

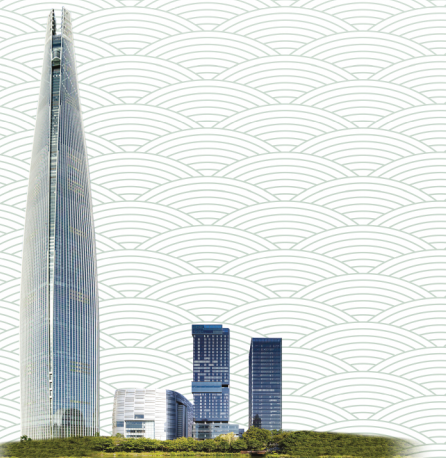
GSS 2023

4th Global Soil Security Conference

June 26 (Mon) - 29 (Thu), 2023

Softel Ambassador Seoul
Seoul, Korea

Final Program



Hosted by



Co-hosted by

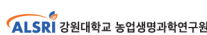




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SUPER S (11-0-0-75)

1. Internationally Developed Fertilizer 'Super S'



H SULPHUR CORP + Shell Thiogro Technology (Urea Activated Sulphur)

11% Urea based Sulphur enhanced Sulphur fertilizer with 75% micronized elemental Sulphur
The product can be blended with other inputs or directly applied to meet a wide spectrum of nutrient requirements.

2. Product Features

Immediate & Season Long Plant Availability

Sulphur to Sulphate conversion that occurs quick enough to meet plants' immediate needs and lasts throughout the growing cycle.

Flexible application

Lower risk of Sulphate losses through leaching and low salt index makes Super S seed safe when compared to Ammonium Sulphate

The Micronised particle size of Elemental Sulphur in Super S improves availability

High Nutrient Density reduces the number of kg/ha required

- Includes 11% Nitrogen
- Includes 75% Sulphur (vs 24% in Ammonia Sulphate)

Improved microbial activity

Soil microbes use the Urea as a partial energy source to break down the Sulphur



Guaranteed Analysis

Total Nitrogen (N)	11%
Sulphur (S)	75%

Application Features

Blends well with most conventional dry fertilizer
Available in 1,200kg bags, bulk, and 25kg bags
Excellent storage properties
SGN : 300
Bulk Density : 62.5 lbs/ft3
Salt Index : 17.8
Angle of Repose : 32 Low

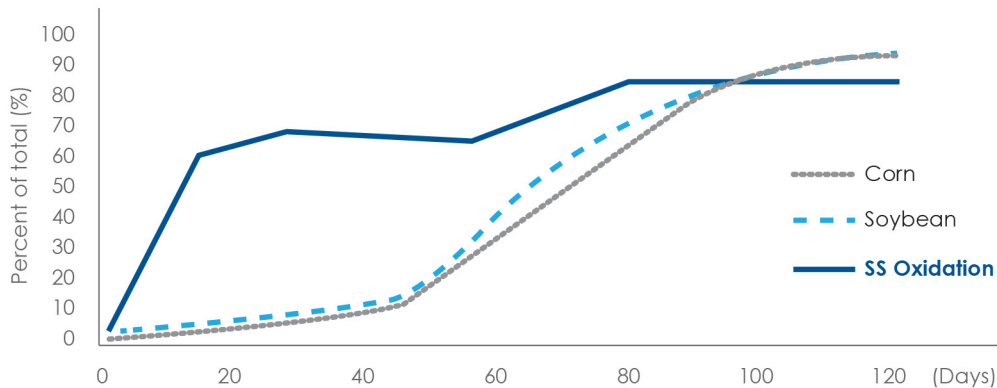
3. Applicational Corps

- Rape Blossoms, Corn, Soybean, Sugarcane, Potatoes, Sweet Potatoes, Coffee bean, and Rice



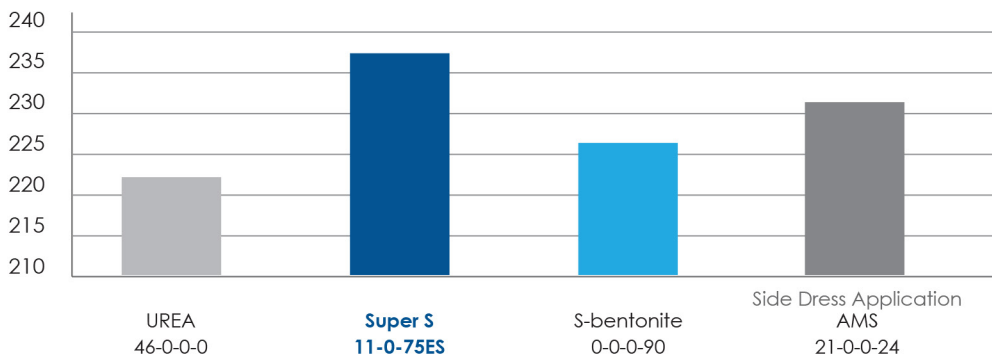
4. Super S Oxidation Compared with Crop Need

Measured Using PRS Probes, Crop Uptake Source IPNI

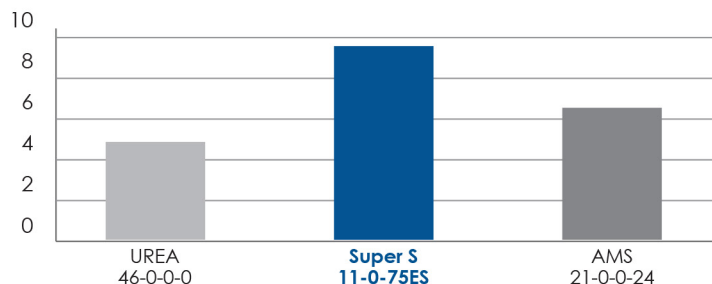


5. 'Super S' Increases Crop Yield

Continuous Sulphur Supply increases crop yield



6. A reliable Sulphur source across the growing season



Super S - Economical and Sustainable

Residual soil Sulphate levels post harvest combined with comparable yield results suggest sufficient oxidation for Super S within the growing season, while offering residual benefits for future crops.



Welcome Message

Welcome to the 4th Global Soil Security Conference 2023!

It is our pleasure to announce the 4th Global Soil Security Conference 2023 in Seoul, Korea, hosted by the Korean Society of Soil Science and Fertilizer (KSSSF).

This conference was planned to be held in 2020 but delayed to 2023 due to the COVID19 Pandemic crisis.

Theme of GSS 2023 is 'Global Soil Security: Beyond the Soil (BTS)'

Soil security has become the central dogma of the sustainable soil management that should integrate the roles of soil functions for soil health, ecosystem services, climate change and human health. We will tailor the GSS 2023 programs specifically to connecting soil security to the theme of GSS 2023.

The series of GSS conferences, being held in the Texas A&M University, USA (2015), Institute Curie, Paris, France (2016) and University of Sydney, Australia (2018), were bestowed by big attendance and great success.

Your participations are instrumental to our success of GSS 2023.

Jae E. Yang

President of GSS 2023

Welcome Message



Welcome to 4th GSS, Ladies and gentlemen,

My name is Ko, Byong-Gu and I am the President of The Korean Society of Soil Science and Fertilizer (KSSSF). First of all, let me begin by expressing my deep great pleasure for coming you to this meaningful conferences. It is my great pleasure to see you all here and make a few remarks on the global soil security.

The Global Soil Security (GSS) conference started in 2015 at Texas A&M University, followed by Paris in 2016 and the University of Sydney in 2018. We had planned to host it in Korea in 2020, but it was canceled due to COVID-19. Now, we are thrilled to finally have the opportunity to host it in Korea.

Soil security refers to maintaining healthy soil that supports crop production and provides various benefits to the nation. It extends beyond food production to areas like climate change, human health, water security, ecosystem services, biodiversity, and environmental governance. As I understand that this international issue of great importance will be addressed at GSS2023, I have high expectations that it will be an informative and progressive academic conference.

The theme of GSS2023 is "Beyond The Soil (BTS)." It echoes representing Korea, and is both innovative and thought-provoking, the theme "Beyond The Soil" expands the meaning of soil.

Over 30 countries will be represented by experts at this conference. Although time may be limited, I hope you have an enjoyable and fruitful experience in Korea. Once again, I express my gratitude to Chairman Yangjae and the organizing committee for their dedicated efforts.

I have heard that experts from over 30 countries will participate in this conference. Although the time may be short, I hope you have an enjoyable and fruitful time in Korea. Lastly, I would like to express my gratitude once again to Chairman Jae E Yang and all the organizing committee members for their dedicated efforts in hosting this conference in Korea.

Thank you.

Byong-Gu Ko

President of The Korean Society of Soil Science and Fertilizer (KSSSF)

농업인의 그늘 아래에서...

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그 뒤에는 고향을 지키며 일해 온 농업인이 있습니다.
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NH NongHyup



남해화학

Organizers

Organizing Committee

President	Jae E. Yang	<i>Kangwon National University</i>
Vice Presidents	Kye-Hoon John Kim Pil Joo Kim Seok Cheol Kim	<i>The University of Seoul</i> <i>Gyeongsang National University</i> <i>Gyeonggi-do Agricultural Research and Extension Services</i>
Secretary Generals	Kwon-Rae Kim Sung-Chul Kim	<i>Gyeongsang National University</i> <i>Chungnam National University</i>
Financial Chairs	Doug-Young Chung Hyuck Soo Kim Man Park	<i>Chungnam National University</i> <i>Kangwon National University</i> <i>Kyungpook National University</i>
Planning Chairs	Chang Oh Hong Sang Yoon Kim Yong Bok Lee	<i>Pusan National University</i> <i>Sunchon National University</i> <i>Gyeongsang National University</i>
Networking Chairs	Young-il Cho Byung Keun Hyun Goo Bok Jung Yunseob Kim Seungheon Lee Jeong Keun Park	<i>FarmHannong</i> <i>National Institute of Agricultural Sciences, RDA</i> <i>National Institute of Agricultural Sciences, RDA</i> <i>TERRAGREEN Co., Ltd.</i> <i>Korea Rural Community Corporation</i> <i>C&H, Inc</i>

Advisory Committee

Kwang-yong Jung	<i>National Institute of Agricultural Sciences, RDA</i>
Jin-Ho Lee	<i>Jeonbuk National University</i>

Academic Committee

Academic Committee Chair	Woo-Jung Choi	<i>Chonnam National University</i>
Academic Committee Vice Chairs	Jin-Hyeob Kwak Won-Pyo Park Seok-In Yun	<i>Jeonbuk National University</i> <i>Jeju National University</i> <i>Wonkwang University</i>



1. Soil Security Dimensions: 5C (Capability, Condition, Capital, Connectivity and Codification)

Suk-Young Hong *National Institute of Agricultural Sciences, RDA*
Sang Ho Jeon *National Institute of Agricultural Sciences, RDA*

2. Soil Security and Climate Change

Chang Oh Hong *Pusan National University*
Taek-Keun Oh *Chungnam National University*
Won-Pyo Park *Jeju National University*

3. Soil Security and Human Health

Hyuck Soo Kim *Kangwon National University*
Myung-Sook Kim *National Institute of Agricultural Sciences, RDA*
Sang Soo Lee *Yonsei University*

4. Soil Security and Water Security

Yejin Lee *National Institute of Agricultural Sciences, RDA*
Kyoung Jae Lim *Kangwon National University*

5. Soil Security and Food Security

Kwon-Rae Kim *Gyeongsang National University*
Yong Bok Lee *Gyeongsang National University*
Jin Hee Park *Chungbuk National University*

6. Soil Security and Ecosystem Services

Woo-Jung Choi *Chonnam National University*
Sung-Chul Kim *Chungnam National University*
Seok-In Yun *Wonkwang University*

7. Soil Security and Biodiversity

Heejung Kim *Kangwon National University*
Sang Yoon Kim *Sunchon National University*
Hyun-Hwoi Ku *Hankyong National University*

8. Soil Security and Policy

Jeongwan Kim *Korea Environmental Industry & Technology Institute (KEITI)*
Mok-Ryun Yu *Korea Environmental Industry & Technology Institute (KEITI)*



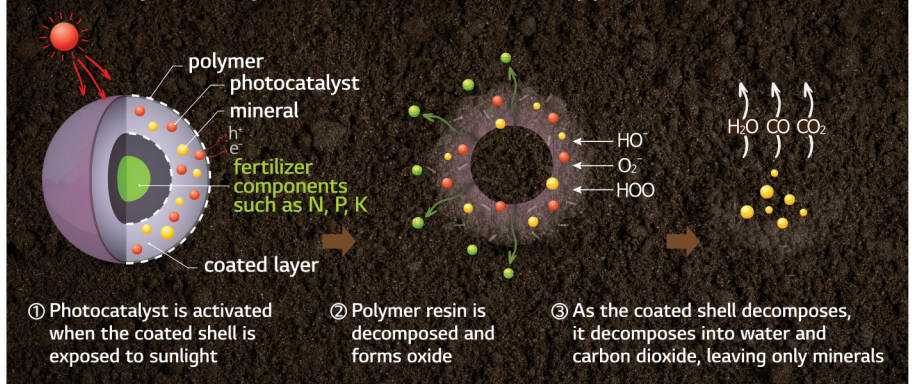
Established Solutions for Sustainable Agriculture

- Developing eco-friendly special fertilizers such as Korea's first photodegradable *CRF and acquired 2 certifications
 - 1) Ministry of Trade, Industry and Energy/Ministry of Agriculture, Food and Rural Affairs 'New Excellent Technology' Certification (2022)
 - 2) Ministry of Agriculture, Food and Rural Affairs 'Green Technology Certification' (2022)
- Eco-friendly decomposition science brand 'ecomula' launched



- Providing high-performance fertilizers optimized for crops and soil, such as Controlled Release Fertilizers and Water Soluble Fertilizers
- Expanding business to overseas markets

Decomposition process of the ecomula-applied CRF coated shell



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원타임® 발명특허: 제 10-1264829호

양질의 토양과 테라코템을 혼합한 제품으로 안정적인 물 공급과 토양 개량으로 물과 노동력을 줄일 수 있습니다.

- 원타임 I : 일반적인 조정
- 원타임 II : 극적박지, 임해매립지
- 원타임 III : 극적박지, 임해매립지

염분차단시트 발명특허: 제 10-0935635호

간단하게 펼쳐주기만 하면 염분을 차단할 수 있는 특허제품

- 물 공급시 공극형성, 보습 유지로 염의 차단, 용탈/화석, 수평 수직이동을 차단
- 물 약 50% 절감

■용도 : 모든 조정 및 식재에 가능하며 특히 극 척박 지/임해 매립지와 같이 식재 환경이 좋지 않은 곳에 효율적입니다.

■용도 : 모든 조정 및 식재에 가능하며 환경에 따라 선택 사용이 가능한 다양한 제품이 있어 간편하게 활용하시면 됩니다.

