*
Huazhong Agricultural University, China

The Forms and Surface Availabilitys of Soil Iron and Aluminum Minerals Influence their Adsorptive Stabilization on Litter-Derived Dissolved Organic Carbon
Yue Wu, Jiaguo Jiao, Manqiang Liu, Feng Hu and Huixin Li*
Nanjing agricultural University, China

Influence of Soil Humic Substances on Point of Zero Net Charge
Sanjib Kar* and Sourav Kumar Khan
University of Calcutta, India

Evaluation of Macro Soil Fauna as Bioindicator of Environmental Quality in Forests Remnants in the City of Sao Paulo - Brazil - Preliminary Results
Natalia Patucci*, Deborah De Oliveira and Dilmar Baretta2
1 University of Sao Paulo, Brazil; 2 UDESC - CEO, Brazil

Adsorption Potential of Fine Fractions of Sandy Clay Loam Soil (natural Aluminosilicate) for Ammonium ion from Aqueous Solution
Lawrence Nanganoa, Ketcha Joseph* and Tchakoute Herve*
Institute of Agricultural Research for Development (IRAD), Cameroon; University of Yaounde I, Cameroon

Assessment of Persistence of Cry1Ac Protein from BT Spray in Soil: Comparison of Field and Controlled Laboratory Applications
Hung Truong Phuc*, Truong Le Van*, Ngo Dinh Binh*, Roger Frutos*, Herve Quiquampoix* and Siobhan Staunton*
1 INRA-Eco&Sols, Universite Montpellier; 2 VAST, Viet Nam; 3 Universite Montpellier 2, France; 4 INRA-Eco&Sols, France

Effects of Some Effluents on the Physical and Chemical Properties of Soils in Edo State, Nigeria
Margaret Abhanzioya, Ikonwomwosa Ogbohoduo* and Ikpotokin Osemwota*
Ambrose Alli University, Nigeria; 2 University of Benin, Nigeria

Spatial Variations of Soil Microbial Biomass P along an Elevation Gradients in the Upland Meadow of Wugong Mountain Xiaomin Guo, Zhi Li, Dekui Niu*, Wenyuan Zhang*, Shangshu Huang* and Weiqing Qian
Jiangxi Agricultural University, China; 2 Pingxiang Forestry Science Institute, China

Modified Bentonite Assisted Bioremediation of Pahs in Mixed Contaminated Condition: Characterisation of Modified Clays
Asit Mandal*, Binoy Sarkar*, Bhabananda Biswas*, Mohammad Mahmurud Rahman* and Ravi Naidu*
1 Indian Institute of Soil Science, India; 2 University of South Australia, Australia

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1 University of South Australia, Mawson Lakes Campus, Australia; 2 Indian Institute of Soil Science, India

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Asit Mandal*, Binoy Sarkar*, Bhabananda Biswas*, Mohammad Mahmurud Rahman* and Ravi Naidu*
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Effects of Natural Organic Matter on the Stability of Soil Nanoparticles
Jianning Xu*, Huiming Chen, Xinyu Zhu, Yan He and Philip C. Brookes
Zhejiang University, China
P4-136 Bioremediation of Hydrocarbon Contaminated Soil Via Plant-Microbe Interactions and Compost
Usma Hakim1, Muhammad Ibrahim1, Muhammad Sidique1, Muhammad Aamer Mehmood1, Umer Rashid1 and Muhammad Atif Riaz2
1 Government College University Faisalabad, Pakistan; 2 Universiti Putra Malaysia, Malaysia; 3 Nuclear Institute for Agriculture & Biology (NIAB), Pakistan

P4-137 Properties of the Mineral Matrix as a Basis for Interphase Interactions in Soil and Soil Macroproperties
Tatiana Zubkova*
Lomonosov Moscow State University, Russia

P4-138 Total and Extractable Trace Elements in Soil
Abdul Galgallo1, Michael Gatar1, Rilika Keskinen2, Martti Esa1, Keith Shepherd1 and Susan Karuga1
1 University of Nairobi, Kenya; 2 MTT Agrifood Research, Finland; 3 World Agroforestry Centre (ICRAF), Kenya

P4-139 Particles Interaction Forces and their Effects on Soil Aggregates Breakdown
Feinan Hu1, Hang Li1, Yue Li and Wuquan Ding
Southwest University, China

C3.2-1: Soil Erosion and Degradation on Agriculture Land

P4-140 Soil Erosion and Degradation on Agriculture Land in the Northeastern Region of India: Impact of Land Use Change
U. C. Sharma* and Vikas Sharma1
1 Centre for Natural Resources Management, India; 2 S.K. University of Agricultural Sciences & Technology, India

P4-141 Modelling Impact of Storm and Catchment Characteristics on Soil Erosion by Water
Juergen Schmidt and Marcus Schindewolf
Technical University Freiberg, Germany

P4-142 Impact of Land Use Change on Soil Erosion and Deposition of the Upper Yom Watershed in Northern Thailand
Pheerawat Plangoen*
Siam University, Thailand

P4-143 Water Use Efficiency of Legume and Grain Cover Crops
Oliver Freeman and M.B. Kirkham*
Kansas State University, USA

P4-144 Degradation on Agriculture Land Under Local Waterlogging in Steppe Zone
Svetlana Tischenko* and Olga Bezuglova
The Southern Federal University, Russia

P4-145 A Land Resources and Management Diagnosis to Up-Scale And Mainstream Sustainable Land Management Interventions
Freddy Nachtergaele1, Dominique Lantieri2, Sally Bunning1, Monica Petri3 and Riccardo Biancalani4
1 FAO, Belgium; 2 FAO, France; 3 FAO, United Kingdom; 4 FAO, Italy

P4-146 Stepwise Multi-Parameter Optimization - A Multi-Objective Evaluation of Apex for Environmental Benefits
Anoma Senaviratne1, Anjanith Udawatta1, Claire Baffaut1 and Stephen Anderson1
1 University of Missouri, USA; 2 USDA-ARS, USA

P4-147 Nutrient Dynamics In A Riparian Ecosystem in Central Alberta, Canada
Charlie Ashad1, Scott Chang1, Woo-Jung Choi1 and Rahman Azaa2
1 University of Alberta, Canada; 2 Chonnam National University, Korea; 3 Agriculture and Agri-Food Canada, Canada

P4-148 Influence of Earthworms on Soil Erosion and Degradation: A Functional Approach
Pascal Jouquet1, Nicolas Bottinelli1 and Thuy Doan Thu3
1 Indian Institute of Science, India; 2 CAS, China; 3 Soils and Fertilizers Research Institute, Viet Nam

P4-149 Assessing Soil Erosion in a Southeastern Brazilian Agricultural and Pasture Field Using Fallout 210Pbex
Rafaela Fontes1, Ana Carolina Dos Santos1, Nelson Fernandes1, Jose Marcus Godoy1, Silvio Bhering1 and Christiane Brazao Pinto1
1 Federal University of Rio de Janeiro, Brazil; 2 Quimistry, PUC - Rio de Janeiro, Brazil; 3 EMBRAPA Soil - Rio de Janeiro, Brazil

P4-150 Evaluation of Mechanical Transplanter in Unplanned Transplanting of Wet Season Rice in Sandy Loam Soil
Akim Saiful Islam*, Muhammad Abdur Rahman, Md. Anwar Hossen, Dr. Tahmid Hossain Ansari and Biswajit Karmakar
Bangladesh Rice Research Institute, Bangladesh

P4-151 Exploring Field-Scale Linkages between Accelerated Soil Erosion and Nematode Assemblages Using 137Cs Soil Loss Quantification and Molecular Community Characterisation
Craig Baxter1, John S. Rowan1, Blair M. Mckenzie2, Tim J. Daniell3 and Roy Neilson1
1 University of Dundee, United Kingdom; 2 The James Hutton Institute, United Kingdom

P4-152 Soil Erosion Risk Assessment Using Remote Sensing and GIS Techniques: Indian Scenario
Jayaraju Nadimikeri and Jayaraju Nadimikeri
Yogi Vemana University, India

