Food and Agriculture Organization of the United Nations

AGENDA

GLOBAL SYMPOSIUM ON SALT-AFFECTED SOILS

20 - 22
October, 2021
Virtual meeting

Government of the Republic of Uzbekistan

GLOBAL SOIL PARTNERSHIP

itps INTERGOVERNMENTAL TECHNICAL PANEL ON SOILS

UNCCD SPI Science - Policy Interface

International Union of Soil Sciences

ICBA AGRICULTURE FOR TOMORROW

International Network of Salt-Affected Soils

WASAG The Global Framework on Water Scarcity in Agriculture

Co-organized by

FAO
Food and Agriculture Organization of the United Nations

GSP
Global Soil Partnership

ITPS
Intergovernmental Technical Panel on Soils

UNCCD SPI
United Nations Convention to Combat Desertification Science-Policy Interface (SPI)

IUSS
International Union of Soil Sciences

ICBA
International Center for Biosaline Agriculture

INSAS
International Network of Salt-affected Soils

WASAG
Global Framework on Water Scarcity in Agriculture

The times indicated are local times for Rome, Italy.
Rome time is in the Central European Summer Time Zone (CEST).

SUMMARY AGENDA

20 OCTOBER / DAY 1	
13.00 -13.45	High Level Opening Session
13.45-14.15	Launch of the Global Map of Salt-Affected Soils
14.15-14.20	Break
14.20-15.30	Keynote Speakers | Setting the scene for the GSAS21
15.30-15.50	Interactive Q&A sessions & Quiz
15.50-16.00	Launch of the poster exhibition
21 OCTOBER / DAY 2	
13.00-13.10	Opening of the second day
13.10-14.20	4 Parallel sessions (3 themes and good practices)
14.20-14.30	Break
14.30-15.30	4 Parallel sessions (3 themes and good practices)
15:30-16:00	Poster session
22 OCTOBER / DAY 3	
13.00 -13.10	Opening of third day
13.10-14.20	4 Parallel sessions (3 themes and good practices)
14.20-14.30	Break
14.30-14.35	Announcement of the contest's winners
14.35-15.30	Sessions Outcomes and Key Findings
15.30-16.00	Closure of the Symposium

Plenary

Parallel sessions

Wednesday 20 October

13.00 – 13.45

HIGH LEVEL OPENING SESSION

Moderator: **Ms Maria Helena Semedo, FAO**

VIDEO: SALT-AFFECTED SOILS: DISCOVERING A MISSED REALITY

OPENING OF THE SYMPOSIUM

Mr QU Dongyu, Director-General of the Food and Agriculture Organization of the United Nations

OPENING REMARKS

- **H.E. Jamshid Khodjaev**, Minister of Agriculture, Government of Uzbekistan
- **The Honourable Penelope Wensley AC**, National Soils Advocate, Australia
- **Mr Ibrahim Thiaw**, Executive Secretary, United Nations Convention to Combat Desertification (UNCCD) *Video message*
- **Mr Aziz Karimov**, Head of International Center on Biosaline Agriculture Regional office for Central Asia and South Caucasus (ICBA)
- **Ms Laura Bertha Reyes Sánchez**, President of the International Union of Soil Sciences (IUSS)

VIDEO: MANAGEMENT AND REHABILITATION OF THE SALT-AFFECTED SOILS OF UZBEKISTAN

13.45 – 14.15

LAUNCH OF THE GLOBAL MAP OF SALT-AFFECTED SOILS

Moderator: **Ms Maria Konyushkova, FAO**

Launch of the GSASmap: **Mr Christian Omuto**, FAO

NATIONAL CONTRIBUTIONS

- **Bangladesh**: Ms Arifunnahar Akhi, Soil Resource Development Institute
- **Iraq**: Mr Waleed Al Shafie, Ministry of Agriculture
- **Mexico**: Mr Mario Guevara Santamaria, National Autonomous University of Mexico
- **Sudan**: Ms Nuha Mohammed, Land and Water Research Center

Break

14.20 – 15.50

KEYNOTE SPEAKERS | SETTING THE SCENE FOR GSAS21

Moderator: **Mr Ronald Vargas, FAO**

Mapping the salt of the earth: global case studies
Mr John Triantafilis, Manaaki Whenua Landcare Research (New Zealand)

Sustainable management of salt-affected soils
Mr Piet Neil, ARC Institute for Soil, Climate and Water (South Africa)