■용도 : 임해 매립지, 잔디, 수목식, 중앙 분리대, 옥상조경, 사면복화, 골프장, 사막 조경 등

Conference Information



Overview

■ **Title** 4th Global Soil Security Conference (GSS 2023)

■ **Date** June 26 (Mon) ~ 29 (Thu), 2023

■ **Venue** Sofitel Ambassador Seoul, Seoul, Korea

■ **Theme** Global Soil Security: Beyond the Soil (BTS)

■ **Language** English (no simultaneous interpretation provided)

■ **Hosted by**



Korean Society of
Soil Science and Fertilizer



Ecosystem Services of
Surface Soil Environment

■ **Secretariat Office**



The Plan Co.

3F, Jung E&C Bldg., 31-5, Seocho-daero 58-gil, Seocho-gu, Seoul 06632 Korea

T. +82-2-538-2042~3 F. +82-2-538-1540

Conference Information

List of Sponsors

Gold



Silver



Bronze



Luncheon Sponsor



Exhibitors



Printed AD



Web Banners



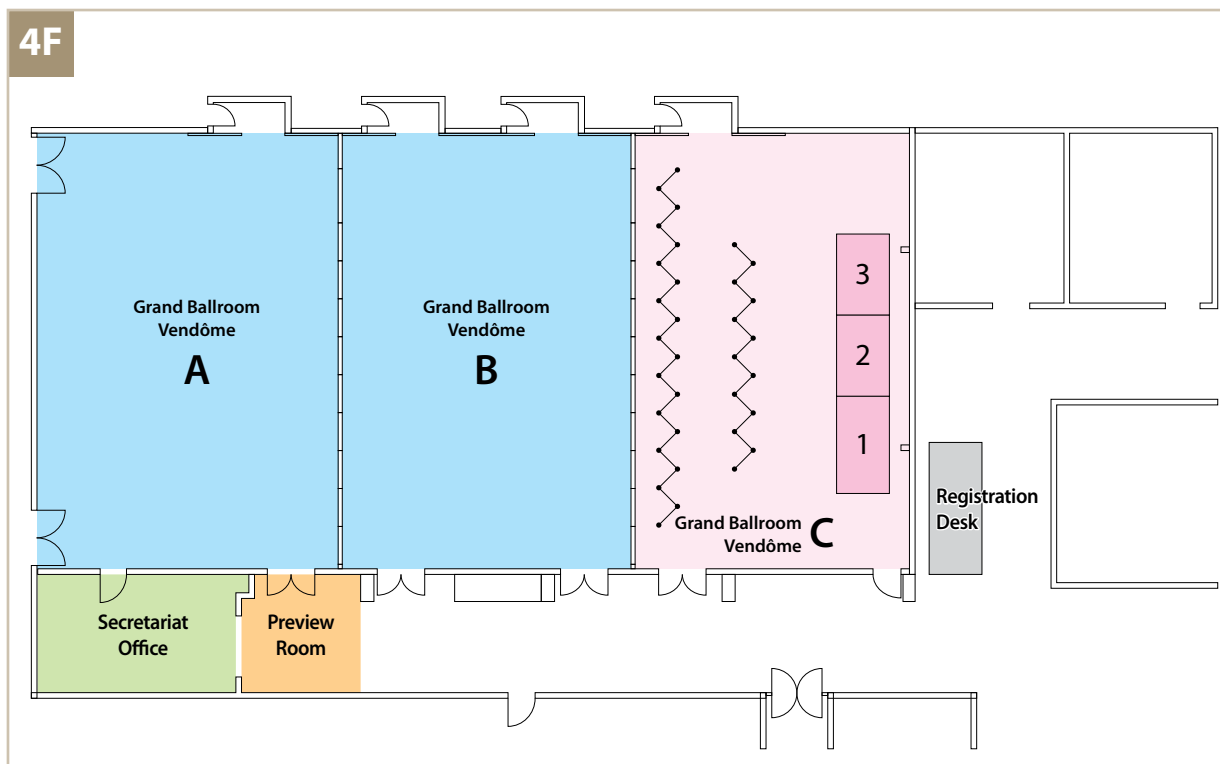
Supported by



Conference Information



Floor Plan



Category	Function	Venue
Program	Opening Ceremony	Grand Ballroom Vendôme A&B (4F)
	Plenary 1~3	
	Session 1~10	
	Closing Ceremony	
	Poster Session 1~3 (with Coffee Break)	Grand Ballroom Vendôme C (4F)
Social Events	Welcome Reception	Grand Ballroom Vendôme A (4F)
	Gala Dinner	Grand Ballroom Vendôme A&B (4F)
	Lunch & Coffee Break	Grand Ballroom Vendôme C & Foyer (4F)
Exhibition	Sponsor's Booth & Poster Panel	Grand Ballroom Vendôme C (4F)
Registration	Registration Desk	Grand Ballroom Vendôme Foyer (4F)
Office	Preview Room	Grand Ballroom Vendôme Foyer (4F)
	Secretariat Office	Grand Ballroom Vendôme Foyer (4F)

Conference Information

On-site Registration Information

Overview

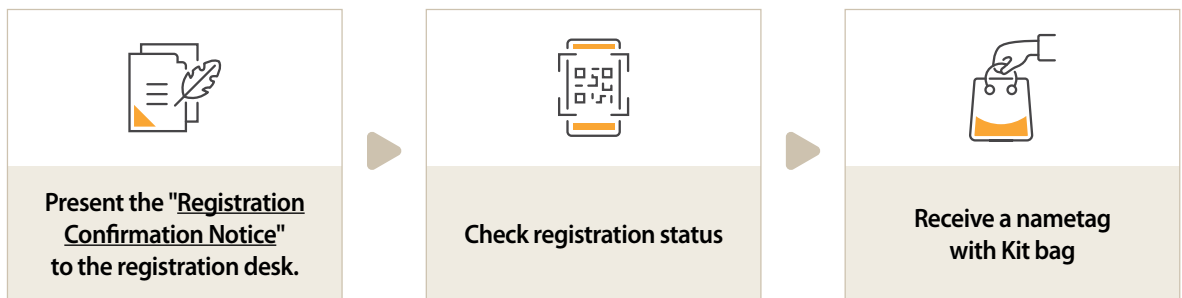
- Online registrants should present "Registration Confirmation" to the registration desk.
- Those who want to register on-site must submit the "On-site Registration Form" to the registration desk.
- All participants are requested to wear the nametag throughout the conference period.
- Those who lose the can get a nametag re-issued it at the registration desk.

Registration Desk Information

- Location: Grand Ballroom Vendôme Foyer (4F, Location indicated by the red box below)
- Operating hours of the Registration Desk:

Date	Operating Hours	Location
June 26 (Mon)	14:00 - 19:00	<p>4F</p> <p>Grand Ballroom Vendôme</p> <p>Registration Desk</p>
June 27 (Tue)	08:30 - 16:30	
June 28 (Wed)	08:30 - 16:30	
June 29 (Thu)	08:30 - 16:30	

Registration Process



Conference Information



■ Registration Fee & Payment Method

- The following methods will be available: **Credit card, Cash (USD and/or KRW)**
- The registrants must prepare the exact fee if they will pay by cash.
- On-site registration fee information

Category	On-site Registration Fee
Professional (Incl. Post Doc.)	USD 700 (KRW 875,000)
Professional (Incl. Post Doc.) - Concession*	USD 500 (KRW 625,000)
Student**	USD 300 (KRW 375,000)

* Professional (Incl. Post Doc.) - Concession

- This rate is open to the World Bank classified LOW-INCOME ECONOMIES and LOWER-MIDDLE INCOME ECONOMIES countries.
- Discounted rate will automatically applied based on your country.

** Student Registration

- At the time of online registration, students who are pursuing a bachelor's, master's or doctoral course can register under "Student" registration.
- In the online registration process, to register in the "Student" category, you must upload a copy of your student ID or equivalent supporting documents (such as a confirmation letter from the professor in charge) to register.

■ Invoice, Receipt & Certificate

- For on-site registrants, on-site payment receipt will be issued.
- Online account information will be sent to you by email, and receipt will be available on the website a week after the conference.
- After logging in, click 'Invoice and Registration Confirmation' on the 'Overview' tab to print your invoice and receipt.
- Certificate of Attendance (Confirmation of Participation) can be issued on 'Overview' two weeks after the conference.

Conference Information

Oral Presentation Guidelines

■ Duration of Presentation

Category	Presentation Time
Plenary	20 min. (incl. 2 min. Q&A)
Keynote	15 min. (incl. 2 min. Q&A)
Oral	10 min. (incl. 2 min. Q&A)

■ Prepare your Presentation File(s)

- Prepare your presentation file(s) in MS Power Point (MS Office 2013 version or higher).
- Bring your PPT file(s) on a USB memory stick. Please make sure that the file(s) is/are copied correctly onto the USB memory stick.
- If you use fonts other than standard Microsoft Office fonts, please bring the font file itself with your presentation file(s).
- Presentation monitor aspect ratio is **16:9**.
- Presentation should be made in **English** (no simultaneous interpretation provided).

■ Preview Room

Date	Operating Hours	Location
June 26 (Mon)	14:00 - 19:00	Grand Ballroom Vendôme Foyer (4F)
June 27 (Tue)	08:30 - 16:30	
June 28 (Wed)	08:30 - 16:30	
June 29 (Thu)	08:30 - 16:30	

- You should visit the Preview Room to check and up-load your presentation file(s) **at least 1 hour before your session starts** to ensure your presentation file(s) appear(s) properly.
- A technician will be ready to assist you with checking and up-loading the file.
- In case of **combining video files with the MS Power Point**, we kindly recommend checking your presentation file **at least 3 hours before your presentation**.
- For those who have presentations in the morning session, please visit the Preview Room until the day before the presentation.
- All presentations will be stored on a network server and will be accessible from the PC in the session room where your presentation will be held.
- Our staff at the Preview Room will help you to upload your file.



■ Audio Visual Equipment in the Session Room

- 1) All presenters should use only venue facilities. Each session room will be equipped with the following.
 - Laptop (operated by a technician at the control desk) running MS-Office PowerPoint 2013 operated in Windows 11, equipped with USB drive
 - A smart pointer, a mouse and a LCD monitor on the podium and a timer monitor under the front of the podium
 - One LED screen
- 2) To avoid frequently occurring technical problems during the presentation, all presenters are asked to use only IBM compatible PCs and the single LCD projector preset in the session room for all presentations during the session.
- 3) Presenters are requested not to use their own laptop computer to ensure the smooth operations of the session.
- 4) Presenters must upload their presentation file(s) at the Preview Room in advance.

■ Equipment on the Podium

- 1) The SEATS for speakers will be reserved on the Left in the FRONT ROW facing the podium and it will be marked as **"NEXT SPEAKER"**. Please sit and stand-by on the **"NEXT SPEAKER"** seats and step on the stage at your turn.
- 2) Before reaching the podium, you will be introduced by the chairperson(s).
- 3) Upon reaching the podium, your first slide will be projected onto the screen.
- 4) The timer monitor will be founded under the front of the podium and it will be going for the duration of presentation.
- 5) You can operate the screen with a wireless presenter or a cue light. Or, you can use a mouse on the podium when you need to.

* A Cue Light is also available for you to go back (**Red Arrow**) and forth (**Green Arrow**) in your slides.



Conference Information

Poster Presentation Guidelines

■ Overview

- 1) Location of Poster Display: Grand Ballroom Vendôme C (4F)
- 2) Poster size: Max. 900mm (W) x 1200mm (H) - one-page AO size poster (841 mm x 1189mm) printing recommended.
- 3) It is entirely the responsibility of the presenter to print out the poster, attach it to the designated poster board, and collect it at the announced removal time.
- 4) There will be **no oral presentations** of the posters.
- 5) However, it is highly recommended that at least one co-author stands in front of your poster board for free Q&A with attendees during the coffee break.
- 6) Your poster will be displayed during your designated presentation date.

■ Mounting & Demounting

1) Schedule

Session	Session Date & Time	Mounting Time	Demounting Time
Poster Session 1	June 27 (Tue) 10:30-11:00 & 14:45-15:15	June 26 (Mon) 14:00-19:00 June 27 (Tue) 08:30-10:00	June 27 (Tue) 18:00-18:30
Poster Session 2	June 28 (Wed) 10:50-11:20 & 15:40-16:10	June 28 (Wed) 08:30-10:00	June 28 (Wed) 18:00-18:30
Poster Session 3	June 29 (Thu) 10:50-11:20 & 15:10-15:40	June 29 (Thu) 08:30-10:00	June 29 (Thu) 17:00-17:30

2) Poster Help Desk

- There will a **Poster Help Desk** inside of Grand Ballroom Vendôme C (4F).
- Feel free to use the given suppliers at the Poster Help Desk to attach your poster on the board.
- Please use your own suppliers if the prepared materials are run out.
- Please return the used materials to the Poster Help Desk.

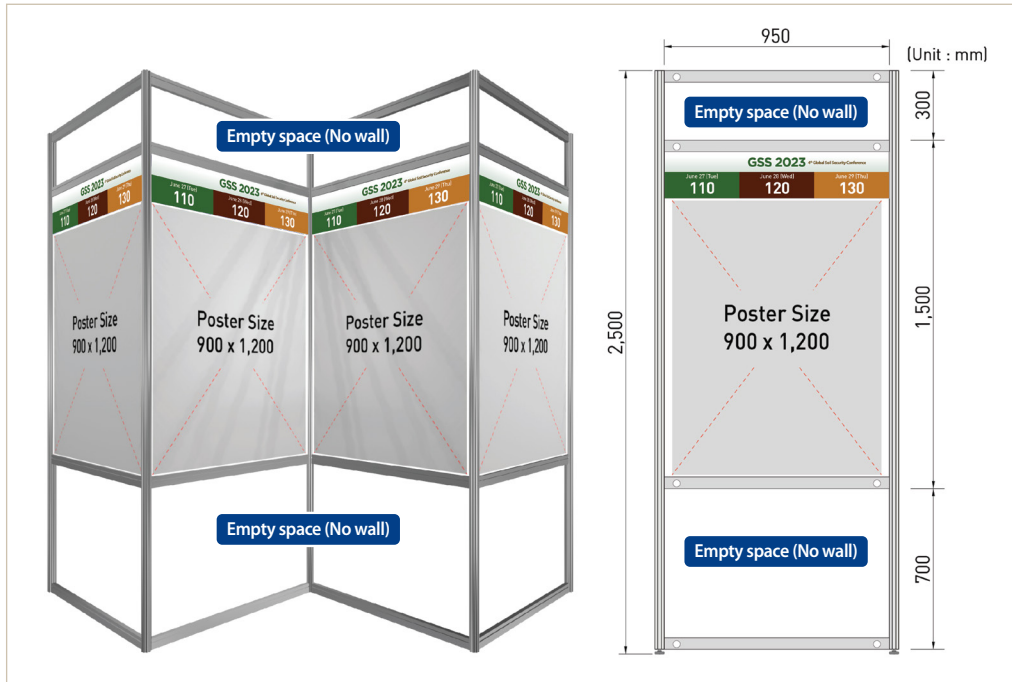
3) Make sure to mount the poster on the designated poster board.

4) You can check your poster board number of the "Final Program" book.