P4-153 Antioxidant System and Chlorophyll Fluorescence in Argania Spinosa under Drought Stress
Abdelghani Chakhchar1, Mouna Lamaoui1, Imane Ben Salah1, Abderrahim Ferradous2, Said Wahbi2, Abdelhamid El Mouosadik3, Saad Ibs bondsou Koraichi4, Abdelkarim Filali-Maltouf2 and Charkaoui El Modafar4
1 Cadi Ayyad University, Morocco; 2 Regional Forestry Research Centre Marrakech, Morocco; 3 Ibn Zohr University, Morocco; 4 Sidi Mohamed Ben Abdellah University, Morocco

P4-154 Erosion Characteristics of Steep-Slope Colluvial Deposits in Gully under Different Rainfall Intensity and Slope Gradient Conditions, South-East China
Fansi Jiang1, Yanhe Huang1, Ming Wang2, Jinshi Lin3, Gan Zhao1 and Hongli Ge1
1 Fujian Agriculture and Forestry University, China; 2 National Taiwan University, Taiwan

P4-155 Determination Central Iran Soil Degradation Rate by Creating Multivariable Soil Degradation Index
Khaled Zaeri1, Norair Toomanian1, Sadeh Hazbavi2 and Jasem Toameh Zadeh3
1 Hovyzeh Municipality, Iran; 2 Assistan prof. Isfahan Agricultural and Natural Resources Research Center, Iran; 3 Parks And Green Field Organization, Iran; 4 Islamic Azad University, Iran

P4-156 Dynamic Development of Rill Erosion on Loess Slopes and its Simulation with Cellular Automaton
Shufang Wu*
Northwest A&F University, China

P4-157 Soil Hydrological Properties as a Response to Tillage Erosion in a Regosol of Hilly Landscapes
Jianhui Zhang and Yong Wang
Chinese Academy of Sciences & Ministry of Water Conservation, China

P4-158 Evaluating Agricultural Sustainability in Tropical Watersheds: An Integrated Geographical Approach
P4-159 How the Ridge and Furrow System Mulched with Plastic Film Affects the Transport of Soil Water, Heat and Nitrate in Drylands? Rui Jiang and Xiao Li Northwest A&F University, China


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Thanachanok Khamkajorn, Wanwises Pansak, Natta Takrattanasaran and Wipa Homhual
1 Naesuan University, Thailand; 2 Ministry of Agriculture and Cooperatives, Thailand

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Lael Goodman, Kimberly Carlson and Calen May-Tobin
Union of Concerned Scientists, USA; 2 University of Minnesota Institute on the Environment, USA

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RDA, Korea

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Jeong-Tae Lee, Gye-Jun Lee, Jong-Soo Ryu, Jeom-Soon Kim and Yeong-Sang Jung
1 National Institute of Crop Science, Korea
2 Kangwon National University, Korea

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Young Sang Ahn, Hiroki Ogawa, Gary Birerley and Futoshi Nakamura
1 Chonnam National University, Korea; 2 The University of Auckland, New Zealand; 3 Hokkaido University, Japan

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1 Kangwon National University, Korea; 2 Andong National University, Korea

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Fangling Fan and Deti Xie
Southwest University, China

Soil Management Strategy for Enhancing Crop Yields
Soil Art
Featured artist: Matthew Moore, Urban Plough, USA, www.urbanplough.com
Featured artist: Urbaniahoeve (Debra Solomon and Mariska van den Berg), Netherlands, www.urbaniahoeve.nl

The Effect of Molybdenum and Silisium on Quality and Yield of Brassica Napus
Elnaz Ebrahimian, Ahmad Bybordi*, Saeed Jahedi Pour and Atena Mirbolook
1 Ferdowsi University of Mashhad, Iran; 2 Azarbayjan Agronomy And Natural Resources Research Center, Iran; 3 Ferdowsi University of Mashhad & Educator of Payame Noor University of Mashhad, Iran; 4 Educator of Payame Noor University of Mashhad, Iran

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Elnaz Ebrahimian, Ahmad Bybordi, Saeed Jahedi Pour and Atena Mirbolook
1 Ferdowsi University of Mashhad, Iran; 2 East Azarbayjan Agronomy And Natural Resources Research Center, Iran; 3 Ferdowsi University of Mashhad & Educator of Payame Noor University of Mashhad, Iran; 4 Educator of Payame Noor University of Mashhad, Iran

Potassium and Rice with High N under Field Conditions
Karim Bhiai, Chris Guppy, Peter Lockwood and Robin Jessop
1 University of Kufa, Iraq; 2 AgSS, UNE, Australia
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Majid Basirat1, Mohammad Ali Malboubi2 and Amir Mosavi1
1 Soil and Water Research Ins, Iran; 1 National Institute of Genetic Engineering and Biotechnology, Iran

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Islamic Azad University, Iran

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Milkha Aulakh1, Ashok Garg2, Shrvan Kumar2, Gerd Der con3 and Minh-Long Nguyen4
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1 Ministry of Agriculture and Cooperatives, Thailand; 2 Kas etart University, Thailand; 3 Utah State University, USA

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Response of Hybrid Maize to Foliar Spray of Different Seaweed Extracts
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Ramaraju Hanumanahally Kambadarangappa
Dayananda Sagar College of Engineering, India

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Nilantha Hulugalle1, Timothy Weaver, Lloyd Finlay and Viliami Heimoana
NSW Department of Primary Industries, Australia

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1 Regional Centre for Training In Aerospace Surveys, Nigeria; 2 Institute of Agricultural Research and Training, OAU, Nige ria; 3 Remote Sensing, Regional Centre Training In Aerospace Survey, Nigeria; 4 Federal University of Agriculture, Nigeria

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Adriano Stephan Nascente1 and Tarcisio Cobucci2
Brazilian Agricultural Research Corporation (EMBRAPA), Brazil

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Adriano Stephan Nascente1 and Carlos Alexandre Crusciol2
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Adriano Stephan Nascente1 and Tarcisio Cobucci2
Brazilian Agricultural Research Corporation (EMBRAPA), Brazil

Emerson Borghi1, Carlos Alexandre Crusciol2 and Adriano Stephan Nascente1
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Brazilian Agricultural Research Corporation (EMBRAPA), Brazil

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Carlos Alexandre Crusciol1, Adriano Stephan Nascente1 and Emerson Borghi1 and Rogerio Soratto1
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Zinc, Copper, Boron and Iron Requirement of Upland Rice Grown on a Brazilian Oxisol
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Indian Council of Agricultural Research, India

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Pc Rao and Chs Ramalakshmi
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Kalmesh Pujari, PI Patil1 and GS Dasog2
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Mazibur Rahman1 and Muklesur Rahman
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A. Islam1,2 A. J. M. Sirajul Karim1, A. R. M. Solaiman1, B. Karmakar1 and M. A. Saleque1
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1 ICRAF, Kenya; 2 Kenyatta University, Kenya; 3 Embu University College, Kenya

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1 University of Sao Paulo, Brazil; 2 Curimamba Group, Brazil; 3 Ferrari Agribusiness S/A, Brazil

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Krishna Kishore Satapathy1
Indian Council of Agricultural Research, India

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University of Sao Paulo, Brazil

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ANGRAU, India

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Manfred Sager*
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A.M. Malala, M.O Kvena and Abdallah Muniafu*
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University of Agricultural Sciences, India

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1 Cairo University, Egypt; 2 United Arab Emirates University, United Arab Emirates; 3 Akita Prefectural University, Japan

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Michael Kekong*, A. AlI, T.O. Ojikpong* and E.E. Attie
1 Cross River University of Technology, Nigeria; 2 University of Agriculture, Nigeria

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Olga Biryukova*, Ivan Yelnikov* and Dmitry Bozhkov
1 Southern Federal University, Russia; 2 V.V.Dokuchayev Soil Institute, Russia

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San Hla Htwe1,2,3, James R. Quilty1, Rodrigo B. Badayos3, Roland J. Buresh1, Pearl B. Sanchez2, Pompe C. Sta. Cruz3
1 International Rice Research Institute, Myanmar; 2 University of the Philippines, Philippines; 3 Department of Agriculture, Myanmar

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Central PlantationCrops Research Institute, India
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Mahdi Sadeghi Pour Marvi*, University of Tehran, Iran