Integrated crop and soil solutions in rehabilitation and sustainable management of salt-affected soils
Ms Kristina Toderich, Tottori University, International Platform for Dryland Research and Education (Japan/Uzbekistan)

Status and sustainable management of salt affected soils in Latin America
Mr Raul Lavado, University of Buenos Aires (Argentina)

Building a community of science and practice on saline agriculture in the North Sea region, Europe
Ms Angelica Kaus, University of Groningen (the Netherlands)

Interactive Q&A session

15.50 – 16.00

Quiz | Launch of the poster exhibition & photo contest
***Ms Isabelle Verbeke**, FAO*

Thursday 21 October

13.00 – 13.10 — **OPENING OF THE SECOND DAY OF THE SYMPOSIUM**

Ms Rosa M. Poch, Chair of the Intergovernmental Technical Panel on Soils (ITPS)

Parallel session 1

13.10 – 14.20

Theme 1 - Assessment, mapping, and monitoring of salt-affected soils

Moderator: Mr Tibor Toth, IUSS

Spatial predictability of salinity hazard with machine learning algorithms and digital data in the Irrigation Plain
Mr Fuat Kaya, Isparta University of Applied Sciences, Faculty of Agriculture, Turkey

Prediction of soil salinity using a random forest based model between 2000 and 2016: A case study in the Great Hungarian Plain
Ms Ghada Sahbeni, Eötvös Loránd University, Hungary

Mapping salt-affected soils of the United States of America
Mr Stephen Roecker, USDA-NRCS, USA

Status of salt-affected soils in Cameroon
Mr Georges K. Kome, Department of Soil Science, University of Dschang, Cameroon

Use of aboveground electromagnetic induction meter for detecting salinity gradients and indurated soil layers in a volcanic landscape
Ms Janette Arriola-Morales, Benemérita Universidad Autónoma de Puebla, Mexico

Break

14.30 – 15.30

Theme 1 - Assessment, mapping, and monitoring of salt-affected soils

Moderator: Mr Jorge Batlle-Sales, Chair of INSAS

Mapping root-zone agricultural soil salinity across scales in California, USA
Mr Elia Scudiero, University of California, Riverside & USDA-ARS U.S. Salinity Laboratory, United States of America

Soil salinity mapping and biosaline agriculture in Kazakhstan
Ms Zhanyl Bozayeva, Food and Agriculture Organization of the United Nations, Kazakhstan

Current challenges in application of Electromagnetic Induction method in monitoring soil salinity and sodicity in irrigated agricultural lands: Case studies from Portugal
Mr Mohammad Farzamian, Instituto Nacional de Investigação Agrária e Veterinária, Portugal

Assessment of the state of soil salinity for analysis of geochemical stability of landscapes in dry areas
Mr German Kust, Institute of Geography, Russian Academy of Sciences, Russian Federation

15.30 – 16.00 — **Poster session Theme 1: open Q&A session for posters**

Thursday 21 October

13.00 – 13.10 — **OPENING OF THE SECOND DAY OF THE SYMPOSIUM**

Ms Rosa M. Poch, Chair of the Intergovernmental Technical Panel on Soils (ITPS)

Parallel session 2

13.10 – 14.20

Theme 2 - Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Moderator: Mr Ashok Patra, ITPS

An integrated approach for the rehabilitation and management of salt-affected areas
Mr Asad Sarwar Qureshi, International Center for Biosaline Agriculture (ICBA)

Effectiveness of indigenous soil amendments on soil salinity amelioration and performance of rice in Vertisols
Mr Sharhabil Musa Yahaya, Ahmadu Bello University, Nigeria

Measures of salt-affected soils rehabilitation and sustainable management of their fertility in Ukraine
Ms Ludmila Vorotyntseva, Institute for Soil Science and Agrochemistry Research, Ukraine

Different furrow irrigation modes help soil salinity management in permanent raised beds in salt-affected irrigated drylands
Ms Mina Devkota, International Center for Agriculture Research in the Dry Areas (ICARDA), Morocco

Agronomic management for rice cultivation in inland saline soil of Northeast Thailand
Mr Pirach Pongwichian, Land Development Department, Thailand

Break

14.30 – 15.30

Theme 2 - Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Moderator: Mr Meisam Rezaei, Vice-chair of INSAS

eHALOPH and the evolution of salt tolerance in plants
Mr Tim Flowers, University of Sussex, Brighton, UK