5) After the demolition time, the remaining posters will be discarded.



Image of Poster Board



Chair Guidelines

Presentation Time of Each Session Category

Category	Presentation Time
Plenary	20 min. (incl. 2 min. Q&A) / speaker
Keynote	15 min. (incl. 2 min. Q&A) / speaker
Oral	10 min. (incl. 2 min. Q&A) / speaker

Setting for Chair Desk

- AV equipment: Monitor, Timer
- Name plate for chairs, Session Chair Guidelines (printed) and a bottle of water are prepared on the table.
- Speaker's CV, abstracts

Category	Plenary & Keynote	Oral
CV	Printed CVs are prepared on the table	Not provided
Abstract	Printed abstracts are prepared on the table, if submitted.	Printed abstracts are prepared on the table.

- On-site staff will prepare materials for each session and put them on the chair table.

Conference Information

Social Events Information

■ Welcome Reception

- **Date & Time** June 26 (Mon), 17:30-19:00
- **Venue** Grand Ballroom Vendôme A (4F)
- **Menu** Standing Buffet & Beverage Bar
- **Dress code** Casual Attire
- **Admission** GSS 2023 nametag is required.



■ Gala Dinner

- **Date & Time** June 28 (Wed), 19:00-21:00
- **Venue** Grand Ballroom Vendôme A & B (4F)
- **Menu** Western Set Menu & Beverage Bar
- **Dress code** Business Casual Attire
- **Admission** GSS 2023 nametag is required.



■ Lunch

- **Date & Time**
 - June 27 (Tue), 12:25-13:30
 - June 28 (Wed), 12:40-14:00
 - June 29 (Thu), 12:40-13:40
- **Venue** Grand Ballroom Vendôme C & Foyer (4F)
- **Menu** Semi-buffet
- **Dress code** Casual Attire
- **Admission** GSS 2023 nametag is required.



■ Coffee Break (with Poster Session)

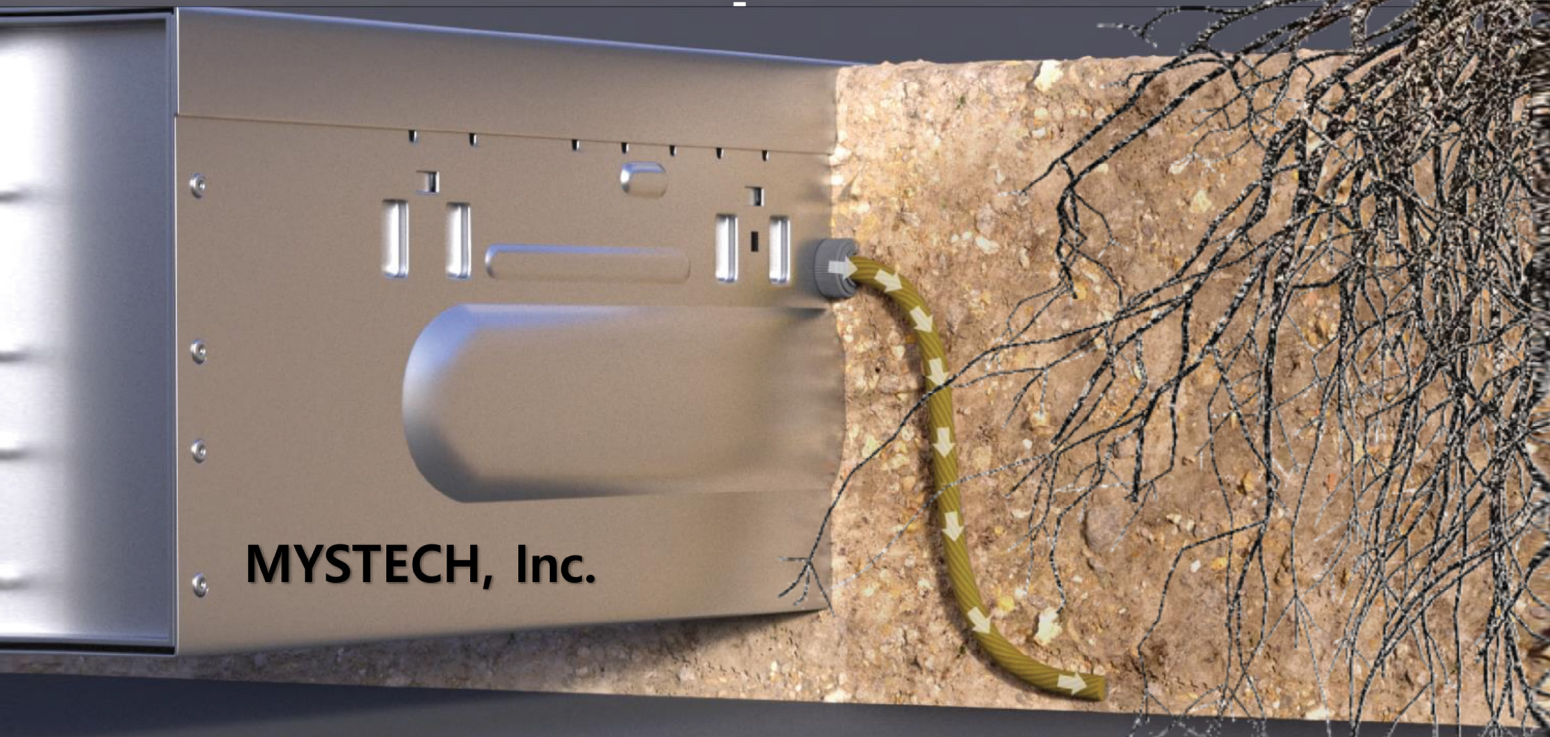
- **Date & Time**
 - June 27 (Tue), 10:30-11:00 & 14:45-15:15
 - June 28 (Wed), 10:50-11:20 & 15:40-16:10
 - June 29 (Thu), 10:50-11:20 & 15:10-15:40
- **Venue** Grand Ballroom Vendôme C (4F)
- **Menu** Coffee & Tea
- **Dress code** Casual Attire
- **Admission** GSS 2023 nametag is required.



Posters are displayed in the coffee break space, so please take your time looking for the poster presentations.

Birch Effector :

The mechanisms involved in the burst of respiration and nitrification that occurs when dried soils are rewetted



RAIN WATER-HARVESTING IRRIGATION BLOCK

Smart suggestion for urban tree

By installing water-collecting boundary blocks instead of ordinary boundary stones in parks, squares and roads where trees are planted, it collects nonpoint rainwater which then is supplied through underground wick irrigation directly to roots. This prevents roots from lifting sidewalks and helps trees to grow. Especially, in case of rainstorms when a great amount of water is supplied in a short period of time, this boundary block can solve the issue of urban soil as it stores a considerable amount of water by maintaining the size of pore space.



Invited Speakers

Plenary Speakers

Plenary 1 Soil Security Dimensions (5C) and Policy

June 27 (Tue), 09:30 - 10:30



Public Policy and Soil Security

Alex McBratney

Professor of Digital Agriculture & Soil Science
School of Life & Environmental Sciences
The University of Sydney
Australia

Short Biography

Alex McBratney has forty years experience in soil science. He currently works on soil security, pedometrics and digital agriculture and collaborates with researchers all over the world. He is a Dokuchaev medalist from the International Union of Soil Sciences. Alex is currently Editor-in-Chief of the Elsevier journal Soil Security.

Field of Interest or Research

Soil security, pedometrics, digital soil mapping, digital agriculture.

Plenary 1 Soil Security Dimensions (5C) and Policy

June 27 (Tue), 09:30 - 10:30



Integrating the Five Dimensions of Soil Security for a Scalable Soil Health Assessment Strategy

Cristine Morgan

Chief Scientific Officer
Soil Health Institute
United States

Short Biography

Dr. Cristine Morgan serves as Chief Scientific Officer at the Soil Health Institute, where she establishes research priorities to advance soil health and develops the scientific direction, strategy and implementation for soil health research programs. Dr. Morgan is an adjunct professor of Soil Science at Texas A&M University. She is an editor in chief at Soil Security and Geoderma. Dr. Morgan has served on the board of directors for the Soil Science Society of America (SSSA) and is a fellow of SSSA. Dr. Morgan earned her M.S. and Ph.D. in Soil Science from the University of Wisconsin-Madison and her B.S. degree in Plant and Environmental Soil Sciences from Texas A&M University.

Field of Interest or Research

Soil Health; National Strategy for Assessing and advancing Soil Health



Plenary Speakers

Plenary 1

Soil Security Dimensions (5C) and Policy

June 27 (Tue), 09:30 - 10:30



Soil Security: Linking Soil Health to Planetary Health

Yong-Guan Zhu

Professor
Environmental Soil Science and Biogeochemistry
Chinese Academy of Sciences
China

Short Biography

Professor Yongguan (Yong-Guan) Zhu, Academician of the Chinese Academy of Sciences (CAS), Fellow of TWAS (The World Academy of Sciences), professor of environmental soil science and environmental biology, is currently the Science Director of the Institute of Urban Environment, and also a professor at the Research Centre for Eco-environmental Sciences, CAS. Professor Zhu is a leader in taking multi-scale and multi-disciplinary approaches to environmental problems, and has been working on environmental health and wellbeing related to pollution, biodiversity and microbial ecology, particularly in biogeochemistry of arsenic, nitrogen and phosphorus in soil-plant systems, soil microbiome and soil health, and environmental dimension of antimicrobial resistance. He obtained his PhD in environmental biology from Imperial College, London in 1998; before returning to China in 2002, he worked in The Queen's University of Belfast, UK (Fellowship program of The Royal Society London) and The University of Adelaide, Australia. Professor Zhu is currently the founding editor of Soil Ecology Letters, and editorial members for a few other international journals. He is a scientific committee member for the ISC (International Science Council) program on Human Health and Wellbeing in Changing Urban Environment, and Committee of Science Planning of ISC. He served for nine years as a member of Standing Advisory Group for Nuclear Application, International Atomic Energy Agency (2004-2012). Professor Zhu is the recipient of many merit awards, among them including TWAS Award for Agricultural Science 2013, National Natural Science Award 2009, International Union of Soil Science von Liebig Award 2022. Professor Zhu has published over 500 papers in international journals (such as Science, Nature, PNAS, Nature Microbiology, Nature Plants), with an H-index of 110 (Web of Science). He was selected as a Web of Science Highly Cited Researcher (2016-2022).

Plenary 2

Soil Security and Food Security

June 28 (Wed), 09:00 - 10:00



Peak Soil Jeopardises Global Food Security, Climate Emergency and Peace

Abad Chabbi

Research Director (DR1)
Agroecosystems
National Research Institute for Agriculture, Food and Environment (INRAE)
France

Short Biography

Abad Chabbi, is research director at INRAE and a guest professor at the Nanjing University, China & the University de la Frontera (Chile). He worked at the LSU, USA; the BTU Cottbus, Germany; the UPMC Paris, France; & the INRAE where he has been leading the National Observatory for Environmental Research since 2009. Throughout his career, Abad Chabbi has focused on coordinating many large international and multidisciplinary projects under the strategic European Commission framework. He chairs the Joint FAO/IAEA Working Group on Nuclear Techniques in Food and Agriculture and provides expertise worldwide to numerous research councils. Abad Chabbi supervised 23 PhD students and postdocs and has published more than 150 papers in international peer reviewed journals, book chapters, books, and special issues.

Field of Interest or Research

His current research centers on understanding the link between soil carbon sequestration, nutrient availability and stoichiometry in the Plant-Soil System, plant diversity and the influence of land use management and climate change may have on these dynamics.

Invited Speakers

Plenary Speakers

Plenary 2

Soil Security and Food Security

June 28 (Wed), 09:00 - 10:00



Human Nutritional Aspects of Soil Security: Hidden Hunger

Ismail Cakmak

Professor
Sabanci University
Türkiye

Short Biography

Ismail Cakmak received his Ph.D. at the University Hohenheim in Stuttgart, Germany. He is Professor at the Sabanci University, Istanbul, Turkey. Published 230-peer-reviewed articles, named among the “highly cited researchers” by Clarivate Analytics and ranked in the top 0.05 % of most influential scientists in 2022 by Stanford University, based on Elsevier’s Scopus Database.

He has received IFA “International Crop Nutrition Award in 2005, Australian Crawford Fund “Derek Tribe Medal” in 2007, Alexander von Humboldt Foundation-Georg Forster Research Award in 2014 and the World Academy of Sciences-Agricultural Science Prize in 2016. He is an elected member of “The Academy of Europe” and “The Science Academy” of Turkey.

Field of Interest or Research

Human nutritional aspects of plant mineral nutrition and plant stress mitigation by mineral nutrients

Plenary 2

Soil Security and Food Security

June 28 (Wed), 09:00 - 10:00



Organic Matter Management in Rice Paddy: Grand Challenges and Golden Opportunities under Global Warming

Pil Joo Kim

Professor
Division of Applied Life Science (BK21+ Program)
Gyeongsang National University
Korea, Republic of

Short Biography

He continued involving himself in the development of soil management strategies to improve soil quality after his Ph.D. in Soil Science, Chungnam National University, in 1997.

He served as a soil scientist at the National Institute of Agricultural Science (NIAST), Korea up to the year 2000, and was appointed as a professor at Gyeongsang National University, Korea in 2001.

He published over 250 peer-reviewed journal articles, which focused mostly on improving soil quality and minimizing greenhouse gas emissions from arable soils.

He supervised 32 MS and 22 Ph.D. in the last 23 years. He served as the vice-chairperson of Division 2, IUSS from 2010-2014, and as the president of the Korean Society of Soil Science and Fertilizer in 2002. He organized the 8th symposium of soil organic matter which hold in Seoul in June 2022 as the committee chair.

Field of Interest or Research

His research has been focused on the establishment of a soil management strategy for improving soil quality, and for suppressing greenhouse gas emissions from arable land. Recently, he is working as a specialist to improve agricultural productivity and construct Agricultural Training Centers in Senegal, Africa.



Plenary Speakers

Plenary 3

Soil Security and Ecosystem Services

June 29 (Thu), 09:00 - 10:00



Soil Security: Unlocking the Full Potential of Soil-land-water Nexus Research

Pasquale Borrelli

Professor
Department of Science
Roma Tre University
Italy

Short Biography

Pasquale Borrelli is a Professor in the Department of Science at the University of Roma Tre where he has been a faculty member since July 2022. He is the Head of Roma Tre's Environmental Modeling and Global Change Lab.

He was granted by Clarivate the recognition of Highly Cited Researcher 2022 by in the field of Environment and Ecology, Distinguished Research Award 2019 of the World Association of Soil and Water Conservation (WASWAC), and included in Stanford-Elsevier list of 2% most impactful scientists 2022.

His scientific career path reflects his great interest and familiarity to work in international and multidisciplinary environments. His continental and global scale models are used in official reports of Intergovernmental Panel on Climate Change (IPCC), United Nations (IPCC, UNEP, FAO, IPBES), European Commission, and Organisation for Economic Co-operation and Development (OECD).