P4-293 Influence of Potassium Nutrition on Yield and Quality of Cauliflower (Brassica Olacea Var. Botrytis) in Eastern Region of India
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Northwest A & F University, China

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University of Zagreb Faculty of Agriculture, Croatia

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Vo Quang Minh* and Le Quang Tri
Can Tho University, Viet Nam

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Chen Xinping, Zou Chunqin and Cui Zhenling
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P4-310 Improving Soil and Crops Productivity through Resource Conservation Technologies in Warmer Area Ilias Hossain1, Ismail Hossain1, Mahesh Gathala2, Tp Tiyawary1, John Duxbury1 and Rafiqul Islam3
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P4-311 Remediation of Andisol In Managing And Improving the Soil Characteristics and its Sustainable Productivity in the Agricultural Area
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P4-313 Accumulated Nitrogen Recovery and its Application in Wheat-Maize Cropping Systems
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P4-315 Effect of Different Sources of Silicon on Growth and Yield of Maize in Southern India
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Lida Issazadeh*, Reza Serajamani and Reza Shahriri
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Ho Young Kwon*
International Food Policy Research Institute, USA
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P4-320 Dry Matter Partitioning, Nitrogen Uptake and Use Efficiency by Cucumber (cucumis Sativa L.) on a Sandy-Loam Alfisol Amended with Organic-Based Fertilizers
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Brad Jornn* and Phil Hess
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P4-322 Nutrient Uptake and Use of Image Analysis to Detect Nutrient Deficiencies in Maize Subjected to the Omission of NPK and Mn
Liliane Maria Romualdo*, Pedro Henrique De Cerqueira Luz*, Fernanda de Fatima Da Silva Devechio*, Mario Antonio Marin*, Odemir Martinez Bruno*, Mariana Florencio Marques*, Celso Eduardo Bonafe Peres* and Valdo Rodrigues Herling*
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P4-323 Fixed Nitrogen by Green Manure Plants and their Effects on Melon Productivity in Northeast Brazil
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P4-324 Integrated Crop-Livestock Farming Systems
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P4-325 Reconsidering Integrated Crop-Livestock Systems in India
Binoy Naha*
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P4-326 A Potential Method for Synchronous Improvement of Soil Fertility, Biological Function and Productivity in Red Soil Region of Subtropical China
Ming Liu, Zhongpei Li* and Xiucui Zhai
Chinese Academy of Sciences, China

P4-327 Legume Residue Incorporation and N Uptake by Crop: A Synchronization Study between Nitrogen Release and Rice Demand in Bangladesh Soil
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P4-328 Mineralization of Bioslurry and its Integrated Use with Fertilizers in the Rice Based Crop Rotating Systems
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P4-329 Effect of Soil Phosphorus and Phosphorus Sources on Phosphorus Nutrition and Yield of Wetland Rice
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P4-330 Soil Test Based Fertilizer Prescription Through IPNS for Rainfed Maize on an Inceptisol
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P4-333 Evaluating the Productivity of Selected Soils in Nsukka, Southeastern Nigeria, Using Riquier’s Index Model
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Holger Kirchmann*, Johan Arvidsson, Thomas Katterer, John Stenstrom, Lars Bergstrom and Cecilia Lundberg
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P4-337 Restoring Crop Productivity of Irrigated Cotton-Wheat Aridisols by Integrated Nutrient Management and Crop Residue Recycling
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Angelica Deus*, Leonardo Bull and Rafael Catojo
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P4-340 Interactive Effects of CO2 Fertilization and Nitrogen on Biomass and Elements Concentrations of Cucumber Seedlings
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Arief Hartono* and Ridho Bilhaq
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Yanchao Bai, Gulin Huang, Wengang Zuo, Xiaowen Zhu, Xiaocheng Ying, Ke Feng and Yuhua Shan*
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Patrick Hong Chuan Ng* and Kah Joo Goh
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Soil Health Indicators Measure Multifunctional Benefits of Farm Yard Manure Application
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Md. Shafiqui Bari* and Md. Abu Hanif
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Andrea Balla Kovacs*, Ida Kincses, Anita Jakab*, Peter Tomas Nagy* and Anita Szabo1
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Effect of Frond Piling on Manganese Dynamics in the Soil at an Oil Palm Plantation
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Radhika Krishnan and Arunmozhielvan K
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Hemalatha Swaminathan* and Chellamuthu S
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Soil Fertility and Crop Productivity in Organically Managed Field Bean under Rainfed Alfisols
G. Ganapathi*, S. Pradeep and C. Sunil
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Sulphur Status of Selected Soil Series of Karnataka and Studies on Direct and Residual Effect of Graded Levels of Sulphur on Crops
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Improving Soil Quality to Increase Yield and Reduce Diseases in Organic Rice Production
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Influence of Copper Base Foliar Fertilizer and Controlled Release Foliar Fertilizer on Yields, Fruit Quality, Mineral Nutrition and Leaf Antioxidant Enzyme Activity of Pepper (capsicum Annuum L.)
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Jibiao Geng and Min Zhang*
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Change in Farmland Governance, Mineral Nutrient Management Strategy in the Semiarid Regions of North China
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Phosphorus Aggravated Aluminum Toxicity in Wheat: Eliminate the Direct Interaction of Al-P Precipitation in Solution
Lifeng Shao, Jing Che, Rongfou Chen and Renfang Shen*
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Chunsheng Hu*, Xiaoxin Li and Zhaqiang Ju
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Yulin Zhang*, Sean Mason1, Ann Mcneill1, Michael McLaughlin1, Fien Degryse and Gunasekhar Nachimuthu1
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Influence of Abattoir Wastewater Irrigation on Soil Fertility and Root Phenotypes of Two Different Plant Species
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Nauman Shahzad, Shamsa Kanwal*, Tariq Aziz and Muhammad Maqsood
University of Agriculture, Pakistan
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Ida Kincses1, Andrea Balla Kovacs1, Rita Kremer1, Anita Szabo1 and Peter Tamás Nagy1
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P4-365 Assessment on the Effects of Nutrient Management Practices on Some Chemical Soil Properties and Macro Nutrient Status Under 3 Successive Years of Baby Corn Production
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P4-366 Yield Increase Efficiency Caused by Recycled Nutrients and the Contribution of Fertilization Development to Yield Production and their Geographic Differentiation
Wanta Xu, Qiang Ma1, Hua Zhou, Yonggang Xu and Chuning Jiang
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P4-367 Fate of Nitrogen from Organic and Inorganic Fertilizers in Irrigated Lowland and Upland Rice Ecosystems
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P4-368 Effects of Lanthanum and Cerium on Root and Shoot Growth of Cucumber (Cucumis Sativus)
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P4-369 Soil Test Crop Response Correlation Studies Under Integrated Plant Nutrition System for Cotton through Drip Fertigation on Inceptisol
Praveena Katharine1 and Santhi R
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P4-370 Influence of Different Soil Texture on Growth and Nutritional Status of Three New Latex Timber Clones of Natural Rubber (Hevea Brasiliensis)
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A. K. Singh
Nagaland University, India

P4-372 Effect of Subsoil Clay and Biochar on Leaching and Availability of Phosphorus in Sands
Fariba Mokhtar1, Richard Bell and Surender Mann
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P4-373 Effect of Different Compound Fertilizer Rates on Hevea Brasiliensis Grown on an Oxisol: Nursery Trial
Shafar Jefri Mohkatar1 and Noordin Daud
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P4-374 Effects of Genotypes, Nutrient- and Water-Supply on the Dry Matter Production and Potassium Uptake Dynamics of Maize (zea Mays L.) on a Chernozem Soil of a Long-Term Field Experiment in Hungary
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P4-375 Evolution of Soil Fertility under Influence of Soil Erosion and Different Cycling Systems in Northeastern Romania
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P4-376 Evaluation of the Aquacrop Model to Simulate Rice Growth under Different Water Regimes in Bangladesh
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P4-377 Factors Determining Silicon Uptake by Rice in Southeast-Asian Paddy Soils
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P4-378 Adaptive Environmentally Friendly Grain Production Technology and Reproduction of Soil Fertility
Marsel Tagirov and Rafi Shakirov
Tatar Agriculture Research Institute, Russia