Reclaiming coastal saline soils by freezing saline water irrigation: mechanisms and application
Mr Xiaojing Liu, Institute of Genetics and Developmental Biology, China

Introducing salt tolerant okra as a summer crop to coastal Lebanese area
Mr Talal Darwish, National Council for Scientific Research, Lebanon

Physiological and molecular adaptations of halophytic grasses under sodic and saline stresses
Ms Charu Lata, ICAR- IIWBR – Indian Institute of Wheat and Barley Research, India

15.30 – 16.00 — **Poster session Theme 2: open Q&A session for posters**

Thursday 21 October

13.00 – 13.10 — **OPENING OF THE SECOND DAY OF THE SYMPOSIUM**

Ms Rosa M. Poch, Chair of the Intergovernmental Technical Panel on Soils (ITPS)

Parallel session 3

13.10 – 14.25

Theme 3 - Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices

Moderator: Ms Lydia Chabala, ITPS

Abu Dhabi Soil Salinity Management plan and Soil salinity executive plan
Mr Bayan Athamneh, Environment Agency, United Arabs Emirates

The emergence of a governance landscape for saline agriculture
Ms Katarzyna Negacz, Vrije Universiteit Amsterdam, Netherlands

Applying sustainable agricultural management practices in saline and sodic soils to increase soil organic carbon sequestration potential and mitigate climate change
Mr Dimitris Triantakonstantis, Hellenic Agricultural Organization, DIMITRA, Greece

Salt affected soils in Prakasam district of Andhra Pradesh - Livelihood diversification of farmers
Mr Venkata Subbaiah. P, Acharya N. G. Ranga Agricultural University, India

Salinity management and use of state and transition models for salt-affected soils
Mr Michael J. Kucera, USDA-NRCS, United States of America

Break

14.30 – 15.30

Theme 3 - Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices

Moderator: Mr Temurbek Reymov, Coordinator of the Interim Regional CADI Secretariat

Identification, mitigation and adaptation to southeastern United States soil salinization
Ms Nancy Gibson, USDA Southeast Climate Hub, United States of America

Salt-affected soils at the farm scale: successful experiences and innovation needs
Mr Edoardo A.C. Costantini, CNR-IBE - Institute of Bioeconomy, Italy

Soils, groundwater movements and floods in Argentina lowlands
Mr Miguel Angel Taboada, INTA CIRN Institute of Soils and CONICET, Argentina

Mapping and monitoring saline and sodic soil reclamation in Indo-Gangetic Plains of India using geo-information tools
Mr Dharmesh Verma, RNZ International FZE, India

15.30 – 16.00 — **Poster session Theme 3: open Q&A session for posters**

Thursday 21 October

13.00 – 13.10 — **OPENING OF THE SECOND DAY OF THE SYMPOSIUM**

Ms Rosa M. Poch, Chair of the Intergovernmental Technical Panel on Soils (ITPS)

Parallel session 4

13.10 – 14.20

Testimonies from the field - Good practices to manage salt-affected soils

Moderator: Mr Sherzod Umarov, FAO

Biological improvement of saline-alkali land by planting two cultivated species of barnyard (Echinochloa)
Mr Lin Zhu, Ningxia University, China

The management of subsurface drip irrigation (SDI) by unconventional water in pistachio orchards in severe soil salinity and alkalinity condition
Mr Abdolhamid Sherafati, Khorasan Razavi Agricultural and Natural Resources Research and Education Center, AREEO Iran

Mix water tools for risk reductions when using non-conventional water resources
Mr Francisco Pedrero, Irrigation Department. Centro de Edafología y Biología Aplicada del Segura, Spain

Innovative biotechnology for sustainable management of saline soil fertility, nutrition and productivity of cotton and wheat
Ms Gulnara Ismailovna Djumaniyazova, Uzbekistan

Saline soil reclamation though cut-soiler drainage technology: Spatio-temporal assessment
Mr Bhaskar Narjary, ICAR-Central Soil Salinity Research Institute, India

Break

14.30 – 16.00

Testimonies from the field - Good practices to manage salt-affected soils

Moderator: Mr Francisco Pedrero Salcedo, WASAG

Haloculture for hyper-saline drain water reuse and combating dust prone regions
Mr Yousef Hasheminejhad, National Salinity Research Center, Iran