Field of Interest or Research

Pasquale Borrelli mainly engaged in research on soil erosion mechanics, modeling and monitoring. During the last sixteen years he gained a holistic expertise on human-environment interactions seeking to unravel the past, present and future role of land use and climate change at multiple spatial scales.

His scientific path is driven by the idea to enhance our regional and global understanding for one of the most significant threats to soil and water and thus food security and environmental ecosystem service functions, named soil erosion.

Plenary 3

Soil Security and Ecosystem Services

June 29 (Thu), 09:00 - 10:00



Preserving the Soil Microbiome for the Circular Bioeconomy and Human Health

Charles W. Rice

University Distinguished Professor
Department of Agronomy
Kansas State University
United States

Short Biography

Charles (Chuck) Rice is a University Distinguished Professor and holds the Vanier University Professorship at Kansas State University.

He is a Professor of Soil Microbiology in the Department of Agronomy. He earned his degrees from Northern Illinois University and the University of Kentucky. He has advised over 50 graduate students and 18 post-doctorates and has over 250 publications. Dr. Rice has also served in numerous capacities with professional societies including President of the Soil Science Society of America in 2011.

Internationally, he served on the UN Intergovernmental Panel on Climate Change to author a report on Climate Change in 2007.

He is a Fellow of the Soil Science Society of America, American Society of Agronomy, and the American Association for the Advancement of Science. Dr. Rice chaired the Board on Agriculture and Natural Resources of the U.S. National Academies of Science, Engineering, and Medicine from 2016-2022.

Field of Interest or Research

Dr. Rice teaches courses and conducts research on soil carbon and nitrogen, soil health, microbial ecology, and climate change impacts on agricultural and grassland ecosystems



Invited Speakers

Plenary Speakers

Plenary 3 Soil Security and Ecosystem Services

June 29 (Thu), 09:00 - 10:00



Restoration to Improve Soil Security and Ecosystem Services

Scott Chang

Professor
Department of Renewable Resources
University of Alberta
Canada

Short Biography

Dr. Scott Chang is a Professor at the University of Alberta and a guest professor at Zhejiang A&F University. He received his PhD from the University of British Columbia, MSc from the Chinese Academy of Sciences and BSc from Zhejiang Agricultural University. His main research interests are in forest soils, biogeochemistry, and the application of soil science in land reclamation, agriculture, forestry, and global change.

Dr. Chang is currently a regional editor for *Biology and Fertility of Soils*, and an editorial board member for *Pedosphere*, *Carbon Research*, *Soil and Environmental Health*, and *Biochar*. He served as Chair of the Soil Fertility and Plant Nutrition Commission of the International Union of Soil Science. He was elected a Fellow of the Soil Science Society of America (2016), American Society of Agronomy (2016), and the Canadian Society of Soil Science (2018).

Field of Interest or Research

Forest soils, soil biochemistry, soil microbial ecology, land reclamation, carbon sequestration, greenhouse gas emissions, and agroforestry.



Invited Speakers

Session 1

Soil Security Dimensions (5C) I

June 27 (Tue), 11:00 - 12:25



A Soil Security Assessment: the Capacity and Condition of Nutrient Cycling in the Hunter Valley, NSW, Australia

Sandra Joy Evangelista

PhD Student
School of Life and Environmental Science
The University of Sydney
Australia

Short Biography

Graduated at The University of Sydney with a Bachelor of Science in Agriculture with first class Honours supervised by Alex McBratney and Budiman Minasny in 2019.

She is currently working on a quantitative framework to assess the soil security dimensions of the soil nutrient cycle at a local scale as part of a larger collaborative project on Soil Security entitled 'A calculable approach to securing Australia's soil' by the Australian Research Council Laureate Fellowship.

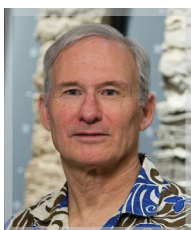
Field of Interest or Research

Soil security, soil nutrient cycling, agronomy, digital soil mapping, digital agriculture.

Session 1

Soil Security Dimensions (5C) I

June 27 (Tue), 11:00 - 12:25



Mapping Soil Condition (Phenoforms): What is Possible and How Can It be Done?

David G. Rossiter

Adjunct Professor / Guest Researcher
School of Integrative Plant Sciences, Section of Soil & Crop Sciences
Cornell University / ISRIC-World Soil Information
United States / The Netherlands

Short Biography

D. G. (David) Rossiter earned a BSc in soil science from Cornell University (1973), an MSc in agronomy and plant breeding from the Pennsylvania State University (1977) and also in computer science from Cornell University (1986), and a PhD in agronomy and international agriculture from Cornell University (1988).

He worked as a soil mapper for North Carolina State University (NCSU). He developed the Automated Land Evaluation System (ALES) and worked as a land evaluator for the Venezuelan Ministry of Environment, and from 1997-2014 at the University of Twente (NL), Faculty ITC as a Senior University Lecturer in Earth Observation Systems.

He now works at Cornell as an Adjunct Professor, where he teaches a graduate course in spatial analysis for agronomic and environmental applications, as a Guest Researcher at ISRIC-World Soil Information, and as a consultant to CIMMYT.

Field of Interest or Research

His main research interest is in modern methods of soil resource inventory and the multi-purpose interpretation of soil geographic databases for both rural and urban applications. Both of these require increasingly quantitative methods, including geostatistics, statistical computing and modelling. He collaborates with researchers in related fields, primarily on the (geo)statistical and data analysis aspects of their work. For Soil Security, his main interest is in clarifying the genoform/phenoform concept and mapping phenoforms/dynamic soil properties over large areas.

Invited Speakers

Invited Speakers

Session 1

Soil Security Dimensions (5C) I

June 27 (Tue), 11:00 - 12:25



Connectivity – Securing Soil through Care

Damien Joseph Field

Professor of Global Soil Security and Soil Education
School of Life and Environmental Science & Sydney Institute of Agriculture
The University of Sydney
Australia

Short Biography

Damien Field is the Professor of Global Soil Security and Soil Education at The University of Sydney, Australia.

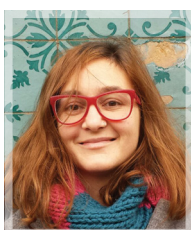
Damien has had an extensive research program working on fundamental soil problems through to investigating soil issues of importance for agriculture and is one of the co-founders of the Soil Security concept which remains a significant focus of his Australian and international research.

Damien was the Commission Chair and subsequent Division 4 Chair in the International Union of Soil Science. He is and executive member of the Soil Science Australia's Training Board and for the Sydney Southeast Asia Centre. He chaired positions for the Australian Sol Network on Teaching Curriculums and the Australian Examinations and procedures Committee for Australia's Certified Practicing Soil Science accreditation. He is also a Principal Fellow of the Higher Education Academy (PFHEA) and an elected Fellow in Soil Science Australia (FSSA).

Session 2

Soil Security Dimensions (5C) II

June 27 (Tue), 13:30 - 14:45



Identifying and Mapping Genosoils and Phenosoils for the Evaluation of Soil Capacity and Condition Continentally

Mercedes Román Dobarco

Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellow
Sydney Institute of Agriculture (currently) / Terrestrial Ecology
The University of Sydney (currently) / Basque Centre for Climate Change (from May 2023)
Australia / Spain

Short Biography

Mercedes studied Forestry Engineering at the Polytechnic University of Madrid (Spain) and completed a PhD in Ecology at Utah State University (Utah, USA), where she investigated the effects of overstorey species and abiotic drivers on soil organic carbon storage and stabilization in mixed forests of Utah.

In the field of digital soil mapping, Mercedes produced the French map of available water capacity for the GlobalSoilMap project during her postdoc at INRAE (Orléans, France) and has generated maps of SOC fractions and soil microbial biodiversity for the TERN Soil and Landscape Grid of Australia. Since 2019 she is a postdoctoral researcher at the Sydney Institute of Agriculture, where she developed a framework for mapping reference soils and assessing changes in soil condition. Currently, she contributes to the spatial assessment of soil security dimensions for Australian soils.

Field of Interest or Research

Her research is focused on two main areas: 1) soil organic carbon storage and stabilization in wildlands and agroecosystems, and 2) digital soil mapping (DSM) as a tool for sustainable management and soil security assessment.

With the SELVANS project (MSCA fellowship) she will investigate the effects of forest management on soil condition with respect to reference soils and identify thresholds of indicators to alert on the potential loss of soil functionality.

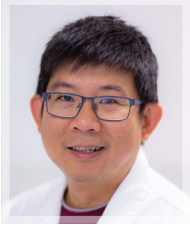


Invited Speakers

Session 3

Soil Security and Climate Change

June 27 (Tue), 15:15 - 17:45



Securing Soil through Carbon Sequestration; Much more than a Climate Solution

Budiman Minasny

Professor
School of Life and Environmental Sciences
The University of Sydney
Australia

Short Biography

Budiman Minasny is a Professor in soil-landscape modelling at the University of Sydney.

He is a soil scientist, previously awarded the QEII and the Future Fellowships from the Australian Research Council. He is recognized as a Highly Cited Researcher from 2019 to 2022 by the Web of Science.

He has an undergraduate degree from Universitas Sumatera Utara in Indonesia and a MAgr and PhD degrees in soil science from the University of Sydney. He is passionate about the role of soil in managing climate change, food, water, energy security, and maintaining biodiversity.

Field of Interest or Research

Digital soil mapping and modelling, Soil Carbon

Session 3

Soil Security and Climate Change

June 27 (Tue), 15:15 - 17:45



Organic Rice Farming to Improve Soil Security and Carbon Sequestration

Weiguo Cheng

Professor
Faculty of Agriculture
Yamagata University
Japan

Short Biography

Dr. Weiguo Cheng received his B.S degree in Agricultural Microbiology from Huazhong Agricultural University, China in 1986.

After he worked for Institute of Soil & Fertilizer, Anhui Academy of Agri-Sciences in his hometown province for 10 years, he came Japan and earned his Ph. D degree in Soil Science from Chiba University in 2000.

He studied in National Institute for Agro-Environmental Sciences in Tsukuba, Japan and Florida International University in Miami, USA as Postdoc and visiting researcher before he moved to Faculty of Agriculture, Yamagata University in 2010, as Associate Professor and Professor from 2018. He also is an Adjunct Professor in The United Graduate School of Agricultural Sciences, Iwate University.

Field of Interest or Research

Dr. Weiguo Cheng is particularly interested in carbon and nitrogen dynamics in different terrestrial ecosystems, stable isotopes probing on bio-geochemical processes, greenhouse gas emissions with global warming, land use and management changes, organic rice farming, compost, etc.

Invited Speakers

Invited Speakers

Session 3

Soil Security and Climate Change

June 27 (Tue), 15:15 - 17:45



Our Knowledge on the Magnitude and Fate of Global Soil Organic Carbon

Umakant Mishra

Principal Member of Technical Staff
Computational Biology & Biophysics
Sandia National Laboratories, Livermore
United States

Short Biography

Umakant Mishra is a computational soil scientist, who studies land use and climate change impacts on soil properties and functions. Using field observations, remote sensing and environmental datasets, and geospatial and process-based modeling he quantifies anthropogenic and climatic impacts on the soil system.

He has published studies on land use and climate change impacts on soil system, lifecycle analysis of bioenergy crops, spatial prediction of soil properties at different scales, and benchmarking earth system model projections.

Field of Interest or Research

Umakant is currently investigating the environmental impacts of bioenergy crops, storage and dynamics of soil organic carbon, and benchmarking earth system model projections.

Session 3

Soil Security and Climate Change

June 27 (Tue), 15:15 - 17:45



Carbon Neutral Staple Food Production in China through Soil and Crop Residue Management

Xiaoyuan Yan

Professor
Institute of Soil Science
Chinese Academy of Sciences
China

Short Biography

Xiaoyuan Yan is a research professor at the Institute of Soil Science, Chinese Academy of Sciences, Nanjing.

He earned a BSc in soil science and plant nutrition from Hunan Agricultural University in 1992, and a PhD in soil science from the Institute of Soil Science, Chinese Academy of Sciences in 1998.

He did two-year postdoctoral research in Japan International Center for Agricultural Sciences and then worked in Frontier Research Institute of Global Change for another five years.

He currently serves as the secretary general of the Soil Science Society of China, and vice chairperson of Division 2 of International Union of Soil Science.

Field of Interest or Research

His main research interest is carbon and nitrogen cycling in agroecosystem, including greenhouse house gas emission, soil carbon sequestration, non-point source pollution.



Invited Speakers

Session 4

Soil Security and Ecosystem Services I

June 28 (Wed), 10:00 - 10:50



Ecosystem Services of Soil Carbon, Carbon Farming, and Carbon Market

Shruti Khadka Mishra

Senior Member of Technical Staff
Energy Water Systems Integration
Sandia National Laboratories
United States

Short Biography

Dr. Shruti Mishra is working as a Senior member of technical staff at the Sandia National Laboratories.

Dr. Mishra was trained as an applied economist at The Ohio State University, where she completed her master's and PhD degrees.

She has been working on the domain of energy economics and ecosystem services valuation as a Fulbright Scholar and employee at the national laboratories, the U.S. Geological Survey, and the World Bank.

Field of Interest or Research

Dr. Mishra's domain of work is in the interface of energy, environment, climate change and economic analysis.

She develops and demonstrates integrated assessment framework that couple biophysical models with economic models to generate information on the economic costs and benefits of energy innovations.

Dr. Mishra's analytical work is on the quantification of ecosystem services associated with innovative energy solutions and estimation of the monetary values of ecosystem service benefits. Her analysis support in assessing the economic viability and environmental sustainability of energy innovation.

Her more recent work includes evaluation of ecosystem services associated with perennial bioenergy grass crops, sustainable aviation fuel, habitat management at large solar energy facilities etc.

Session 4

Soil Security and Ecosystem Services I

June 28 (Wed), 10:00 - 10:50



Comparing Carbon and Nitrogen Stocks in Paddy and Upland Soils: Accumulation, Stabilization Mechanisms, and Environmental Drivers

Tida Ge

Professor, Doctor
Institute of Plant Virology
Ningbo University
China

Short Biography

Dr. Tida Ge, PI, State Key Laboratory for Managing Biotic and Chemical Threats to the Quality and Safety of Agro-products, Ningbo University. Ph.D. in Horticulture (2008) from Shanghai Jiaotong University (China).

Dr. Ge has studied and worked in various universities and institutes worldwide: China, UK, Germany, USA and Japan. He is an expert in soil ecology, biogeochemistry, especially in the field of rhizosphere processes and C cycling.

He has published >25 papers as the first or corresponding author in journals including EST, GCB and SBB, and an h-index of 47.

Field of Interest or Research

Paddy soils, Soil - plant - microorganism interactions, Soil biogeochemistry, Soil C and N dynamics, C sequestration, Stable and radioactive isotope, Microbial C use strategies, Priming effects, land use.