P4-379 Repeated Application of Organic Fertilizers on Winter Wheat in a Humid Mediterranean Climate Zone
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P4-381 Phosphorus Budget as a Tool to Monitor Soil P Changes under Grassland Production
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P4-382 Sidedress Application of Nitrogen in Wheat Using Chlorophyll Meter
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P4-383 Proposed Land Suitability Index for Assessment of Maize Production in the Humid Tropics
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P4-386 Role of Mycorrhizal Symbiosis in the Aluminum-Phosphorus Interaction in A1 Tolerant Wheat Cultivars Growing in Acid Soils
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P4-387 Fifty Years of Nitrogen and Phosphorus Fertilization on Soil Properties and Production of Irrigated Continuous Corn in the USA
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P4-388 An Investigation into the Release Dynamics from Different Si Sources
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Agripower Australia Ltd, Australia

P4-389 Role of Boron on Physiological Features in Highbush Blueberry Grown in Acid Conditions
Cristian Merino-Gergichevich*, Elizabeth Ulloa-Inostroza and Marjorie Reyes-Diaz
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P4-390 Integrated Nutrient Management for Yield and Storability of Sweet Potato
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P4-391 Manipulating Root-Soil Zone Processes by Localized Nutrient Supply to Improve Nutrient Use Efficiency and Grain Yield in Maize Cropping Systems
Qinghua Ma, Hongbo Li and Jianbo Shen
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P4-392 Evaluating the Growth Promotory Effect of Plant Water Extracts on Maize
Muhammad Kamran*, Zahid Ata Cheema, Muhammad Farooq, Anwar-ul-Hassan and Qasim Ali
University of Agriculture, Pakistan

P4-393 Effect of Mavuno and Manure Fertilizer Applied Singly or in Combination on Soil Properties, Striga Weed Density and Maize Yield
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P4-394 Variability of Soil Organic Carbon with Landforms and Land Use in the Usambara Mountains of Tanzania
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P4-395 Study on Soil Nutrient Loss and Distribution Characteristics in Coal Mining Subsidence Area
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P4-396 Temporal Changes in Soil Fertility and the Attempt to Maintain the Land Productivity under Slash-and-Burn Cultivation in the Northern Laos
Junichi Kashiwagi1, Koji Watabe1, Seiichiro Ishii1, Maiko Tanahashi2, Yukiko Yamamoto1, Ryuchi Yamada2 and Yoichi Hijuara1
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P4-397 Nutrient Management Strategies for Crops Grown in Problem Soils
Fe Perlas
Central Bicol State University of Agriculture, Philippines

P4-398 Effect of the Application of Biosolid and Vermicompost in the Recovery of a Saline Soil
Luis Tomassini and Cynthia Paiva Navarrete*
National Agrarian University - La Molina, Peru

P4-399 The Effect of Salinity Stress, Potassium, and Zinc on the Nutritional Responses of Wheat
Babak Motesharezadeh* and Fatemeh Vatanara
University of Tehran, Iran

P4-400 Effect of Different Approaches of Nutrient Application and Management Practices on Yield of Maize (zea Mays L.) and Finger Millet (eleusine Coracana) in Eastern Dry Zone of Karnataka
Ramakrishna Parama,V., Bhaskar S, Venkate Gowda, J., Gayathri B. and Srinivasamurthy C.A.*
UAS, GKVK, India

P4-401 Effects of Nitrogen Fertilization on Soil Nutrients, Leaf Nutrient Composition, Growth and Yield of Oil Palm on Tropical Peat
Ting Chuan Siaw*, Ahmad Husni1, Shamsuri Abdul Wahid,1 Kh Joo Goh2, Angela Tang3 and Lule Melling4
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P4-402 Optimization Of Nitrogen Level In Field Grown Quinoa
Shahid Iqbal, Shahzad M.A. Basra, Hassan Munir and Abdul Wahid
University of Agriculture Faisalabad, Pakistan

P4-403 Increasing Nitrogen Use Efficiency in Rice Through Nitrogen and Water Management
Mahmud Hossain Sumon*, Rifat Mahbuba, Maruf Ahmed, Shuberna Akter and M Jahiruddin
Bangladesh Agricultural University, Bangladesh

P4-404 Nitrogen Mineralization and Utilization of Silkworm Litter as Organic Fertilizer on Growth and Yield of Pak Choi (Brasica Rapa Var Chinensis)
Audhasit Wongmaneeroj* and Kanjana Panpun2
1 Kasetsart University, Thailand; 2 Department of Land Development, Thailand

P4-405 Modelling of Nutrient Management for Increasing and Maintaining Irrigated Lowland Rice Productivity in West Java Province Indonesia
Gusti Putu Wigena* and Ali Jamil
Indonesian Agency for Agricultural Research and Development (laard), Indonesia

P4-406 Effect of Silica Application on Improving Rice Resistance to Blast Disease and Growth in West Java, Indonesia
Adha Fatmah Siregar
Shimane University, Japan

P4-407 Evaluation of the Potential of an Accelerated Compost as a Fertilizer for Maize Production on an Ultisol Olufemi Ayanfeoluwa*, Vincent Aduramigba-Modupe6 and Olugbenga Adeoluwa4
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P4-408 System Based Nutrient Management for Maize-Groundnut and Maize-Sunflower Sequences in Eastern Dry Zone of Karnataka
Venkate Gowda, J., Bhaskar S. and Srinivasa Murthy, C.A.*
UAS, GKVK, India

P4-409 Bio-Composting from Residual Waste: A Success in Soil Properties and Soil-Borne Pathogens Control
Minh Vien Duong and Guong T. VO
Cantho University, Viet Nam
P4-410 Long-Term Tillage Systems Impacts on Soil Physical Properties and Agronomic Productivity of a Romanian Cambic Chernozem
Denis Topa, Gerard Jitanaru*, Costica Ailincai and Lucian Raus
University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania

P4-411 Long-Term Effect of Application of Edible Fungus Residue on Soil Physicochemical Properties Under Rice - Edible Fungus Rotation System in East China
Z Ye, Y Hu, X Wang and X Zhang
Zhejiang A&F University, China

P4-412 Nitrogen Nutrition and Intensity of Thinning in Peach Production
Wilson W R Teixeira*, Milton F Moraes**, Antonio C V Motta, Joao A L Pascoalino* and Ruy I N Carvalho*
1 Federal University of Parana, Brazil; 2 Federal University of Mato Grosso, Brazil; 3 Pontifical Catholic University of Parana, Brazil

P4-413 A Microbiological System to Improve Soil Fertility and Maize Plants P-Uptake in Field Conditions in Mali
Amadou Hamadoun Babana*, Amadou Hamadoun Dicko, Fatoumata Alhadji Faradji, Adouninga Kassogue, Diakaridia Traore and Kadja Maiga
University of Sciences, Techniques and Technology of Bamako, Mali

P4-414 Black Urea, A Fertilizer with Lower Ammonia Volatilization
Reinaldo Cantarutti, Gelton Guimaraes, Diogo Paiva and Edson Mattiello
Federal University of Vicosa, Brazil

P4-415 Evaluation of Integrated Use of Poultry Manure, Sewage Sludge, fym with Chemical Fertilizers in Maize(zea Mays)-(Chilli(capsicum Annum L.),) Cropping System
Kalvakuntla Jeevanrao* and Rewathi D
ANGRAgricultural University, India

P4-416 Potato Tuber Formation as Affected by Soil Mineral Nitrogen
Mengqi AO, Mingshou Fan and Hongli Zheng*
Inner Mongolia Agricultural University, China

P4-417 Evaluation of Urea-N Based Compound Fertilizer on Cucumber Grown on Clay Soil
Ah Hong Lim
MARDI, Malaysia

P4-418 Effects of Leguminous Intercropping on Tomato Yield, Soil Nutrients and Enzyme Activities
1 Shanghai University, China; 2 Agricultural Technology Service Center of Qingpu District, China

P4-419 Co-Application of EFB Compost and Red Gypsum to Heavy Clay Acidic Soil
Nazira Asbar and Che Fauziah Ishak*
Universiti Putra Malaysia, Malaysia