Long-term combination of pruning residues incorporation, reduced tillage and drip irrigation to improve SOM stabilization and structure of salt-affected soils in a semi-arid Citrus tree orchard
Ms Noelia Garcia-Franco, Tecnhical University of Munich, Germany

Halopriming; a low cost and economical shotgun solution for improving crop stand and productivity under salt affected condition
Mr Hafeez ur Rehman, University of Agriculture - UAF, Pakistan

An economic analysis of the yield of eight varieties of potato grown under saline conditions
Mr Bas Bruning, The Salt Doctors

The application of the effective actions for improvement the chemical and physical properties of saline-alkaline soils
Mr Samvel Sahakyan, Scientific Center of "Soils Science, Agrochemistry and Melioration after HrantPetrossyan", Armenian National Agrarian University, Armenia

Gravel mulches as an effective tool for salinity management in orchards of salt-affected arid regions
Mr Farhad Khorsandi, Islamic Azad University, Iran

Friday 22 October

13.00 – 13.10

OPENING OF THE THIRD DAY OF THE SYMPOSIUM

Introduction to the INSAS network

Mr Batlle-Sales, Chair of INSAS

Parallel session 1

13.10 – 14.20

Theme 1 - Assessment, mapping, and monitoring of salt-affected soils

Moderator: Ms Megan Balks, ITPS

Minimizing the effect of soil salinity on prediction accuracy of soil organic carbon

Mr Saham Mirzaei, University of Tehran, Iran

Monitoring tridimensional soil salinity patterns at the field scale using electromagnetic induction sensing and inversion

Mr Karl Vanderlinden, IFAPA Centro Alameda del Obispo, Spain

Numerical phytoindication of soil salinity: the case study in the dry steppes of Russia

Ms Kristina Prokopyeva, Lomonosov Moscow State University, Russian Federation

Preliminary study of salt affected soils in the Zona Bananera, Magdalena (Colombia)

Mr C.A. Rincon-Rodriguez, Universidad Nacional de Colombia, Colombia

Natural resource management and monitoring at salt-affected inter-channel depressions of Amu Darya delta under desertification for the liquorice restoration

Mr P.R. Reymov, Karakalpak State University, Uzbekistan

Break

14.30 – 16.00

Plenary session

MAIN SESSION OUTCOMES AND CLOSURE

(see last page for details)

Friday 22 October

13.00
13.10

OPENING OF THE THIRD DAY OF THE SYMPOSIUM

Introduction to the INSAS network
Mr Batlle-Sales , Chair of INSAS

Parallel session 2

13.10
14.20

Theme 2 - Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Moderator: Ms Fatma Rekik, ICBA

Management of soil salinity and improvement of nutrient use efficiency of salt-affected farmland
Mr JingSong Yang, Institute of Soil Science, Chinese Academy of Sciences, Nanjing, Jiangsu, China

Saline-sodic soils rehabilitation using a rubble barrier and organic amendments
Ms Elizabeth Chávez-García, Universidad Nacional Autónoma de México, Mexico

Soil salinity control in an era of risks and opportunities: Insights from physically-based numerical simulations of flow and transport
Mr David Russo, Institute of Soil, Water and Environmental Sciences, the Volcani Institute, Israel

Subsurface irrigation of tomato with saline water using an exudation textile pipeline: an option with risks
Mr Enrique Misle, Universidad Católica del Maule, Chile

Producing a tailored soil, with an underused saline Fluvisol, for the conservation of a critically endangered species
Ms Ana Cortinhas, Universidade de Lisboa, Portugal

Break

14.30
16.00

Plenary session
MAIN SESSION OUTCOMES AND CLOSURE

(see last page for details)

Friday 22 October

13.00
13.10

OPENING OF THE THIRD DAY OF THE SYMPOSIUM

Introduction to the INSAS network
Mr Batlle-Sales , Chair of INSAS

Parallel session 3

13.10
14.20

Theme 3 - Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices

Moderator: Ms Lucrezia Caon, FAO

Managing soil salinity in irrigated drylands of Aral Sea basin: An assessment through the lens of sustainability indicators
Ms Krishna Devkota, ASARI, Mohammed VI Polytechnic University, Morocco

Modeling risks of salt-induced irreversible soil degradation
Mr Isaac Kramer, The Hebrew University of Jerusalem, Israel

Salts in the terrestrial environment of Kuwait and proposed management
Ms Hana'a A Burezq, Kuwait Biochar Initiative, Kuwait