Invited Speakers

Invited Speakers

Session 5

Soil Security and Ecosystem Services II

June 28 (Wed), 11:20 - 12:40



Challenges in Modelling Soil Security at Global Level

Laura Poggio

Senior Researcher – Digital Soil Mapping and Remote Sensing
ISRIC – World Soil Information
The Netherlands

Short Biography

Laura Poggio has a background in forestry and environmental sciences.

During her PhD she focused on the development of a simplified land-use modelling method for the assessment of the risk of heavy metal polluted soil towards human health and evaluating the influence of planning measures on this risk. Other research experiences (JRC - Ispra (I)) included the analysis and evaluation of pan-European geographical data-sets with investigation of data quality and error propagation. From 2008-2018, Laura worked at the James Hutton Institute in Aberdeen (Scotland, UK). The main focus of her research was spatio-temporal modelling and integration of information on soil-plant-climate interactions with land use to assess the role of key natural resources supporting ecosystem services and to quantify the impacts of climate and land use changes at different spatial scales with uncertainty propagation.

Field of Interest or Research

Main interests are in pedometrics and digital soil mapping, how to develop new covariates from remote sensing products and how to integrate soil data in the wider context of environmental modelling. At ISRIC, Laura is responsible for the development of modelling approaches for new mapped soil products (properties and functions) to support sustainable land management in a changing climate. Reproducible research (workflows and results) and the use of open source tools for spatial analysis are key components of the methodological development.

Session 5

Soil Security and Ecosystem Services II

June 28 (Wed), 11:20 - 12:40



Spatial Evaluation and Quantification of Soil Multifunctionality Across Europe: Where to Start?

Alexandre Wadoux

Marie Skłodowska-Curie Fellow
Soil-Agrosystem-Hydrosystem Interaction Lab
National Institute for Agronomy and Environment (INRAE)
France

Short Biography

Alexandre Wadoux is a Marie Curie Fellow at the French National Institute for Agronomy and Environment (INRAE) in Montpellier, France. Before that has was a research associate in digital soil mapping at the University of Sydney.

He has an undergraduate degree from the University of Angers in France, a MSc in soil science from the University of Tübingen in Germany, a Master in epistemology of sciences from the University of Nantes in France and a PhD in applied geostatistics from Wageningen University in the Netherlands. He has made contributions to soil science through the development of quantitative methods for soil sampling, mapping and assessment using geostatistics, statistical learning algorithms and spectroscopy.

Field of Interest or Research

Alexandre Wadoux is a soil scientist focusing on soil-landscape modelling. He relies on statistical and computational methods for soil research, emphasizing data science and spatial modelling. His main research interests are:

- Spatial sampling designs and design optimization
- Evaluation and quantification of soil functions
- Uncertainty quantification and propagation in environmental modelling
- Statistical learning algorithms and the interpretation of models
- Infrared soil spectroscopy and chemometrics
- Epistemology and history of data-driven soil science



Invited Speakers

Session 6

Soil Security and Policy

June 28 (Wed), 14:00 - 15:40



Managing Nitrogen for Food Security and Environmental Protection

Baojing Gu

Professor
Department of Resource Science
Zhejiang University
China

Short Biography

Dr. Baojing Gu is a professor at College of Environmental and Resource Sciences, Zhejiang University, China. He was trained as an ecologist with an emphasis on biogeochemical nitrogen cycling analysis and modelling from Zhejiang University in China and the University of Alberta and McGill University in Canada. Currently, he is co-leading the cost and benefit analyses of global nitrogen use under the framework of International Nitrogen Management System (INMS) to improve our understanding on the interactions between human and the nitrogen cycles. He has published over 100 papers in peer-reviewed journals, including some top-ranked journals such as Science, Nature and PNAS.

Field of Interest or Research

His major contributions are in the areas of large-scale biogeochemical nitrogen cycles and their response to natural and socioeconomic factors. He developed the Coupled Human And Natural Systems (CHANS) nitrogen cycling model to explore the interactions between regional/global nitrogen cycles and human activities and how to manage nitrogen cycle for a better global sustainable development. The CHANS model has been applied in many countries including China, Australia, Japan, and recommended as one of the standard nitrogen budget models under the INMS. He attempts to better quantify the cost and benefit of nitrogen use and loss and understand how nitrogen cycling link to policy and management. He found that small farm size potentially leads to overuse of agricultural chemicals with socioeconomic development, and urbanization can release more croplands and benefit food security. Currently, his research interest focuses on sustainable development of agriculture to produce more food with less pollution, involving urbanization and rural development, agricultural resource and environment, policy regulations, management for sustainable development.

Session 6

Soil Security and Policy

June 28 (Wed), 14:00 - 15:40



Countries' Rio Convention Commitments for Measures Related to Soil Organic Carbon and Agricultural Production: Focus on Africa

Liesl Wiese-Rozanov

Independent Consultant: Agricultural Science and Policy
South Africa

Short Biography

Liesl works as an independent international consultant in agricultural science and policy, based in South Africa. With a PhD in soil science, Liesl provides technical input into soil policy and strategy development processes, as well as sustainable land management project development. She has conducted policy research to assess how soil organic carbon and soil health have been addressed in countries' targets to the three Rio Conventions on climate change, land degradation, and biodiversity. Through these activities, Liesl has developed particular interest in connecting people, ideas, and processes to leverage synergies and simplify solutions across partners, institutions, countries, and Rio Conventions to support increased sustainable land management and soil health at scale.

Field of Interest or Research

Soil security, soil science-policy interface, finding holistic and systemic solutions to improving soil health, rethinking what we know to find simple solutions to old problems.

Invited Speakers

Invited Speakers

Session 6

Soil Security and Policy

June 28 (Wed), 14:00 - 15:40



Soil Security and Governance

Harald Ginzky

Lawyer, Scientist
General Aspects Water and Soil
German Environment Agency
Germany

Short Biography

Dr. Harald Ginzky is lawyer by training and an expert of environmental law for 30 years. His doctoral thesis analyzed the interface of international trade law and sustainability clauses. He has published more than 100 scientific papers on a wide variety of topics of environmental law.

Since 2003, he is affiliated with the German Environment Agency. He has been member of German delegations to various international environmental treaties/regime, inter alia, International Seabed Authority, International Maritime Organization, UNCCD, OSPAR and HELCOM as well as FAO and the Global Soil Partnership.

In addition, he has worked in the field of technical cooperation in other continents, with a focus on Africa. Harald Ginzky is editor in chief of the "International Yearbook of Soil Law and Policy" (Springer) and the special issues on "Soil Governance" of the journal "Soil Security" (Elsevier).

Field of Interest or Research

- Sustainable soil management from a governance perspective – in Germany, at the EU and international level and in other countries
- Marine protection governance
- Governance of deep seabed mining
- Climate Engineering
- Transformation science

Session 6

Soil Security and Policy

June 28 (Wed), 14:00 - 15:40



Soil Security in Urban Environments - A Case Study from the Berlin Metropolitan Area

Kolja Thestorf

PhD Student
Geography Department
Humboldt-Universität zu Berlin
Germany

Short Biography

With a background in physical geography and a strong focus on pedology, sedimentology, and quaternary sciences, M. Sc. Kolja Thestorf currently is a PhD researcher (since 2016) at the Geography Department of Humboldt-Universität zu Berlin (HU Berlin).

His works combine classic soil scientific approaches (soil genesis and soil classification) with new analytical and soil description techniques. By working closely together with the Berlin Senate Department for the Environment, Urban Mobility, Consumer Protection and Climate Action his research contributes to assessing and facing the consequences of human impact, soil contamination, soil sealing, and land-use change in urban areas.

His ongoing work is focusing on antimony (Sb) in soils of the Berlin Metropolitan Area and the environmental risks of emerging contaminants.

Field of Interest or Research

Urban Soil Science, technogenic materials (artifacts), SUITMAs, heavy metal analysis, environmental risk assessment

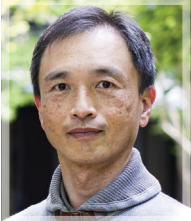


Invited Speakers

Session 7

Soil Security and Food Security I

June 29 (Thu), 10:00 - 10:50



Soil, Essential for Food Production, is Under Pressure from both the Nitrogen Issue and Food Security

Kentaro Hayashi

Professor / Senior Principal Scientist
Research Department / Institute for Agro-Environmental Sciences
Research Institute for Humanity and Nature / National Agriculture and Food Research Organization
Japan

Short Biography

Kentaro Hayashi is a professor at the Research Institute for Humanity and Nature (RIHN) and a senior principal scientist at the National Agriculture and Food Research Organization, Japan. He received his Ph.D. at the Tokyo University of Agriculture and Technology, Japan. He received his Ph.D. at the Tokyo University of Agriculture and Technology, Japan.

He is a biogeochemist with special interest in the nitrogen (N) issue that is a tradeoff between the benefits of N use and the threats of N pollution.

He is leading the RIHN project "Towards Sustainable Nitrogen Use Connecting Human Society and Nature" (April 2022–March 2028).

He was awarded the 66th Japanese Society of Soil Science and Plant Nutrition Award in May 2021.

He has served as the director of the East Asia Regional Centre of the International Nitrogen Initiative since November 2022.

Field of Interest or Research

He has been interested in the terrestrial nitrogen cycling and its responses to environmental changes based on field science from cropland to both poles, i.e., High Arctic and Antarctica.

Now, he expands his interest in interdisciplinary approaches with scientists in various research fields and in transdisciplinary approaches with various stakeholders to address the N issue towards sustainable N use for future generations.

Session 7

Soil Security and Food Security I

June 29 (Thu), 10:00 - 10:50



Relations between Soil, its Management, Food Security and Human Health

Margaret Ann Oliver

Visiting Professor
Soil Research Centre
University of Reading
United Kingdom

Short Biography

Margaret's research has focused on the application of a wide range of numerical and geostatistical methods to soil and other data including pollen counts, forestry, soil radon emissions, remotely sensed imagery, precision agriculture and the incidence of childhood cancer.

She has also written on soil and human health. She has published over 100 academic papers and has also made several contributions to books. She is co-author of three books and has edited two books.

Since retiring as Reader of Spatial Analysis from the University of Reading, she has been Co-Editor-in-Chief of Precision Agriculture, Deputy Editor and then Editor-in-Chief of the European Journal of Soil Science.

Since 2019 she has been Editor-in-Chief of the revision and updating of the Encyclopedia of Soils in the Environment. She also has an award named after her, the Margaret Oliver award for young pedometricians.

Field of Interest or Research

I taught, applied and developed applications in pedometrics. I focused on multivariate statistical methods and geostatistics. My specific interests were in sample design for spatial analysis and eventual mapping, risk analysis associated with prescribed thresholds in relation to soil pollutants or deficiencies of crop nutrients, and the relations between different scales of spatial variation.

Precision agriculture and remote imagery were important foci in my later work and also an increasing interest in the relations between soil, food security and human health. I am still writing on the latter.

Invited Speakers

Invited Speakers

Session 8

Soil Security and Food Security II

June 29 (Thu), 11:20 - 12:40



Can Biochar Promote Soil Security for Healthy Foods?

Genxing Pan

Director
Institute of Resources, Environment and Ecosystem of Agriculture
Nanjing Agricultural University
China

Short Biography

Dr. Pan is a senior soil scientist in China. He is the chair professor in soil science and the direct of Institute of Resources, Ecosystem and Environment of Agriculture at Nanjing Agricultural University.

He has been served as a Board member of IBI since 2015, the chair of Soil Health Commission under International Science Committee of Environmental Problems (SCOPE) since 2019.

His main research activities include sustainable soil management for agricultural and environment sustainability, biomass pyrolysis and biochar application in agriculture and waste management, particularly of healthy soil and food production.

He has published more than 100 papers in international journals and recognized by Clariviat Analysis as a top 1% highly cited scientist in agriculture and climate change science.

Field of Interest or Research

Soil health, soil organic matter and C sequestration, biochar in agriculture

Session 8

Soil Security and Food Security II

June 29 (Thu), 11:20 - 12:40



Expanding Climate-Smart Markets through Partnerships for Climate-Smart Commodities in the U.S.

Katina Dove Hanson

Acting Senior Advisor for Climate-Smart Commodities
Farm Production and Conservation Mission Area
U.S. Department of Agriculture
United States

Short Biography

Ms. Katina D. Hanson serves as Acting Senior Advisor for Climate-Smart Commodities at the U.S. Department of Agriculture where she leads the \$3B Partnerships for Climate-Smart Commodities funding opportunity while on detail from the USDA National Institute of Food & Agriculture where she is Senior Operations & Policy Officer.

Ms. Hanson has served in many roles during her nearly 20 years with USDA, including Chief of Staff for Policy & Programs at the Farm Service Agency, Acting Director of External Affairs, Senior Policy Analyst & National Program Manager for multiple national conservation programs. Katina has her Master of Environmental Management from Yale University & B.S in Rangeland Ecology & Management from Texas A&M University.

Field of Interest or Research

Agricultural Programs, Soil Policy and Climate-Smart Commodities



Invited Speakers

Session 9

Soil Security and Biodiversity

June 29 (Thu), 13:40 - 15:10



Soil Organisms as Drivers of Soil Security

Cornelia Rumpel

Research Director
Institute of Ecology and Environmental Sciences
CNRS, Sorbonne U.
France

Short Biography

Cornelia Rumpel is a soil biogeochemist working for the French National Research Center (CNRS) at the Institute of Ecology and Environment in Paris, France.

Her work is concerned with the dynamics of organic matter at the molecular scale and biogeochemical cycling of carbon, nitrogen and phosphorus in natural and managed ecosystems. She is dealing with temperate and tropical environments and contributed to the change of several paradigms. Since a few years her work focuses on innovative agroecological strategies to increase soil carbon sequestration.

As a member of the scientific and technical committee of the international 4 per 1000 initiative, she is also working at the science policy interphase to communicate the value of soil carbon for soil health, climate change adaptation and food production.

Field of Interest or Research

Biogeochemical cycling and soil organic matter dynamics

Session 9

Soil Security and Biodiversity

June 29 (Thu), 13:40 - 15:10



Delineation of Hyporheic Zone Depth and Using Probabilistic Approach

Heejung Kim

Associate Professor (Early tenured)
Department of Geology
Kangwon National University
Korea, Republic of

Short Biography

Heejung Kim is an Associate Professor (Early tenured) at Kangwon National University.

She has published over 70 research papers in international and Korean journals.

She received her Ph.D. degree from School of Earth and Environmental Sciences, Seoul National University, Korea in 2015. She received the Young Geologist Award in 2018 and Best Associate Editor Award in 2020 from the Geological Society of Korea.

She also is a Deputy of the Associate Editor and Section Editor for the Episodes and Science Progress (SCIE) journal, respectively.

Her research interests include microbial diversity in soil and groundwater, groundwater ecosystem, water security, and water policy.