P4-420 Evaluation of the Efficacy of Various Nitrogen (n) Sources Fertilizer on Oil Palm Seedlings Growth at Three Types of Soil in Malaysia at Oil Palm Main Nursery
Tan Choon Chek*, Izwanizam Ariffin and Suhaidi Hamzah
Felda Agricultural Services Sdn Bhd, Malaysia

P4-421 Integrated Use of Fertilizer with Manure on Mustard, Potato and Wheat and their Residual Effects on Succeeding Crops
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P4-422 Effects of Phosphorus Fertilizer Rates on Changes of Soil Phosphorus Fractions in Cassava Growing Soils of Thailand
Sukunya Yamprecha*, Sukit Ratanasiriwong**, Wanlee Amornpon*, Benjamas Khamsueb* and Attachai Jintrawet*
1 King Mongkut’s Institute of Technology Ladkrabang, Thailand; 2 Department of Agriculture, Thailand; 3 Chiang Mai University, Thailand

P4-423 A Multivariate Approach to Study the Effect of Integrated Nutrient Management on The Maintenance of Soil Fertility and Soil Health in Relation to Yield And Nutrition of Rice (Oryza Sativa)
Pintu Sur*, Indranil Das*, Dipjyotish Das* and Debasis Mazumdar1
1 Pulse and Oilseeds Research Station, India; 2 Fertiliser Control Laboratory, India; 3 Bidhan Chandra Krishi Viswavidyalaya, India

P4-424 Capacity of Humic Acids Extracted at the Large Scale From Mae Moh Leonardite to be Used as Soil Amendments Based on their Chemical Properties
Gautier Landrot*, Daniel Said-Puillidno, Federica Divotti, Michele Chierotti and Luisella Celi
University of Turin, Italy

P4-425 Biotic and Abiotic Processes Affecting Nitrogen Imobilisation in Submerged Paddy Soils
Maria Alexandra Cucu, Daniel Said-Puillidno, Federica Divotti, Michele Chierotti and Luisella Celi
University of Turin, Italy

P4-426 Soil Quality in Continuing Rice-Wheat Cropping System in India: Impact of Combined Tillage, Water and Nutrient Management
1 Directorate of Groundnut Research (ICAR), India; 2 Indian Agricultural Research Institute, India; 3 Indian Agricultural Statistical Research Institute, India

P4-427 Nitrogen Fertilization Response of Improved Potato (solanum Tuberosum L.) Cultivars
Hirak Banerjee*, Sudarshan Dutta*, M Mozumder*, Krishnendu Ray and Kaushik Majumdar
1 Bidhan Chandra Krishi Viswavidyalaya, India; 2 International Plant Nutrition Institute, India

P4-428 Catalytic and Fertilizing Potentials of Blood-Meal as Applicable to Accelerated Compost Maturity / Quality and Performance of Sesame (sesamum Indicum Linn.), under Degraded Soil Conditions
Peter Akintoye Babajide*, Akinwande Yewas, T Akinola, D Alamude, K. Olubiyi, A Oluwafemi, Oluwaseun Afolabi*, Love A. Omole and L Amos
1 Ladoke Akintola University of Technology, Ogbomoso, Nigeria; 2 University of Ibadan, Nigeria

P4-429 Yield Sustainability and Phosphorus Utilisation in Sole Soybean Cropping on Alfisols in Response to Interactive Effects of Fertilizer Nitrogen and Phosphorus
Vincent Aduramigba-Modupe* and Hassan Tijani-Eniola2
1 Obafemi Awolowo University, Nigeria; 2 University of Ibadan, Nigeria

P4-430 Tomato Varietal Responses as Influenced by Glomus Mossae under Screenhouse and Field Conditions
Eunice Akinquelu* and Olajire Fagbola*
1 National Horticultural Research Institute Iidi - Ishin Ibadan, Nigeria; 2 University of Ibadan, Nigeria

P4-431 Phosphate Rock as an Alternative Fertilizer for Organic Farming of Wheat in Gypsisiferous Soils
Nooraldeen Muhawish* and Ragad Al-Kafaje
University of Tikrit, Iraq
P4-432 Yield and P Use Efficiency of Five Rice Genotypes under Two P Model Calculated Rates in the Moist Savanna of South West Nigeria
Vincent Aduramigba-Modupe*
Land and Water Resources Management Programme, Institute of Agricultural Research and Training, Obafemi Awolowo University, Nigeria

P4-433 Tillage and Fertilizer Effects in Sole Maize (zea Mays L.) Cropping in a Degraded Nigerian Alfisol
Vincent Aduramigba-Modupe*
Obafemi Awolowo University, Nigeria

P4-434 Hairy Vetch Influence on Soil Nitrogen and Maize Grain Yield in the Mid-Atlantic United States
Robert B. Norris, Wade E. Thomason*, Gregory K. Evanylo and Mark S. Reiter
Virginia Polytechnic Institute and State University, USA

P4-435 Sugarcane Yield as a Function of Nitrogen and Silicon Fertilization
Ivana Fonseca*, Renato Prado1, Diego Vale3, Silvio Marccusi2 and Cintia Avalhes1
1 Embrapa Cosca, Brazil; 2 Sao Paulo State University (FCAV/ Unesp), Brazil; 3 University of Sao Paulo (USP), Brazil

P4-436 Available, Surface Runoff and Leaching of Forms of Phosphorus in Soil With Addition of Organic And Mineral Sources of Nutrients
Carlos Alberto Ceretta, Cledimar Rogério Lourenzi, Jackson Berticelli Cerini, Paulo Ademar Avelar Ferreira, Felipe Lorensini, Eduardo Girotto, Tadeu Luis Tiecher, Dénis Eduardo Schapanski & Gustavo Brunetto
Soil Science, Ceretta, Brazil

P4-437 Nitrogen Net Mineralization of Cauliflower Crop Residues after Incorporation to the Soil
Claudia Ximena Jaramillo Gonzalez1, Antonio Lidon1, Carlos Ramos1 and Francisco Berbegall1
1 Politecnico University of Valencia, Spain, Colombia; 2 Universitat Politècnica de Valencia, Spain; 3 Agriculture, IVIA, Spain

P4-438 Sensitivity Analysis for Calibration of Two Simulation Models of the Soil Nitrogen Dynamics in a Cauliflower Crop
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P4-439 Influence of Vermicompost on Soil Physical Properties and Soil Microbial Activity in Cassava Field
Jiraphon Choeichit, Chuleem Masboonthai Iwai* and Mongkon Ta-Oun, Khon Kaen University, Thailand

P4-440 Effect of Sewage Sludge and Poultry Manure on Biomass Yield of Palak (beta Vulgaris L. Var. Bengalensis) and Heavy Metal Availability
Kalvakuntla Jeevanrao* and Srinivas P
ANGRAgricultural University, India

P4-441 Impact of Crop Residues Decomposition on Soil Organic Matter in an Oxisol Under No-Till
Jose Cota*, Adolfo Marcelo and Carolina Fernandes
Sao Paulo State University, Brazil

P4-442 Production and Biomass Quality of Different Elephant Grass Genotypes Grown in an Ultisol for Alternative Energy Use
Segundo Urquiaga*, Bruno Alves and Robert Boddey
Embrapa Agrobiologia, Brazil

P4-443 Responses of Wheat Yield and Soil Fertility to Long-Term Application of Farmyard Manure and Chemical Fertilizers in Semiarid Region of Northwestern China
E Shengzhe
Gansu Academy of Agricultural Sciences, China

P4-444 Immediate and Residual Effect of Nitrogen from Green Manures and Urea for Rice and Corn Grown in Rotation in Cerrado (savannah) Oxisol
Edson Cabral Da Silva, Takashi Muraoaka1, Salierati Buatti*, Karuppan Sakadevan2, Marconi Batista Teixeira2 and Jose Albertino Bendassolli2
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P4-445 Targeted Yield Model as a Tool for Fertiliser Best Management Practice in a Maize Based Cropping Sequence of Tamil Nadu, Southern India
Santhi Rangasamy*, Maragatham S, Sellamuthu Km1 and Pradip Dey1
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P4-446 Effect of Animal Manure with and without Chemical Fertilizer on Dragon Fruit (hylocereus Undatus (haw.) Britton & Rose) Cultivation in the Low Country Intermediate Zone of Sri Lanka
Priyanga Dissanayake1, Hemantha Wijewardenas*, Ajith Kumarasinghes1 and Nimal Gunaratnes3
1 Rice Research and Development Institute of Sri Lanka, Sri Lanka; 2 Ministry of Agriculture, Sri Lanka; 3 Department of Agriculture, Sri Lanka