Fresh manure as a risk of soil salinization at high rates of application
Mr Roberto Baigorri, Fertinagro Biotech, Spain

Bangladesh coastal region: Sustainable land management (SLM) best practices
Mr Shoaib JU, Soil Resource Development Institute, Bangladesh

Break

14.30
16.00

Plenary session
MAIN SESSION OUTCOMES AND CLOSURE

(see last page for details)

Friday 22 October

13.00 13.10

OPENING OF THE THIRD DAY OF THE SYMPOSIUM

Introduction to the INSAS network

Mr Batlle-Sales , Chair of INSAS

Parallel session 4

13.10 14.20

Testimonies from the field - Good practices to manage salt-affected soils

Moderator: Msr Yusuf Yigini, FAO

Effective halophilic microbes for bio-amelioration of coastal saline soils

Mr Sanjay Arora, ICAR-Central Soil Salinity Research Institute, India

Large-scale barren saline-alkali land amelioration with flue gas desulfurization gypsum in Northeast China

Mr Yonggan Zhao, Tsinghua University, China

Land shaping practice for management of low-lying salt affected coastal soil

Mr D. Burman, ICAR-Central Soil Salinity Research Institute, India

Effects of different types of composts, phosphogypsum and mineral fertilization on the chemical and biochemical properties of an acid sulphate soil and the yield of rice in Djibélor (Lower Casamance)

Mr Abdoulaye Badiane, Senegalese Institute of Agricultural Research-Djibélor Agricultural Research Center CRA DJIBELOR, Senegal

Halophyte (Dixie Grass) Plantation for Rehabilitation Severely Saline Soil in Northeastern Region, Thailand

Ms Kamontip Sasithorn, Land Development Department

Break

14.30 16.00

Plenary session

MAIN SESSION OUTCOMES AND CLOSURE

(see last page for details)

Friday 22 October

13.00 – 13.10

OPENING OF THE THIRD DAY OF THE SYMPOSIUM

Introduction to the INSAS network

Mr Batlle-Sales , Chair of INSAS

13.10 – 14.20

Parallel sessions 1 to 4

Break

Plenary session

14.30 – 15.30

MAIN SESSION OUTCOMES AND KEY FINDINGS

Moderator: Ms Kate Negacz, Vice-chair INSAS

Theme 1: Assessment, mapping, and monitoring of salt-affected soils

Mr Tibor Toth, International Union of Soil Sciences

Theme 2: Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Ms Kristina Toderich, International Platform for Dryland Research and Education, Tottori University (Japan)

Theme 3: Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices

Mr Mohamad Jamal Khan, Intergovernmental Technical Panel on Soils

15.30 – 16.00

CLOSURE OF THE SYMPOSIUM

Moderator: Ms Natalia Rodríguez Eugenio, FAO

Result of the GSAS21 poster competition | Announcement of the photo contest's winners

Conclusions of the Symposium and the way forward

Mr Ronald Vargas, FAO

Closing remarks

Mr Lifeng Li, Director NSL, FAO

POSTER SESSION

Theme 1

Salinity risk mapping using an integrated approach and land cover in semi-arid area, Morocco

Abdelwahed Chaaou, *Institut Agronomique & Vétérinaire Hassan II, Morocco*

Saline soils in the Baixada Maranhense: a case study in Maranhão state, Brazil

Alba Leonor da Silva Martins, *Brazilian Agricultural Research Corporation, Brazil*

Wheat salinity stress detection using VNIR spectrometry

Ali Darvishi Boloorani, *University of Tehran, Iran*

Salinization and sodification in irrigated agricultural areas in arid regions, Northern Patagonia Argentina

Alicia Apcarian, *Universidad Nacional del Comahue, Argentina*

Relations between the electrical conductivity and salt content for 1:5 soil-to-water extract: contribution of the salinity chemistry

Amrakh I. Mamedov, *Arid Land Research Center, Tottori University, Japan*

Characterisation of different land uses in Pokkali ecosystem

Anju Sajan, *Kerala Agricultural University, India*

Characterisation and modelling of salt-affected soils properties using VNIR hyperspectral data

Arijit Barman, *ICAR-Central Soil Salinity Research Institute, India*

Digital assessment of soil salinity across Paraguay

Arnulfo Encina Rojas, *Facultad de Ciencias Agrarias, Universidad Nacional de Asunción, Paraguay*