Field of Interest or Research

- Soil/groundwater environments
- Groundwater-surface water interactions
- Geomicrobiology
- Water security

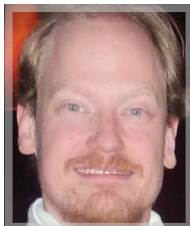
Invited Speakers

Invited Speakers

Session 10

Soil Security and Water and Environmental Security

June 29 (Thu), 15:45 - 17:05



Biopores and Hyporheic Zones as 'Hot Spots' for Microbial Pollutant Degradation

Marcus A. Horn

Professor for Soil Microbiology
Institute of Microbiology
Leibniz University Hannover
Germany

Short Biography

Marcus A. Horn is a microbial ecologist with a research focus on natural and engineered systems. He studied biology at the University of Bayreuth (Germany) and the University of York (UK), and his diploma in biology in 2000.

During his PhD in the group of Prof. Harold L. Drake, he started to work on the importance of invertebrate-soil microbiome interactions for greenhouse gas metabolism. Afterwards, he was hired as associated professor at the University of Bayreuth at the Department of Ecological Microbiology. His habilitation was about "Microbial Metabolism of Atmospheric Trace Gases in Terrestrial Ecosystems: Implications for Global Warming".

Finally, Marcus started his recent position as professor in soil microbiology at the Leibniz University Hannover in 2016. He serves as editor for FEMS Microbiology Ecology, Frontiers in Microbiology and as editorial board member of Applied and Environmental Microbiology.

Field of Interest or Research

Current research is about the microbial ecology of greenhouse gas metabolizing microbes, xenobiotic degradation, and microbe-invertebrate interactions.

Session 10

Soil Security and Water and Environmental Security

June 29 (Thu), 15:45 - 17:05



An Agricultural Producer's Perspectives on Soil Security: Bridging the Gaps between Research and Implementation

Alan Kruszel

Board Member
The Soil Conservation Council of Canada (SCCC)
Canada

Short Biography

Alan Kruszel is a farmer, crop consultant and member of the board of directors of the Ontario Soil and Crop Improvement Association and the Soil Conservation Council of Canada.

He received his BSc (Agr) from MacDonald Campus of McGill University in Montreal in 1995 and has held his certified crop advisor designation from the American Society of Agronomy since 2003.

Alan is Co-Chair of the Ontario Soil Action Group, helping to guide the development of an implementation plan for New Horizons, Ontario's Soil Health and Conservation Strategy. He currently sits on the Research and Innovation Committee of the Grain Farmers of Ontario. He has also served as Past Chair of the Soil Conservation Council of Canada as well as Past President of the Ontario Soil and Crop Improvement Association.

He has presented at many conferences and meetings over his twenty plus year long career and is renowned for his engaging talks and meeting facilitation skills. Alan and his family also operate a small cash crop farm and a crop consulting business in Ontario, Canada. They grow primarily maize, soybeans, cereals and forages as well as many types of cover crops using no-till practices and 4R nutrient stewardship. Through their consulting business they have helped many Ontario producers to improve their nutrient management and enhance their soils through reduced tillage, cover crop adoption and other soil health building practices thereby ensuring greater long term sustainability.

Field of Interest or Research

His main area of interest is finding ways to promote broader adoption of soil health building practices on the agricultural landscape through extension and knowledge transfer.



Invited Speakers

Special Talk

June 29 (Thu), 15:40 - 15:45



SOISEC

Denny Rigby

Publisher
Soil Sciences
Elsevier
United Kingdom

Short Biography

Denny Rigby is a Publisher for the journal Soil Security. She holds a PhD in ecotoxicology from Imperial College London.

Field of Interest or Research

Land use management, nanoparticle-soil interactions, nanoparticle plant uptake and their effects on soil microbiology and the rhizosphere.

탄소중립 마스터 브랜드

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강재 브랜드



Program at a Glance



Time	June 26 (Mon)	June 27 (Tue)	June 28 (Wed)	June 29 (Thu)
Venue	Grand Ballroom Vendôme A & B (4F)			
08:30 - 16:30	Registration @ Grand Ballroom Vendôme Foyer (4F)			
09:00 - 09:30	Booth set-up	Opening Ceremony	Plenary 2 (09:00-10:00)	Plenary 3 (09:00-10:00)
09:30 - 10:30		Plenary 1	Session 4 (10:00-10:50)	Session 7 (10:00-10:50)
10:30 - 11:00		Poster Session 1 (with Coffee Break)	Poster Session 2 (with Coffee Break) (10:50-11:20)	Poster Session 3 (with Coffee Break) (10:50-11:20)
11:00 - 12:25		Session 1	Session 5 (11:20-12:40)	Session 8 (11:20-12:40)
12:25 - 13:30		Lunch	Lunch (12:40-14:00)	Lunch (12:40-13:40)
13:30 - 14:45		Session 2	Session 6 (14:00-15:40)	Session 9 (13:40-15:10)
14:45 - 15:15	Registration (14:00-19:00) @ Grand Ballroom Vendôme Foyer (4F)	Poster Session 1 (with Coffee Break)	Poster Session 2 (with Coffee Break) (15:40-16:10)	Poster Session 3 (with Coffee Break) (15:10-15:40)
15:15 - 17:45				Session 3
19:00 - 21:00	Welcome Reception (17:30-19:00) @ Grand Ballroom Vendôme A (4F)	-	Gala Dinner	Closing Ceremony (17:05-17:30)

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Advanced Analysis for Petroleum Hydrocarbon

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C8~C40 PIANO Group Classification,
TPH Fraction (EPH & VPH)
- Anti-oxidant analysis to identify the contamination source
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Specialized Analysis for Heavy metals

- Speciation of heavy metals using LC-ICP-MS :
As (Inorganic As : As^{3+} , As^{5+} / Organic As : DMA, DMAA, AB),
Cr (Cr^{3+} , Cr^{6+})
- Leaching test : SBRC, TCLP, SPLP, etc
- Sequential Extraction : Tessier, Wenzel, BCR
- Analysis using international methods :
ISO 11466, ISO 12914, ISO 11047, ISO 16772, ISO 22036,
EPA-3051, EPA-3051A, EPA-3052, etc

Special Project Centers

Soil and Water Quality Analysis Center

- Soil and water physico-chemical characteristics
(Soil texture, CEC, T-N, TOC, pH, EC, etc)
- Legal inspection of the soil contaminaton
- Legal inspection of drinking water
- Precise investigation of soil contamination site
- Environmental site assessment
- Verification on remediation works for contaminated site
- Groundwater impact investigation, groundwater modeling
- Consultation on remediation works for contaminated site

Environmental Risk Assessment Center

- Demonstration of natural origin of soil contaminants
- Establishment of risk assessment plan
- Risk assessment according to national and international regulations
- Establishment of risk-based contamination site management system
- Research on technology development and institutional improvement in environmental field

Environmental Reference Material Center

- Production and sales of reference materials
Certified Reference Material :
Inorganic contaminants in soil (Heavy metals)
Quality Control Material :
Organic contaminants in soil (TPH, VOCs, etc)
- Operation of proficiency testing program
- Development of ISO methods for soil analysis
- Support for Korean mirror committee of ISO/TC 190 'Soil Quality'

June 26 (Monday)

June 27 (Tuesday)

Daily Program



17:30 - 19:00 **Welcome Reception** Venue: Grand Ballroom Vendôme A (4F)

09:00 - 09:30 **Opening Ceremony** Venue: Grand Ballroom Vendôme A&B (4F)

09:30 - 10:30 **Plenary 1** Venue: Grand Ballroom Vendôme A&B (4F)
Soil Security Dimensions (5C) and Policy
Chair(s) **Jae E. Yang** (Kangwon National University, Korea, Republic of)

09:30 - 09:50 **107** **Public Policy and Soil Security**
Alex McBratney (The University of Sydney, Australia)

09:50 - 10:10 **120** **Integrating the Five Dimensions of Soil Security for a Scalable Soil Health Assessment Strategy**
Cristine Morgan (Soil Health Institute, United States of America)

10:10 - 10:30 **323** **Soil Security: Linking Soil Health to Planetary Health**
Video Yongquan Zhu (Chinese Academy of Sciences, China, People's Republic of)

10:30 - 11:00 **Poster Session 1 (with Coffee Break)** Grand Ballroom Vendôme C & Foyer (4F)

11:00 - 12:25 **Session 1** Venue: Grand Ballroom Vendôme A&B (4F)
Soil Security Dimensions (5C) I
Chair(s) **Damien Joseph Field** (The University of Sydney, Australia)
Kwon-Rae Kim (Gyeongsang National University, Korea, Republic of)

11:00 - 11:15 **108** **A Soil Security Assessment: the Capacity and Condition of Nutrient Cycling in the Hunter Valley, NSW, Australia**
Invited Sandra Joy Evangelista (The University of Sydney, Australia)
Alexander McBratney, Budiman Minasny

11:15 - 11:30 **114** **Mapping Soil Condition (Phenoforms): What is Possible and How Can It be Done?**
Invited David G. Rossiter (ISRIC-World Soil Information, the Netherlands)

11:30 - 11:45 **118** **Connectivity – Securing Soil through Care**
Invited Damien Joseph Field (The University of Sydney, Australia)

GSS 2023

- 11:45 - 11:55 **238** **Monitoring Programs for Evaluating the Health Status of Agricultural Soils – Case of Poland**
Bożena Smreczak (Institute of Soil Science and Plant Cultivation - State Research Institute, Poland)
 Aleksandra Ukalska-Jaruga, Urszula Pasternak, Joanna Ciepiel
- 11:55 - 12:05 **136** **Monitoring for Soil Security Using Mid-infrared Spectroscopy**
Wartini Ng (The University of Sydney, Australia)
 Budiman Minasny, Alexander McBratney
- 12:05 - 12:15 **221** **Soil Security Spatial Modeling for Sustainable Cacao Plantation Evaluation**
Heru Tri Widarto (Ministry of Agriculture, Directorate General of Plantation, Republic of Indonesia)
 Wirastuti Widyatmanti, Agnes Verawaty Silalahi, Melly Mulyasari, Deha Agus Umarhadi, Kurniawan Nugroho
- 12:15 - 12:25 **162** **Characterizing Diagnostic Horizons of Podzolic Soils in Taiwan Using pXRF and Vis-NIR**
Yin-Chung Huang (National Taiwan University, Taiwan)
 Cho-Ying Huang, Budiman Minasny, Zueng-Sang Chen, Zeng-Yei Hseu

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12:25 - 13:30

Lunch

Grand Ballroom Vendôme C & Foyer (4F)

13:30 - 14:45

Session 2
 Soil Security Dimensions (5C) II

Venue: Grand Ballroom Vendôme A&B (4F)

Chair(s) **Charles W Rice** (Kansas State University, United States of America)

- 13:30 - 13:45 **131** **Identifying and Mapping Genosoils and Phenosoils for the Evaluation of Soil Capacity and Condition Continentally**
Invited
Mercedes Roman Dobarco (The University of Sydney, Australia / Basque Centre for Climate Change, Spain)
 Jose Padarian, Alex McBratney, Brendan Malone, Budiman Minasny
- 13:45 - 13:55 **315** **Development of Soil Security Evaluation Model and Web-GIS System**
Jung-Hwan Yoon (Kangwon National University, Korea, Republic of)
 Seok Soon Jung, Sang-Phil Lee, Hyucksoo Kim, Kyung Jae Lim, Sungchul Kim, Jae E. Yang
- 13:55 - 14:05 **121** **Evaluation of Remotely Sensed Imagery to Monitor Temporal Changes in Soil Organic Carbon**
Yash Dang (The University of Queensland, Australia)
 Thomas Orton, Craig Thornton, Page Kathryn, Allen Diane, Ram Dalal
- 14:05 - 14:15 **301** **Estimating Soil Organic Carbon Content and Their Chemical Composition with Visible–near-infrared (VIS–nearIR) Spectroscopy for Assessing the Soil Economic Value**
Aleksandra Ukalska-Jaruga (Institute of Soil Science and Plant Cultivation in Poland, Poland)
 Guillaume Debaene, Bożena Smreczak



- 14:15 - 14:25 **140** **Characterization of Elemental Composition in Ophiolitic Soils of Eastern Taiwan**
Marvin D. Cascante (Department of Agricultural Chemistry, National Taiwan University, Taiwan)
 Zeng-Yei Hseu
- 14:25 - 14:35 **145** **Pedochemical Behaviors of Rare Earth Elements in the Soil Profiles along a Climosequence in Central Taiwan**
Cho-Yin Wu (National Taiwan University, Taiwan)
 Franz Zehetner, Zueng-Sang Chen, Shih-Hao Jien, Zeng-Yei Hseu
- 14:35 - 14:45 **101** **The Application of Rare Earth Elements as Pedogenic Tracers**
Zeng-Yei Hseu (Department of Agricultural Chemistry, National Taiwan University, Taiwan)
 Cho-Yin Wu

14:45 - 15:15 **Poster Session 1 (with Coffee Break)** Grand Ballroom Vendôme C & Foyer (4F)

15:15 - 17:45 **Session 3** Venue: Grand Ballroom Vendôme A&B (4F)
 Soil Security and Climate Change

Chair(s) **Weiguo Cheng** (Yamagata University, Japan)
Chang Oh Hong (Pusan National University, Korea, Republic of)

- 15:15 - 15:30 **126** **Securing Soil through Carbon Sequestration; Much more than a Climate Solution**
Invited Budiman Minasny (The University of Sydney, Australia)
- 15:30 - 15:45 **139** **Organic Rice Farming to Improve Soil Security and Carbon Sequestration**
Invited Weiguo Cheng (Faculty of Agriculture, Yamagata University / The United Graduate School of Agricultural Sciences, Iwate University, Japan)
 Valensi Kautsar, Keitaro Tawaraya, Kazunobu Toriyama, Kazuhiko Kobayashi
- 15:45 - 16:00 **150** **Our Knowledge on the Magnitude and Fate of Global Soil Organic Carbon**
Invited Umakant Mishra (Sandia National Laboratories, United States of America)
- 16:00 - 16:15 **327** **Carbon Neutral Staple Food Production in China through Soil and Crop Residue Management**
Invited Xiaoyuan Yan (Institute of Soil Science, Chinese Academy of Sciences, China, People's Republic of)
 Longlong Xia
- 16:15 - 16:25 **119** **Climate Change Vulnerability, Impacts and Adaptation of Agriculture in a Mountain region of Central Nepal**
Niraj Phuyal (Eco-Reach Foundation, Nepal)
 Tshering Omu Lama