P4-447 Electrical Conductivity, Ph and Potential Acidity in Soils Fertilized with Poultry Litter Compost
Valdinei Tadeu Paulino*, Alexandre Antonio Pasqualini, Keila Maria Roncato Duarte and Marcia Atauri Cardelli Lucena
Instituto de Zootecnia, Brazil

P4-448 Combined Effect of Organic and Chemical Nitrogen Fertilizers on Growth and Nitrate Accumulation in Watercress Grown in the Glasshouse
Mohiyeedin Abdelazeim*, Wagih Mohammad, Mohammad Sherif and Manwa Hussien
Minia University, Egypt

P4-449 Enhance of Nutrient Supply of Soil By Groundcovering in a Hungarian Peach Orchard
Peter Tamas Nagy*
Robert Karoly University College, Hungary

P4-450 Enhance of Nutrient Supply of Soil by Groundcovering in a Hungarian Peach Orchard
Peter Tamas Nagy*, Ida Kincses* and Andrea Balla Kovacs2
1 Robert Karoly University College, Hungary; 2 University of Debrecen, Centre for Agricultural and Applied Economic Sciences, Hungary

P4-451 Effects of Integrated Nutrient Management and Irrigation Practice on the Productivity of Crops and Soil Health
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1 Bangladesh Institute of Nuclear Agriculture, Bangladesh; 2 Bangladesh Agricultural Research Council, Bangladesh

P4-452 Effect of Organic and Inorganic Fertilizers on the Growth and Yield of Physic NUT (Jatropha Curcas) Ngwu O.E. and Mbaeliachi O.P.
Enugu State University of Science and technology, Nigeria
P4-453  Effect of Biofertilizer, Vermicompost and Chemical Fertilizers on Bushbean
MD. Bhuiyan*, M.B. Banu and F. Alam
BARI, Bangladesh

P4-454  Effect of Biofertilizer, Vermicompost and Chemical Fertilizers on Gardenpea
MD. Bhuiyan*, F. Alam and M.B. Banu
BARI, Bangladesh

P4-455  The Forgotten Soil Sulphur in Chilean Soils: A More Efficient Diagnosis of Soil Sulphate
Carolin Cordova
Universidade de Concepcion, Chile

P4-456  Effect of Crop Residues on Soil Zinc Bioavailability and Grain Zinc content in Wheat
Vahid Doro,* Majid Afyuni**, Amir Hossein Khoshgoftarmane*1 and Rainer Schulin*1
1Isfahan University of Technology, Iran; 2ETH Zurich, Switzerland

P4-457  Potassium Balance and Soil Exchangeable Potassium Accumulation in the Intensive Vegetable Fields in China
Chen Shuo, Yan Zhengjuan, Li Zhihong and Chen Qin*
China Agricultural University, China

P4-458  Effect of Camel-Horse Dung and Crop Variety on the Productivity of Cucumber in a Semi-Arid Land of Nigeria
Dantata Ishaku James*
Agricultural Education, Institution, Nigeria

P4-459  Effects of Rice Straw Application and Tillage Method on Rice Quality and Yield in Plain Paddy Field
Chang Huyng*, Nam Hyun Baek, Pyeong Shin, Kwang Min Cho, Gyeong Bo Lee and Ki Hun Park
Rural Development Administration, Korea

P4-460  Optimum Application Rates of Oil Cake, Rice Bran and Rice Straw for Effective Soil Management in Korea Lettuce Field
Tae-Jin Won, Chang-Sung Kang and Kwang-Rae Cho
Gyeonggi-Do Agricultural research & Extension Services, Korea

P4-461  Relationship Fertilization with Growth and Accumulation of Anthocyanin in Schizandrae Chinesis Baillon
Young-Jin Seo*, Jong-Su Kim, Jae-Cheol Kim*, So-Deuk Park*, Young-Guk Kim* and Young-Sup Ahn*
1Gyeongbuk Agricultural Research and Extension service, Korea; 2National Institute of Horticulture and Herbal Science, Korea

P4-462  Effects of Root Zone Temperature on Nutrient Uptake and Photoassimilates Accumulation of Tomato Plants
Jwakyoung* and Gang Kang
Yeonsoo Kang, Kwang Yoon, Young-Hun Moon*, Hong-Bae Yun, Jwa-Kyung and Deog-Bae Lee
RDA, Korea

P4-463  Status and Change in Soil Chemical Properties of Upland in Korea from 2001 to 2013
1National Academy of Agricultural Science, Korea; 2Gyeonggido Agricultural Research & Extension Services, Korea; 3Gangwondo Agricultural Research & Extension Services, Korea; 4Chungbuk Agricultural Research & Extension Services, Korea; 5Chungnam Agricultural Research & Extension Services, Korea; 6Jeollabukdo Agricultural Research & Extension Services, Korea; 7Jeollanamdo Agricultural Research & Extension Services, Korea; 8Gyeongsangbukdo Agricultural Research & Extension Services, Korea; 9Gyeongsangnamdo Agricultural Research & Extension Services, Korea; 10Jeju Agricultural Research & Extension Services, Korea; 11Highland Agriculture Research Center, RDA-NICC, Korea

P4-464  Nutrient Surpluses with Input Sources in Pig-Concentrated and Cattle-Concentrated County in Korea
Jein Lee*, Hong-Bae Yun, Jwa-Kyung Sung, Sang-Keun Ha and Deog-Bae Lee
RDA, Korea

P4-465  Change in Chemical Fertilizer Consumptions and Livestock Manure Production Rates from 1990 to 2011 in Korea
Hong Bae Yun*, Ye Jin Lee, Myung Sook Kim, Jwa Kyung Sung, Sang Min Lee, Suk Chul Kim and Deog Bae Lee
National Academy of Agricultural Science, Korea

P4-466  Effect of Salicylic Acid Treatment on Soybean Moisture Stress of Waxy Corn (zea Mays L.)
Youngjo Seo*, Shiwhan Ryu, Jongyeol Park, Jaekeun Choi, Kijin Park and Kyunghi Kim
Gangwon-do Agricultural Research & Extension Services, Korea

P4-467  Testing of Different Fertilizer Practice on Carrot in up Country Intermediate Zone (UCIZ) Sri Lanka
Byoung Choon Jang*, K. M. S. Kodikara*, P. Weerasinghe* and W. M. K. Bandara Wahundeniya*
1The Rural Development Administration, Korea; 2Department of Agriculture, Sri Lanka

P4-468  Yield of Green Manure and Nitrogen of Cornflower (Centarea Cyanus L.) in Different Upland Soils
Hyounjoo Cho, B. K. Hyun and H. C. Chun
National Institute of Crop Science, Korea

P4-469  Standards of Proper Fertilizer Application for Double Cropping (rape+rice) in Paddy Fields
Hyunjoon Cho, B. K. Hyun and H. C. Chun
RDA, Korea

P4-470  Characterization of Chemical Properties from Anthropogenic Paddy Fields in Korea
National Academy of Agricultural Science, Korea

P4-471  Different Management Techniques in Rye and Hairy Vetch for Maximizing Green Manure Production in Orchard
Seong Eun Lee*, Jin Myeon Park*, Jae Seung Noh* and Dong Geun Choi
1RDA, Korea; 2Chonbuk National University, Korea

P4-472  Monitoring on Chemical Properties Change of Arable Soils in Gangwon Province, Korea
Seung Chul Choi*, Soojeong Lim*, Byeong Sung Yoon*, Sujeong Heo*, Jaerok Kim* and Seongsoo Kang
1ARES Gangwon, Korea; 2Gangwondo Agricultural Research & Extension Services, Korea; 3RDA, Korea

P4-473  Different Application Intervals of Granular Organic Fertilizer for Improving Rice Productivity and Quality
Young-Hun Moon*, In-Young Choi*, Byung-Koo Ahn*, Seong-Soo Cheong*, Jin-Ho Lee* and Nam-Ki Oh
1Jeollabuk-Do Agricultural Research and Extension Service, Korea; 2Chonbuk National University, Korea