Salt-affected Soils in the Awash River Basin irrigation projects in Ethiopia

Aweke M. Gelaw, *ATA– Agricultural Transformation Agency, Ethiopia*

Salt-affected soils in Bulgaria

Biser Hristov, *University of Forestry, Sofia, Bulgaria*

Soil electrical conductivity EC modelling based on LUCAS topsoil (2015-2018) using machine learning approach to classify salt affected soils

Calogero Schillaci*, Joint Research Centre, Directorate D3, Ispra, Italy*

Salinity of irrigated soils at the sarpinskaya hollow in the Caspian lowland

E. I. Kravchenko, *Dokuchaev Soil Science Institute, Russian Federation*

Characterization and classification of natural and altered wet land soils (Kaipad soils) of north Kerala, India

E. Purandhar, *Kerala Agricultural University, India*

Impact of salinity on soil organic carbon in a semi-arid environment from 2000 to 2020 (Northwestern Algeria)

Fatiha Faraoun, *Djilali Liabes University, Algeria*

Cambisol endosalic of North-West Caspian region in the context of global climate change

Gasanova Z.Ul., *Precaspian Institute of Biological Resources RAS, Russian Federation*

The influence of the soil formation factors on the mapping of salt-affected soils on a national scale in South Africa

Johannes Petrus Nell, *ARC Institute for Soil, Climate and Water, South Africa*

Statement of soil salinity in Burkina Faso

Kabore Désiré, *Bureau National des Sols, Burkina Faso*

Investigation of short-scale soil spatial variability of a salt-affected land allotment in Maha-Illuppallama, Sri Lanka in support of applying site-specific soil management practices

M.D.P. Nayanarangani, *Rajarata University, Sri Lanka*

Informational support of rational use of salt-affected soils in Ukraine

Maryna Zakharova, *National Scientific Center, Institute for Soil Science and Agrochemistry Research, Ukraine*

Land capability and suitability maps of a salt affected costal area (Ravenna, northern Italy)

Mauro De Feudis, *Alma Mater Studiorum - University of Bologna, Italy*

National study of soil degradation by salinization in Colombia

Neira Mendez Fredy, *Instituto de Hidrología, Meteorología y Estudios Ambientales, Colombia*

Examination of chemical and physical properties of halomorphic soils in the Surčin area - Republic of Serbia

Radmila Pivić, *Institute of Soil Science, Serbia*

Minerals (carbonate and palygorskite) induced natural soil degradation (sodicity and poor drainage) in Vertisols of semi-arid Central India

Ranjan Paul, *ICAR-National Bureau of Soil Survey and Land Use Planning, India*

Methods for the analysis of salt-affected soils

Rich Ferguson, *USDA-NRCS, United States of America*

Salt-affected soils in Colombia: modelling study case in CAR zone

Rosalina Gonzalez, *Universidad de La Salle, Colombia*

Characterization and management of salt-affected soils of Kurnool district of Andhra Pradesh in India

Sailaja Vinnakota, *Acharya N G Ranga Agricultural University, India*

Characterization of spatial and temporal variability in soil salinity in relationship to Alfalfa (Medicago sativa L.) productivity

Sharon E. Benes, *California State University, United States of America*

Mapping salt-affected soils of Italy

Ungaro F., *Institute of BioEconomy, Italy*

Distribution of sodium-affected soils in the Amazon: genesis, characterization and agricultural aptitude

Valdinar Ferreira Melo, *Federal University of Roraima, Brazil*

Theme 2

Assessment of finger millet cultivars/landraces for performance, stability, and interrelationships among traits under contrasting irrigation water-salinity levels in Dubai

Abidemi Talabi, *International Center for Biosaline Agriculture, United Arab Emirates*

Integrated management of nutrients from organic and inorganic sources increase productivity, soil health and climate resilience of sodic soils

Ajay Kumar Bhardwaj, *ICAR-Central Soil Salinity Research Institute, India*

The use of saline water in the irrigation of triticale fodder crop, and its effect on growth, productivity and soil properties

Al-Bashi Lubna*, Agricultural Scientific Research Center in Deir Ezzor, Syria*

Inorganic and organic amendments and irrigation water quality affect P losses in saline-sodic soil