- 16:25 - 16:35 **156** **Methane Emissions from Takanari and Koshihikari were Reduced by No Weeding in Organic Farming**
Jean Yves Dukuzumuremyi (Graduate School of Agricultural Sciences, Yamagata University, Japan)
 Christian Nkurunziza, Margi Asih Maimunah, Eric Cantona, Samuel M Kimani, Shigeto Sudo, Murayama Hedeki, Weiguo Cheng
- 16:35 - 16:45 **170** **Carbon Decomposition, Nitrogen Mineralization, and Greenhouse Gas Emitted during Rice Straw and Azolla Green Manure Vermicomposting**
Christian Nkurunziza (The United Graduate School of Agricultural Sciences, Iwate University, / Graduate School of Agricultural Sciences, Yamagata University, Japan)
 Jean Yves Dukuzumuremyi, Margi Asih Maimunah, Samuel M Kimani, Vestine Mukamparirwa, Alexandre Rutikanga, Keitaro Tawaraya, Weiguo Cheng
- 16:45 - 16:55 **186** **Impact of Climate Change on Soil Degradation from Erosion at the Forest-steppe Zone of the European Part of Russia**
Daria Fomicheva (V.V. Dokuchaev Soil Science Institute, Russian Federation)
 Andrey Zhidkin, Mikhail Komissarov
- 16:55 - 17:05 **231** **Effects of Long-term Soil Warming on SOC Decomposition and N Mineralization in a Japanese Rice Paddy Field**
Shuirong Tang (Yamagata University, Japan / College of Tropical Crops, Hainan University, China, People's Republic of)
 Christian Nkurunziza, Yves Dukuzumuremyi, Margi Asih Maimunah, Keitaro Tawaraya, Yanzheng Wu, Lei Meng, Weiguo Cheng
- 17:05 - 17:15 **260** **Warming Reduces CH₄ Emissions from Organic Farming Rice Paddy**
Nuri Baek (Department of Rural and Bio-Systems Engineering (BK21), Chonnam National University, Korea, Republic of)
 Hyun-Jin Park, Pia Husna Israt, Seo-Woo Park, Eun-Seo Shin, Han-Yong Kim, Woo-Jung Choi
- 17:15 - 17:25 **278** **A New Value of Silicate Fertilizer as a Soil Amendment to Mitigate Greenhouse Gas Emission Impact and Improve Rice Productivity**
Snowie Jane C. Galgo (Division of Applied Life Science, Gyeongsang National University, Korea, Republic of)
 Pil Joo Kim
- 17:25 - 17:35 **311** **Effect of Biochar Utilization on Net Global Warming Potential in a Whole Rice Cropping Boundary**
So-Yeong Park (Division of Applied Life Science (BK21), Gyeongsang National University, Korea, Republic of)
 Hyeon Ji Song, Pil Joo Kim
- 17:35 - 17:45 **267** **Biochar Induced Changes in Methane Emission and Rice Yield: A Data Synthesis**
Pia Husna Israt (Department of Rural and Bio-Systems Engineering (BK21), Chonnam National University, Korea, Republic of)
 Nuri Baek, Woo-Jung Choi



09:00 - 10:00		Plenary 2 Soil Security and Food Security	Venue: Grand Ballroom Vendôme A&B (4F)
Chair(s) Won-Pyo Park (Jeju National University, Korea, Republic of) Jin-Hyeob Kwak (Jeonbuk National University, Korea, Republic of)			
09:00 - 09:20	124	Peak Soil Jeopardises Global Food Security, Climate Emergency and Peace <u>Abad Chabbi</u> (National Research Institute for Agriculture, Food and Environment (INRAE), France)	
09:20 - 09:40	215	Human Nutritional Aspects of Soil Security: Hidden Hunger <u>Ismail Cakmak</u> (Sabanci University, Turkiye)	
09:40 - 10:00	322	Organic Matter Management in Rice Paddy: Grand Challenges and Golden Opportunities under Global Warming <u>Pil Joo Kim</u> (Gyeongsang National University, Korea, Republic of)	
10:00 - 10:50		Session 4 Soil Security and Ecosystem Services I	Venue: Grand Ballroom Vendôme A&B (4F)
Chair(s) Shruti Khadka Mishra (Sandia National Laboratories, United States of America) Woo-Jung Choi (Chonnam National University, Korea, Republic of)			
10:00 - 10:15	104 Invited	Ecosystem Services of Soil Carbon, Carbon Farming, and Carbon Market <u>Shruti Khadka Mishra</u> (Sandia National Laboratories, United States of America)	
10:15 - 10:30	106 Invited	Comparing Carbon and Nitrogen Stocks in Paddy and Upland Soils: Accumulation, Stabilization Mechanisms, and Environmental Drivers <u>Tida Ge</u> (Ningbo University, China, People's Republic of)	
10:30 - 10:40	122	Impact of Crop Diversification on Soil Carbon and Nitrogen in Two Organic Crop Rotations <u>Iman Raj Chongtham</u> (Swedish University of Agricultural Sciences, Sweden) Louis Hincelin	
10:40 - 10:50	165	Evaluation of Cropland Ecosystem Services for Sustainable Soil Management: Framework, Methodology and Case Study <u>Kuan-Ting Lin</u> (National Taiwan University, Taiwan) Horng-Yuh Guo, Kuanting Lin, Yu-Chieh Huang, Shu-Yuan Pan	
10:50 - 11:20		Poster Session 2 (with Coffee Break)	Grand Ballroom Vendôme C & Foyer (4F)

11:20 - 12:40 **Session 5** Venue: Grand Ballroom Vendôme A&B (4F)
Soil Security and Ecosystem Services II

Chair(s) **Laura Poggio** (ISRIC - World Soil information, Netherlands, The)
Yong Bok Lee (Gyeongsang National University, Korea, Republic of)

- 11:20 - 11:35 **117** **Challenges in Modelling Soil Security at Global Level**
Invited **Laura Poggio** (ISRIC - World Soil information, Netherlands, The)
Niels H. Batjes, Bas Kempen, David G. Rossiter
- 11:35 - 11:50 **247** **Spatial Evaluation and Quantification of Soil Multifunctionality Across Europe: Where to Start?**
Invited **Alexandre MJC Wadoux** (LISAH, Univ Montpellier, INRAE, IRD, Institut Agro, Montpellier, France)
- 11:50 - 12:00 **252** **Compost Cylinders in the Green Areas of the UAM Azcapotzalco**
Alicia Chacalo (Universidad Autónoma Metropolitana-AZC, Mexico)
Laura Arriaga, Isabelle Barois, Silke Cram, Blanca Prado, Eusebio Guzmán, Ahmed Zekkour
- 12:00 - 12:10 **111** **Impact of Topsoil Mining for Unfired Mudbricks on Soil Quality in Eastern KwaZulu-Natal, South Africa**
Nkosinomusa Buthelezi-Dube (University of KwaZulu-Natal, South Africa)
Mojapelo Leshalagae
- 12:10 - 12:20 **261** **Quantifying the Impact of Soil Erosion on Soil Security by using Alternative Fallout Radionuclides in a Mediterranean Olive Orchard Catchment**
Tom Vanwallegghem (University of Córdoba, Spain)
Vanesa García-Gamero, José Luis Mas, Andrés Peñuela, Santiago Hurtado Bermúdez, Adolfo Peña
- 12:20 - 12:30 **270** **Stabilization of Heavy Metal Contaminated Fine Soil Collected from a High-pressure Soil Washing Process Using Cuttlefish Bone**
Deok Hyun Moon (Chosun University, Korea, Republic of)
- 12:30 - 12:40 **152** **Urban Soil Remediation Using Tillage and Compost for Turfgrass Establishment: Soil Physical and Biological Properties**
James Jihoon Kang (School of Earth, Environmental, and Marine Sciences, University of Texas Rio Grande Valley, United States of America)
Engil Pereira, Jungseok Ho

12:40 - 14:00 **Lunch** Grand Ballroom Vendôme C & Foyer (4F)



14:00 - 15:40		Session 6 Soil Security and Policy	Venue: Grand Ballroom Vendôme A&B (4F)
Chair(s) Liesl Denise Wiese-Rozanov (Agriculture, Science Policy Consultant, South Africa) Sang Yoon Kim (Sunchon National University, Korea, Republic of)			
14:00 - 14:15	125 Invited	Managing Nitrogen for Food Security and Environmental Protection <u>Baojing Gu</u> (Zhejiang University, China, People's Republic of)	
14:15 - 14:30	203 Invited	Countries' Rio Convention Commitments for Measures Related to Soil Organic Carbon and Agricultural Production: Focus on Africa <u>Liesl Denise Wiese-Rozanov</u> (Agriculture, Science Policy Consultant, South Africa)	
14:30 - 14:45	248 Invited	Soil Security and Governance <u>Harald Ginzky</u> (German Environment Agency, Germany)	
14:45 - 15:00	310 Invited	Soil Security in Urban Environments - A Case Study from the Berlin Metropolitan Area <u>Kolja Thestorf</u> (Humboldt-Universität zu Berlin, Germany) Mohsen Makki	
15:00 - 15:10	208	Codification to Secure Indonesian Peatlands: From Policy to Practices as Revealed by Remote Sensing Analysis <u>Wirastuti Widyatmanti</u> (Universitas Gadjah Mada, Indonesia) Budiman Minasny, Damien Field, Disyacitta Awanda, Deha Agus Umarhadi, Kurniawan Nugroho	
15:10 - 15:20	214	Soil Governance Policy and Certification Schemes <u>Christopher Wilmot</u> (Charles Sturt University, Australia)	
15:20 - 15:30	149	A Comparison Study on Soil Organic Carbon Pool between Regions for Policy Implications <u>Minha Lee</u> (Kangwon National University, Korea, Republic of) Heejung Kim, Jae-E Yang	
15:30 - 15:40	319	An Approach for Grower Outreach Programs for Adoption of Climate-smart Soil Health Production Practices in Cotton <u>Jessica Ann Kelton</u> (Soil Health Institute, United States of America) Dianna Bagnall, Emily Ball, Nawi Flores	
15:40 - 16:10		Poster Session 2 (with Coffee Break)	Grand Ballroom Vendôme C & Foyer (4F)

16:10 - 16:50	Special Session	Venue: Grand Ballroom Vendôme A&B (4F)
	EcoSSSoil (Ecosystem Services of Surface Soil Environment)	
	Chair(s) Sung Chul Kim (Chungnam National University, Korea, Republic of)	
16:10 - 16:20	318 Assessment of Rainfall Erosivity in Mongolia	
	<u>Kyoung Jae Lim (Kangwon National University, Korea, Republic of)</u> Nyamdavaa Batsaikhan, Sandelger Dorligjav, Batsuren Dorjsuren	
16:20 - 16:30	313 Assessment of Soil Ecosystem Services Based on the Soil Function and Properties	
	<u>Sung Chul Kim (Chungnam National University, Korea, Republic of)</u> Young Kyu Hong, Jin Wook Kim, Kyeong Min Lee, Dong Ju Lee, Su Hyeon Hong, Jung Hwan Yoon, Hyuck Soo Kim, Jae E. Yang	
16:30 - 16:40	173 Development and Application of Monthly Soil Estimation Approach: A Case Study in South Korea	
	<u>Youn Shik Park (Kongju National University, Korea, Republic of)</u> Kyoung Jae Lim, Jae E Yang, Yong-Chul Shin	
16:40 - 16:50	211 Estimation of Future Soil Carbon Storage According to Climate Change	
	<u>Innkyo Choo (Kyungpook National University, Korea, Republic of)</u> Taehwa Lee, Yongchul Shin, Younghun Jung	
16:50 - 19:00	Gala Dinner Setting (Break)	Venue: Grand Ballroom Vendôme A&B (4F)
19:00 - 21:00	Gala Dinner	Venue: Grand Ballroom Vendôme A&B (4F)



June 29 (Thursday)

Daily Program

09:00 - 10:00		Plenary 3 Soil Security and Ecosystem Services	Venue: Grand Ballroom Vendôme A&B (4F)
		Chair(s) Won-Pyo Park (Jeju National University, Korea, Republic of) Jin-Hyeob Kwak (Jeonbuk National University, Korea, Republic of)	
09:00 - 09:20	129	Soil Security: Unlocking the Full Potential of Soil-land-water Nexus Research <u>Pasquale Borrelli (Roma Tre University, Italy)</u>	
09:20 - 09:40	187	Preserving the Soil Microbiome for the Circular Bioeconomy and Human Health <u>Charles W Rice (Kansas State University, United States of America)</u> Regan Konz	
09:40 - 10:00	314	Restoration to Improve Soil Security and Ecosystem Services <u>Scott Chang (University of Alberta, Canada)</u>	
10:00 - 10:50		Session 7 Soil Security and Food Security I	Venue: Grand Ballroom Vendôme A&B (4F)
		Chair(s) Margaret Ann Oliver (University of Reading, United Kingdom) Kwon-Rae Kim (Gyeongsang National University, Korea, Republic of)	
10:00 - 10:15	105 Invited	Soil, Essential for Food Production, is Under Pressure from both the Nitrogen Issue and Food Security <u>Kentaro Hayashi (Research Institute for Humanity and Nature / National Agriculture and Food Research Organization, Japan)</u>	
10:15 - 10:30	109 Invited	Relations between Soil, its Management, Food Security and Human Health <u>Margaret Ann Oliver (University of Reading, United Kingdom)</u>	
10:30 - 10:40	207	Integrated Rice based Shrimp and Crabs Farming: Adaptation to Climate Change and Potential Mitigation of Global Warming in the Coastal Wetlands of Bangladesh <u>Muhammad Aslam Ali (Bangladesh Agricultural University, Bangladesh, People's Republic of)</u> Shahroz Mahean Haque, Khalid Sarwardi, SK Fazlay Rabbi, Shuvo Kumar Sarkar, Suman Kumar Malakar, Sanjit Chandra Barman, Hafsa Jahan Hiya	
10:40 - 10:50	331	Real-Time Measurement of Soil Health & Adding Context to Soil Carbon Data <u>Harriette Phillips Brainard (Soil in Formation, PBC, United States of America)</u>	
10:50 - 11:20		Poster Session 3 (with Coffee Break)	Grand Ballroom Vendôme C & Foyer (4F)

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11:20 - 12:40 **Session 8** Venue: Grand Ballroom Vendôme A&B (4F)
Soil Security and Food Security II

Chair(s) **Hyuck Soo Kim** (Kangwon National University, Korea, Republic of)
Young-Nam Kim (Gyeongsang National University, Korea, Republic of)

- 11:20 - 11:35 **230** **Can Biochar Promote Soil Security for Healthy Foods?**
Invited Genxing Pan (Nanjing Agricultural University, China, People's Republic of)
Cheng Liu, Zheng Zhao, Lianqing Li
- 11:35 - 11:50 **332** **Expanding Climate-Smart Markets through Partnerships for Climate-Smart Commodities in the U.S.**
Invited Katina Dove Hanson (U.S. Department of Agriculture, United States of America)
- 11:50 - 12:00 **225** **Modeling the Growth and N Concentration of Iceberg Lettuce in Central Taiwan**
Chu-Chung Chen (National Taiwan University / Taiwan Agricultural Research Institute, Taiwan)
Kai-Wei Juang, Dar-Yuan Lee
- 12:00 - 12:10 **258** **Fertilizer Recommendation System for Sustainable Agricultural Production in Korea**
Yejin Lee (Rural Development Administration, Korea, Republic of)
Chanwook Lee, Hyejin Park, Yosung Song
- 12:10 - 12:20 **190** **Effects of Soil Amendment and Alternative Soil Fallow Systems on Soil Physical Properties and Rice Yield in Saline-affected Soils**
Tran Ba Linh (Can Tho University, Vietnam)
Chau Minh Khoi, Nguyen Thi Kim Phuong, Dang Duy Minh, Nguyen Van Sinh, Koki Toyota
- 12:20 - 12:30 **167** **Nutrient Balance and Use Efficiency for Soil Health and/or Sustainability in Japan**
Shin-ichiro Mishima (The National Agriculture and Food Research Organization, Japan)
- 12:30 - 12:40 **234** **Effect of Pyroligneous Acid on Nitrification and Lettuce (*Lactuca Sativa* L.) Growth in Urea-fertilized Soil**
Yeong Ju Seok (Chungbuk National University, Korea, Republic of)
Su Kyeong Sin, Jin Kyung Cha, Jin Hee Park