P4-474  Impacts of Green Manure Crop Applications on Soil Properties and Ginger Growth in Continuous Cropping System
Hong-Seok Yang, Dong-Jin Kim, Won-Jae Lee, Da-Seul Kang, Byung-Koo Ahn* and Jin-Ho Lee
1Chonbuk National University, Korea; 2Jeollabuk-Do Agricultural Research and Extension Services, Korea
Influences of Charcoal and Biochar Applications on Soil Chemical Properties and Ginger Growth in Short-Term Cultivation
Won-Jae Lee*, Dong-Jin Kim, Hong-Seok Yang, Da-Seul Kang, Byung-Koo Ahn* and Jin-Ho Lee
1 Chonbuk National University, Korea; 2 Jeollabuk-Do Agricultural Research and Extension Services, Korea

Effects Of Phosphate-Solubilizing Bacteria Applications on Pepper Growth
Byung-Koo Ahn*, Kab-Cheol Kim, Young-Hoon Moon, Seong-Soo Jeong and Jin-Ho Lee
1 Jeollabuk-Do Agricultural Research and Extension Services, Korea; 2 Chonbuk National University, Korea

Influences of Side-Dressing N and K Application Intervals on Red Pepper Productivity and Soil Properties in Plastic Film House
Byung-Koo Ahn*, Hyong-Gwon Chon, Seong-Soo Jeong, Jin-Ho Lee and Nam-Ki Oh
1 Jeollabuk-Do Agricultural Research and Extension Services, Korea; 2 Chonbuk National University, Korea

The Effect of Different Nutrient Sources on Soil Properties and Corn Yield at Newly Reclaimed Land
Min-Tae Kim1, Kwang Seop Kim, Ki-Do Park, Jin-Hee Ryu, Jong-Soo Choi, Weon-Tae Jeon, Suk-Jin Kim, Yi-Hoon Park, Myung-Chul Seo, Yong-Hwan Lee, Choong-Woo Lee and Hang-Won Kang
RDA, Korea

Influences of Mixed Treatment with Urea Fertilizer and Zeolite on Growth of Hot Pepper (Capsicum Annuum) Jun Hong Park1, Sang Jo Park1, Young Jin Seo1, Oh Heun Kwon1, Seong Yong Choi1, So Deuk Park2 and Man Park2
Gyeongbuk-Do Agricultural Research and Extention Services, Korea; 2 Gyeongsang National University, Korea

Metabolite Profiling of Potassium Deficiency in Tomato
Suyeon Lee, Hyejin Yun, Sangkeun Ha, Deogbae Lee and Jwakyung Sung
NAAS, RDA, Korea

Metabolite Profiling of Phosphorus Nutrient Deficiency in Tomato
Hyejin Yun, Suyoun Lee, Sangkeun Ha, Deogbae Lee and Jwakyung Sung
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Effects of Fresh Cattle Manure on Yield and Feed Value of Forage Crop in Hwaong Reclaimed Land
Jae-Eun Jang, Jung-Soo Park, Chang-Sung Kang, An-Sung Rho, Young-Chul Ju and Hee-Dong Kim
Gyeonggi-do Agricultural Research & Extension Services, Korea

Effect of application of Oil Cake on Rice Yield In Hairy Vetch-Rice Cropping System
Jinhee Ryu, Min-Tae Kim, Jong-Seo Choi, Sook-Jin Kim, Kwang-Sup Kim, Weon-Tae Jeon, Yong-Hwan Lee, Ki-Do Park and Hang-Won Kang
RDA, Korea

Developing a Soil Quality Index to Assess Soil Fitness in Onion Cultivated Upland
Yong Ho Lee1, So Hyun Park1, Sun Jung Yoo1, June Young Park1, Kyeong Mi Choi1, Su Min Hwang1, A Ram Kim1, Min Ju Lee1, Pil Kyun Jung1 and Tae Won Kim1
1 Hankyong National University, Korea; 2 RDA, Korea; 3 Sejong Institute of data Analysis (SEIDA), Korea

Deep Planting and Excess Soil Cover on Rootstock Promote Scion Root Outbreak in ‘shiranuhi’ Mandarin
Seok-Beom Kang*, Young-Eel Moon, Young-Ho Kim, Seung-Gab Han, Dhill-Prasad Paudyal and Young-Hun Choi
RDA, Korea

Improvement of Soil Water Condition for Soybean (glycine Max L.) by Inter-Row Stripe Tillage
Jong-Ho Seo
National Institute of Crop Science, Korea

Effects of Cover Crops and Fertilization on Corn Productivity under No-Tillage System
Jong-Seo Choi*, Min-Tae Kim, Jin-Hee Ryu, Suk Jin Kim, Kwang Seop Kim, Yi-Hoon Park, Yong-Hwan Lee, Choong-Woo Lee, Ki-Do Park and Hang-Won Kang
RDA, Korea

Coal Combustion Products (ccps)- Amended in Paddy Soil for Improvement Soil Fertility and Rice Productivity
Jae E. Yang*, Se Jin Oh*, Seung Min Oh*, Yong Sik Oh*, Sung Chul Kim* and Su-Jung Kim*
1 Kangwon National University, Korea; 2 Chungnam National University, Korea; 2 Dongguk University, Korea

Effects of Seeding Time of Green Manure Crops with Liquid Pig Manure on Rice Growth and Yield
Ju Dong Yang*, Dong Cheol Seo*, Se Won Kang*, Ju Wang Park*, Young Jin Seo*, Sang Gyu Lee*, Jong Soo Heo* and Ju Sik Cho*
1 Sunchon National University, Korea; 2 Gyeongsang National University, Korea

Effect of Carrot-Green Manure Crop Rotation for Improving Carrot Quality and Yield
Seong-Heon Kim*, Jong-Hwan Park1, Dong-Cheol Seo*, Ju-Sik Cho1 and Jong-Soo Heo*
1 GyeongSan National University, Korea; 2 Sunchon National University, Korea

Self-Diffusible Silicate Fertilizer Development for Paddy Field in Korea
Jin Ho Jo1, Y. S. Jung*, H. S. Na1, C. W. Jo1 and C. K. Kim1
1 Kangwon National University, Korea; 2 Nubo Ltd., Korea

Silicon Mediated Different Roles in Alleviation of Cadmium Toxicity in Two Cypress Varieties
Bin Guo, Wenhao An, Hua Xiao and Alinaddy F
1 National University of Singapore; 2 Academy of Agricultural Research, Thailand

Chlorophyll Content Estimation from Spad, Chlorophyll Fluorescence and Leaf Reflectance Properties
Wenhao An, Hua Xiao and Alinaddy F
2 Academy of Agricultural Research, Thailand

C3.4.1-: Design and Performance of Cover Systems for Landfills and Contaminated Sites

Soil Art
Featured artist: Aviva Rahmani, USA, avivarahmani.com

(Visited 086-S) Reinforcement and Ductility Effect of Plant Fine Roots on the Soil
Yunyan Zhou and Kun Xu
China University of Geosciences, China

Impact of Pesticide Mixture on Ryegrass (Lolium Perenne) Cover in a Biopurification System with Andisol of Southern Chile
Maria Cristina Diez*, Cynthia Urrutia and Felipe Gallardo
Universidad de La Frontera, Chile

Pesticide Degradation in a Full Scale Biopurification System in the South of Chile
Maria Cristina Diez*, Felipe Gallardo and Sebastian Elgueta
Universidad de La Frontera, Chile
C4.5-2: Cultural Perspectives on Soils and Soil Science
Soil Art Featured artist: Patrick Lydon & Suhee Kang, USA and Korea, www.finalstraw.org

P4-497 Observations on the Relationship of Soil And Land Utilization in Settlement of Eastern United States along the Fall Line
Maxine Levin
Natural Resources Conservation Service, USA

P4-498 The Restructure and Reorganization of the USDA Natural Resources Conservation Service Soil Science Division
David Smith, Micheal Golden, Jon Hempel and Roy Vick
USDA, Natural Resources Conservation Service, USA

P4-499 Soil-Landscape as a Tool in Planning and Management of the City
Wybe Kuitert*
Seoul National University, South Korea, Netherlands