Arvind Kumar Rai, *ICAR-Central Soil Salinity Research Institute, India*

Reclamation of saline-sodic soils with gypsum and sulphur

Demis Andrade Foronda, *Gembloux Agro BioTech, University of Liege, Belgium*

Innovative technology for increasing the fertility of saline soils

Ibrayeva M.A, *Kazakh Research Institute of Soil Science and Agrochemistry, Kazakhstan*

Agricultural gypsum application in soils with of sodium: study in microlysimeters

Johana Ballestero, *Facultad de Agronomía, Universidad de La República, Uruguay*

Cover crops for the management of saline seeps in areas of high flooding risk

Julián Isasti, *Argentine No-Till Farmers Association, Argentina*

Effect of planting windows and irrigation schedules on yield of dibbled wal (Field bean) under zero tillage in coastal saline soils of Konkan region of Maharashtra

K. P. Vaidya, *Khar Land Research Station, India*

Controlled subsurface drainage for the management of water table, soil salinity and nutrient losses in waterlogged saline vertisols of TBP command area of Karnataka, India

Karegoudar,A.V, *AICRP on SAS&USW, ARS, India*

Preliminary surveys of natural plant species tolerant to severe salinity on the Al-Jabbul Lake banks

Majar Ahmad, *General Commission for Scientific Agricultural Research, Syria*

Opening a new door in the management of salt-affected soils with the use of pumice

Marta Camps-Arbestain, *School of Agriculture and Environment, Massey University, New Zealand*

Crop production in sodic soils: Can the corn take the water of the Btn horizon?

Miguel A. Taboada, *INTA-CONICET, Argentina*

Physiological parameters of salt tolerance of Sorghum: water status and gas exchanges

Monaliza Alves dos Santos, *Agronomy Department, Rural Federal University of Pernambuco, Brazil*

Exploration of desert halophytes plant for rehabilitation of saline soils through phytoremediation

Muhammad Madneee, *Islamia University of Bahawalpur, Pakistan*

Deficit saline irrigation and mulch affect soil microbial activities under zero-tilled saline soil

Nirmalendu Basak and Arvind Kumar Rai, *ICAR-Central Soil Salinity Research Institute, India*

Evaluation of Sorghum (Sorghum bicolor L.) varieties for their tolerance to sodicity level for sustained productivity in salt affected soils

P.Balasubramaniam, *Tamil Nadu Agricultural University, India*

Utilization of Flue gas desulfurization (FGD) Gypsum in reclamation of sodic soil

Parul Sundha, *ICAR-Central Soil Salinity Research Institute, India*

Sustainable rehabilitation, bridging yield gaps and increasing farmers' income in salt affected rice–wheat agroecosystems: A farmers' participatory assessment

Parvender Sheoran, *ICAR-Central Soil Salinity Research Institute, India*

Seaweed cultivation to harness the productivity of poorly drained saline lands

Preeti Singh, *ICAR-Indian Agricultural Research Institute Jharkhand, India*

Sandalwood (Santalum album L.): a possible high-value tree species for the saline soils

Raj Kumar, *ICAR-Central Soil Salinity Research Institute, India*

Standardizing optimum lateral spacing of Cut-soiler constructed preferential shallow sub-surface drainage (PSSD) for dryland salinity management

Rajender Kumar Yadav, *ICAR-Central Soil Salinity Research Institute, India*

Effect of irrigation management on soil properties, growth and yield of sugarcane (Saccharum officinarum) in waterlogged saline Vertisols under Tungabhadra Project Command area

Rajkumar, R. H, *University Of Agricultural Sciences, Raichur, Karnataka, India*

Purslane as a super-high K accumulator Halophyte

Rostam Yazdani Biouki, *National Salinity Research Center, AREEO-Agricultural Research, Education and Extension Organization, Iran*

Salinity and prevention of wind erosion in the southeast of Lake Urmia

Saghar Chakherlou, *University of Tabriz, Iran*

Using water hyacinth as soil amendment to reclaim and boost productivity of calcareous sodic soils

Sanjay Arora, *ICAR-Central Soil Salinity Research Institute, India*

Subsurface drainage technology for reclamation of waterlogged saline soils - A case study of alluvial region

Satyendra Kumar, *ICAR-Central Soil Salinity Research Institute, India*

Salinity amelioration in salt affected agriculture soils of semi-arid tropics through traditional ecological knowledge (TEK)

Seema B. Sharma, *KSKV Kachchh University, India*

Integrated use organic and inorganic amendments for management of calcareous sodic soils in eastern India

Shiveshwar Pratap Singh, *Rajendra Prasad Central Agricultural University, India*

Transforming homesteads of moderately saline area to adopt climate extremes in coastal region, Bangladesh

Shoaib, JU, *Soil Resource Development Institute, Bangladesh*

Development of a system for salt removal, crop cultivation, and salt production that does not rely on a large-scale irrigation and drainage network

Takashi KUME, *Graduate School of Agriculture, Ehime University, Matsuyama, Japan*

Restoration of salt-affected soils is a function of soil profile diagnosis, and residual sodium carbonate of irrigation water in arid and semi-arid environments

Waqar Ahmad, *The University of Queensland, St Lucia, Australia*

Plant and soil responses to the combined application of organic amendments and inorganic fertilizers in degraded sodic soils of Indo-Gangetic plains

Y.P. Singh, *ICAR-Central Soil salinity Research Institute, India*

Harnessing productivity of sodic soils through salt tolerant varieties of rice and matching management practices

Y.P. Singh, *ICAR-Central Soil salinity Research Institute, India*

Theme 3

The effect of halophilic, alkaliphilic and haloalkaliphilic rhizosphere bacteria on different vegetative growth characteristics, soil and GN15 almond rootstock nutrients

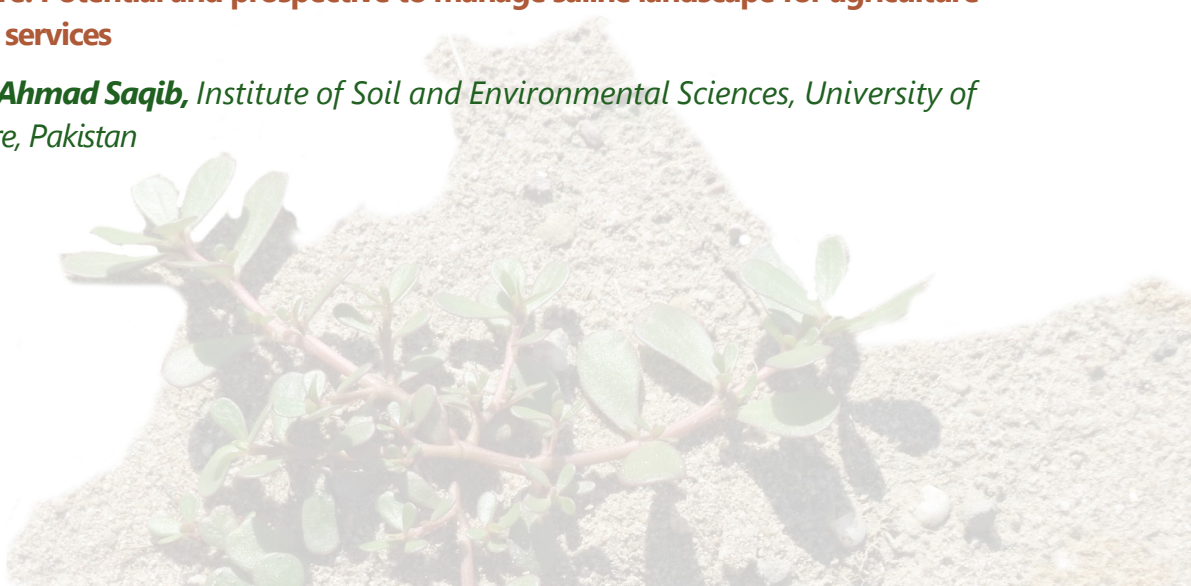
Mehrnoosh Eskandari Torbaghan, *Khorasan Razavi Agricultural and Natural Resources Research and Education Center, Iran*

Forage production on halomorphic soils of the Flooding Pampa

Raúl Silvio Lavado, *University of Buenos Aires, Argentina*

Saline Agriculture: Potential and prospective to manage saline landscape for agriculture and ecosystems services

Zulfiqar Ahmad Saqib, *Institute of Soil and Environmental Sciences, University of Agriculture, Pakistan*



The Global Soil Partnership (GSP) is a globally recognized mechanism established in 2012. Our mission is to position soils in the Global Agenda through collective action. Our key objectives are to promote Sustainable Soil Management (SSM) and improve soil governance to guarantee healthy and productive soils, and support the provision of essential ecosystem services towards food security and improved nutrition, climate change adaptation and mitigation, and sustainable development.

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