P4-500 The Final Straw: The Merging of Soil and Society through the Arts
Patrick Lydon and Suhee Kang
1 FinalStraw.org, USA; 2 FinalStraw.org, Korea

P4-501 Pathways Towards an Integral-Informed Soil Homeostasis
Sabine Grunwald*
University of Florida, USA

P4-502 Vulnerability Assessment to Soil Contamination Considering Socio-Economic Response Capability
Youngju Kim*, Jaehoon Kim and Sang-II Hwang
Korea Environment Institute, Korea

WGS: Mitigating Greenhouse Gas Emissions from Rice Paddy Soils

P4-503 System of Rice Intensification (sri) in Japan Needs More Careful Water Management Practices
Kosuke Noborio
Meiji University, Japan

P4-504 Decreasing Global Greenhouse Effects by Biochar Amendment in a Double Rice Field of South China
Xiaobo Qin, Yu’e Li and Yunfan Wan
Institute of Environment and Sustainable Development in Agriculture, China

P4-505 Rice Community Base Production and Ggh Reduction in the Mekong Delta, Viet Nam: a Case Study in an Giang, Kien Giang Provinces
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P4-507 Comparison on the Methane Emission from Different Cropping Seasons of Paddy Rice in Central Taiwan
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P4-508 Fluxes of Methane and Nitrous Oxide in Water-Saving Rice Production from Eastern India
Tapan Kumar Adhya*, Suvendu Das* and Padmini Swain*
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P4-509 A Combined Net Economic and Environmental Benefit with Greenhouse Gas Intensity Evaluation of Three Rice-Cropping Systems in the Taihu Lake Region of China
Longtong Xia and Xiaoyuan Yan*
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P4-510 Mitigating Greenhouse Gas Emission from Vietnam Rice Paddy Soils
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P4-511 Soil Controlling Factors of Ch4 Gas Production from Flooded Paddy Soils of Central Java
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Chiba University, Japan

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Shunsuke Hanazawa, Maasa Takahashi and Kazuyuki Inubushi
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P4-517 Potential of Chelating Compounds Like Etda to Mitigate Methane Emission from Rice Paddy Soils
Prabhat Pramanik* and Pil Joo Kim*
1 Tocklai Experimental Station, India; 2 Gyeongsang National University, Korea

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Se-Won Kim*, Jun-Keun Choi, Young-Moon Mo, Young-Ho Seo and Moon-Sub Ahn
Gangwondo Agricultural Research & Extension Services, Korea

WGS: Proximal Soil Sensing
Soil Art Featured artist: Ulrike Arnold, Germany, www.ulrikearnold.com

P4-519 Soil Information System of Infrared Mid-Infrared Photoacoustic Spectroscopy
Du Changwen* and Zhou Jianmin
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P4-520 Adequacy of a Lower Cost Spectrometer for Prediction of Soil Particle Size Distribution
Chaves Silva,1 Universidade Federal de Santa Catarina campus Curitiba-nos, Brazil; 2 Universidade Federal de Santa Maria, Brazil; 3 Universidade Federal de Caxias do Sul, Brazil

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Haijiang Wang, Hualing Zhang, Shaotin Ren and Baoguo Li
China Agricultural University, China

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Maria Knadel, Anton Thomsen, Kirsten Schelde and Mogens H. Greve
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P4-523 Soil Pit Descriptions for the Contemporary Field Soil Scientist: Harnessing the New Soil Analytical Technologies
Brendan Malone*, Alex Mcbratney and Budiman Minasny
The University of Sydney, Australia

P4-524 Predicting Soil Organic Carbon Contents in Archived Soils Using Mid-Infrared Spectroscopy
Senani Karunarathne1, Thomas Bishop2, Jeff Baldwin3, Bruce Haukse4 and Inakwu Odeh5
1 The University of Sydney, Australia; 2 CSIRO Land and Water, Australia

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1 Texas A&M University, USA; 2 EUniversity of Sydney, Australia

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Ho Jun Jang, Budiman Minasny* and Uta Stockmann*
The University of Sydney, Australia

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Yaolin Liu1, Qingshu Jiang1, Teng Fei1, Junjie Wang1, Tiezhu Shi1, Kai Guo1, Xiran Li1 and Yiyun Chen*
1 Wuhan University, China; 2 Peking University, China

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Shuo Li, Qianlong Wang and Zhou Shi
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Ebrahim Babaeian1, Mehdi Homaei and Ali AKBAR Norouzi2
1 Tarbiat Modares University, Iran; 2 Soil Conservation and Watershed Management Research Institute (SCWMI), Iran

P4-530 Unravelling the Research Gaps in Technology Based Soil Inference Systems
Kanika Sing1, Budiman Minasny and Alex Mcbratney
University of Sydney, Australia

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P4-533 Soil Water Content Estimation Using Visible and Near Infrared Spectroscopy
Youssef Foud*, Didier Michot, Zahra Thomas and Raphael Viscarra Rossel
1 Agrocampus Ouest - INRA, UMR SAS, France; 2 CSIRO Land and Water, Australia

P4-534 Apparent Electrical Conductivity (eca) Based Potential Management Zones for Site Specific Nutrient Management in Paddy Soils of Sri Lanka
Wajira K Balasooriya1, R A A S Rathnayaka1, Udaya W. A. Vitharana1, E M S K Thilakaratha2, Ann Verdoort1, Timothy Saey2 and Marc Van Meirvenne1
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SarahJith M.C1* and Kanika Singh1
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P4-536 How Much Can We Reduce the Number of Calibration Samples? A Case Study
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Institute of Soil Science and Plant Cultivation - State Research Institute, Poland

P4-537 Scope to Predict Soil Properties at Within-Field Scale from Small Samples Using Proximally Sensed Data
John Triantafilis*
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P4-539 Identification of WRB Soil Classification Units from Vis-Nir Spectral Signatures
Adam Csorba, Vince Lang1, Laszlo Fenyes2 and Erika Micheli*
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P4-540 Potential of Using Portable X-Ray Fluorescence Spectroscopy XRF for Assessing Plant Nutrients in Soils
Robin Gebers* and Michael Schirmann
Leibniz-Institute for Agricultural Engineering, Germany

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P4-541 An Australian-New Zealand Standard For Exchange of Soil and Landscape Data: Anzooolim V2.0
Bruce Simons1, Peter Wilson2, Alistair Ritchie3, David Jacques1 and Jamie Vleeshouwer1
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Ritaban Dutta*, Ahsan Marshid, Yanfeng Shu* and Jagannath Arya
1 CSIRO, Australia; 2 University of Tasmania, Australia

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Endre Dobos*, Erika Micheli, Diana Bertoti, Vince Lang and Karoly Kovacs
1 University of Miskolc, Hungary; 2 Szent Istvan University, Hungary

The Utilization of Empirical Knowledge in Digital Soil Mapping
Borut Vrscaj
Agricultural Institute of Slovenia, Slovenia

Digital, Optimized, Soil Related Maps and Information in Hungary; Dosoremi.hu
Endre Dobos, Laszlo Pasztor*, Jozsef Szabo, Zsofia Bakacs, Annamaria Laborczi, Katalin Takacs and Gabor Szatmari
1 University of Miskolc, Hungary; 2 Hungarian Academy of Sciences, Hungary; 3 University of Szeged, Hungary

An Approach to Help Formalizing the Purposive Sampling Strategy of Classical Soil Surveys
Alessandro Samuel-Rosa*, Lucia H C Anjos and Gustavo M Vasques
1 Federal Rural University of Rio de Janeiro, Brazil; 2 Brazilian Agricultural Research Corporation, Brazil

Building Digital Soil Maps of Canadian Managed Forests at 250 M of Resolution Using the K-Nearest Neighbour Method
Mansuy Nicolas*
Natural Resources Canada / Canadian Forest Service, Canada

Changes in Soil Properties in the Agricultural Fields of Korea
Suk Young Hong*, Budiman Minasny, Alex Mcbratney, Yi-Hyun Kim, Kyoung-Do Lee and Sang-Il Na
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Soil Organic Carbon Sequestration Rates under Crop Sequence Diversity, Bio-Covers, and No-Tillage
Amanda Ashworth
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