12:40 - 13:40 **Lunch** Grand Ballroom Vendôme C & Foyer (4F)



June 29 (Thursday)

Daily Program

13:40 - 15:10		Session 9 Soil Security and Biodiversity	Venue: Grand Ballroom Vendôme A&B (4F)
		Chair(s) Cornelia Rumpel (CNRS, France) Heejung Kim (Kangwon National University, Korea, Republic of)	
13:40 - 13:55	128 Invited	Soil Organisms as Drivers of Soil Security <u>Cornelia Rumpel (CNRS, France)</u>	
13:55 - 14:10	251 Invited	Delineation of Hyporheic Zone Depth and Using Probabilistic Approach <u>Heejung Kim (Kangwon National University, Korea, Republic of)</u>	
14:10 - 14:20	137	Enzyme Activity under Different Tillage Techniques and N Fertilizer Management in Dry Land Agriculture <u>Bonginkosi Samuel Vilakazi (North West University, South Africa)</u>	
14:20 - 14:30	191	Effects of Landuse Systems on Soil Macrofauna, Soil Health and Soil Security in Ultisols of Akwa Ibom State, Nigeria <u>Udeme Sunday Akpan (University of Uyo, Akwa Ibom State, Nigeria, Nigeria)</u>	
14:30 - 14:40	147	Effects of Land Use on Floristic Composition and Diversity of Woody Vegetation in the Commune of Enampore, Senegal <u>Yaya Diatta (Assane Seck University of Ziguinchor, Senegal)</u> Sire Diedhiou, Antoine Sambou, Arfang Ousmane Kémo Goudiaby	
14:40 - 14:50	235	Potential Stress of Polyethylene Terephthalate Microplastics on the Plant-soil-microbiome System in Pot Experiments <u>Fauzia Mahanaz Shorobi (Chungbuk National University, Korea, Republic of)</u> Jin Hee Park	
14:50 - 15:00	144	Effects of Biogas Slurry Application on Soil Quality <u>Jen Chieh Mao (Tainan District Agricultural Research and Extension Station / Department of Soil and Elementary Science, National Chung Hsing University, Taiwan)</u> Cheng Hua Huang, Jui Chang Huang	
15:00 - 15:10	199	Improved Ginseng Production under Continuous Cropping through Soil Health Reinforcement and Rhizosphere Microbial Manipulation with Biochar: A Field Study of Panax Ginseng from Northeast China <u>Cheng Liu (Nanjing Agricultural University, China, People's Republic of)</u>	
15:10 - 15:40		Poster Session 3 (with Coffee Break)	Grand Ballroom Vendôme C & Foyer (4F)
15:40 - 15:45		Special Talk (by Publisher of journal Soil Security, Elsevier)	Venue: Grand Ballroom Vendôme A&B (4F)

15:45 - 17:05	Session 10	Venue: Grand Ballroom Vendôme A&B (4F)
	Soil Security and Water and Environmental Security	
	Chair(s) Sung Chul Kim (Chungnam National University, Korea, Republic of) Woo-Jung Choi (Chonnam National University, Korea, Republic of)	
15:45 - 16:00	110	Biopores and Hyporheic Zones as 'Hot Spots' for Microbial Pollutant Degradation
	Invited	<u>Marcus A. Horn</u> (Leibniz University Hannover, Germany)
16:00 - 16:15	328	An Agricultural Producer's Perspectives on Soil Security: Bridging the Gaps between Research and Implementation
	Invited	<u>Alan Kruszel</u> (Soil Conservation Council of Canada, Canada)
16:15 - 16:25	246	Quantification of the Soil Function Water Purification and Regulation - Current State and Potential
		<u>Alexandre MJC Wadoux</u> (LISAH, Univ Montpellier, INRAE, IRD, Institut Agro, Montpellier, France) Henri Lechevallier, Philippe Lagacherie
16:25 - 16:35	206	Soil Moisture Sensor Combined with Straw Mulching Improves Water Use Efficiency and Yield of an Upland Crop under Conditions of Drought and Saline Water Intrusion in the Vietnamese Mekong Delta
		<u>Duy Minh Dang</u> (Can Tho University, Vietnam) Ed Barrett-Lennard, Susan Orgill, Brooke Kaveney, Duy Khanh Tran, Dinh An Giang Cao, Thi Ngoc Binh Tran, Minh Khoi Chau, Jason Condon
16:35 - 16:45	200	Improved Crop Production under Conditions of Drought and Seawater Intrusion by Integrated Rice-upland Crops Rotation and Soil Management
		<u>Chau Minh Khoi</u> (Can Tho University, Vietnam) Jason Condon, Ed Barrett, Dang Duy Minh, Susan Orgill, Brooke Kaveney, Tran Duy Khanh, Cao Dinh An Giang
16:45 - 16:55	255	Land Use, Erosion, and Hydroecology of Waters in a Karst Area: A Case Study on Samcheok, South Korea
		<u>Regina Martha Gabest Lumongsod</u> (Kangwon National University, Korea, Republic of) Heejung Kim, Han-Sun Ryu, Julieber Toralde Bersabe
16:55 - 17:05	183	Analyzing the Combined Impact of Climate Change and Soil Erosion on Drought Occurrence
		<u>Vanesa García-Gamero</u> (University of Córdoba, Spain) Andrés Peñuela, Adolfo Peña, Tom Vanwallegem
17:05 - 17:30	Closing Ceremony	Venue: Grand Ballroom Vendôme A&B (4F)

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Creating the values for humans and nature!



(B.B)
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270,000 ton / year



Soil Conditioner
250,000 ton / year



Inorganic Fertilizer
200,000 ton / year

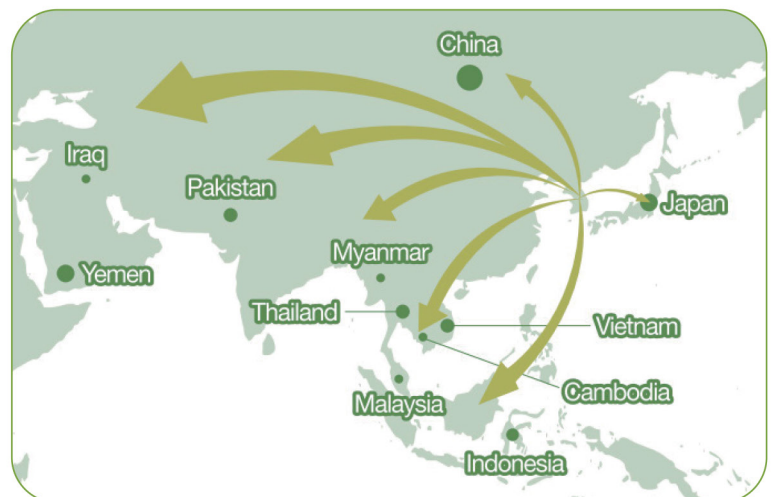


Organic Fertilizer
50,000 ton / year

Scale Site: 69,316m² / Building: 14,876m²

**15,000ton is exported to
12 countries!**

Cambodia · China · Indonesia · Iraq
· Japan · Malaysia · Myanmar · Pakistan
· Thailand · Vietnam · Yemen



Poster Session 1

Venue: Grand Ballroom Vendôme C (4F)

- Board No. 001 **164** **Influence of Irrigation Water Quality on the Physico-chemical Properties of Oasis Soil**
Boukarkar Fatiha (Agricultural science, Alger)
 Berkal Ismaiel
- Board No. 002 **177** **Soil Capital in Cotton: Economic Learnings from Successful Growers**
Dianna Kathleen Bagnall (Soil Health Institute, United States of America)
 Archie Flanders, Jessica Kelton, Cristine Morgan, Wayne Honeycutt
- Board No. 003 **169** **Thermal Stability of Soil Organic Carbon under Continuous Teak Rotations in the Midland Laterites of Kerala Western Ghats**
Binsiya T K (Department of Soil Science, Kerala Forest Research Institute, Thrissur, India)
 Sandeep S
- Board No. 004 **275** **Effects of Plastic Film Mulching and Stover Recycling on Soil Organic Carbon Stock Changes in Maize Cropping System**
Ho gyeong Chae (Department of applied life science (BK21 program), Gyeongsang National University, Korea, Republic of)
 Jeong gu Lee, Pil joo Kim
- Board No. 005 **138** **Evaluating the Impact of Climate Variability on Organic Carbon, Microbial Diversity and Metabolic Profile of Soils under Different Land Use Systems**
Abel Lesetja Masotla (University of South Africa, South Africa)
 Lefuno Nemadodzi, Wonder Ngezimana, Sylvester Mpandeli
- Board No. 006 **127** **Assessing Human Impacts on Soil Organic Carbon Change in the Lower Namoi Valley, Australia**
Ho Jun Jang (The University of Sydney, Australia)
 Mercedes Roman Dobarco, Budiman Minasny, Jose Padarian Campusano, Alex McBratney
- Board No. 007 **242** **Early Impact of Cover Crops on Greenhouse Gas Emissions and Soil Microbial Activities**
Artemio Asuncion Martin (Isabela State University, Philippines)
- Board No. 008 **307** **A Comparison of Gaseous Nitrogen Losses and Crop Productivity between Urea and Ammonium Sulfate Application in a Cabbage Cropping Field**
Hyerin An (Suncheon National University, Korea, Republic of)
 Juhee Lee, Yeomyeong Lee, Sohee Yoon, Sang Yoon Kim
- Board No. 009 **274** **A Study on Soil Carbon Stock Change Factors of Korean Agricultural Land by Meta-analysis**
Seung-Oh Hur (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Seong-Jin Park, Soon-Ik Kwon
- Board No. 010 **303** **Assessment of the Impacts of Climate Change on Soil and Nutrient Loss from Slopped Upland**
Soonkun Choi (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Nan Hee An, Jinu Eo, So-Jin Yeob, Sang Min Jun



Poster Session 1

Venue: Grand Ballroom Vendôme C (4F)

- Board No. 011 **202** **Biochar Application Increased Net Ecosystem Carbon Balance in Chinese Cabbage Cultivated Soilate Change**
Do-Gyun Park (Chungnam National University / National Institute of Agricultural Sciences, Korea, Republic of)
 JongMun Lee, Hyeon-Cheol Jeong, Hyo-Suk Gwon, HyoungSeok Lee, Hye-Ran Park, EunBin Jang, Sun-Il Lee
- Board No. 012 **304** **Can Organic Farming Mitigate Global Warming in Rice Paddy under the Future Climate Condition?**
Young Ho Seo (Division of Applied Life Science (BK21), Gyeongsang National University, Korea, Republic of)
 Hyeon Ji Song, Pil Joo Kim
- Board No. 013 **259** **CH4 Emissions from Rice Paddy under Different Fertilization Regimes: A Data Synthesis and Review**
Nuri Baek (Department of Rural and Bio-Systems Engineering (BK21), Chonnam National University, Korea, Republic of)
 Miwa Yashima, Woo-Jung Choi
- Board No. 014 **201** **Changes in Topsoil Organic Carbon Content of Farmland Soils in Taiwan over the Past 30 Years**
Chien-Hui Syu (Taiwan Agricultural Research Institute, Taiwan)
 Chen-Chi Tsai, Yu-Fang Chang, Yun-Jie Lai
- Board No. 015 **300** **Combined Application of Organic and Inorganic Fertilizers on Mitigating Reactive Nitrogen Losses and Maintaining Crop Productivity in Consecutive Maize-Cabbage Cropping System**
Yeomyeong Lee (Sunchon National University, Korea, Republic of)
 Sohee Yoon, Hyerin An, Juhee Lee, Sang Yoon Kim
- Board No. 016 **273** **Comparison between Soil Carbon Stock Change Factor and Global Warming Potential Index for Green Manure Crops**
Sung Un Kim (Pusan National University, Korea, Republic of)
 Chang Oh Hong, Geon Hyeong Lee
- Board No. 017 **216** **Effect of Biochar on Methane Emission under Rice Paddy in East Asia: A Meta-Analysis**
Jongmun Lee (National Institute of Agricultural Sciences, Korea, Republic of)
 Hyeoncheol Jeong, Hyosuk Gwon, Hyoungseok Lee, Hyeran Park, Dogyun Park, Guensik Kim, Sunil Lee
- Board No. 018 **157** **Effect of Green Manure for Reducing Carbon Emissions in Taiwan Yilan Area**
Hsiu-Yen Chang (Hualien District Agricultural Research and Extension Station Council of Agriculture, Taiwan)
 Tzu-Cheng Chien, Gou-En Yan, Yun-Shan Tsai, Li-Feng Ni, Shu-Yuan Chiou
- Board No. 019 **213** **Effect of Plastic Film Mulch and N rates on soil pH, EC, and Inorganic Nitrogen.**
Toluwase Oreoluwa Adegoke (Hankyong National University, Korea, Republic of)
 Tae-il Moon, A-rin Kim, Young-sun Lee, Hyun-Hwoi Ku
- Board No. 020 **282** **Effects of Water Management and Slow-release Fertilizer on Greenhouse Gas Emissions in Paddy Field**
Eun Bin Jang (National Institute of Agricultural Sciences/ RDA / Chungnam National University, Korea, Republic of)
 Jong Mun Lee, Hyo Suk Gwon, Hyoung Suk Lee, Hyun Cheol Jung, Park Hye Ran, Sun Il Lee, Taek Keun Oh

Poster Session 1

Venue: Grand Ballroom Vendôme C (4F)

- Board No. 021 **210** **Estimation of Agricultural Soil Carbon Storage using Digital Soil Mapping (DSM) in Chungcheongnam-do, South Korea**
Yun-Gu Kang (Chungnam National University, Korea, Republic of)
 Jae-Han Lee, Jun-Yeong Lee, Jun-Ho Kim, Taek-Keun Oh
- Board No. 022 **283** **Evaluation of Greenhouse Gas Emissions by Reduced Tillage in Rice Cultivation: Using LCA**
Ju Hyeon Jin (National Institute of Agricultural Sciences, Rural Development, Korea, Republic of)
 Hyeon-Cheol Jung, Sun-Il Lee, Hyoung-Seok Lee, Hye-Ran Park, Ye-Seul Yu, Jong-Mun Lee, Hyo-Suk Gown
- Board No. 023 **308** **Feasibility of Ammonium Sulfate as an Alternative to Urea to Decrease Ammonia Emission in Rice Paddy**
Ali Fakhar (Gyeongsang National University, Korea, Republic of)
 Ronley Canatoy, Pil Joo Kim
- Board No. 024 **280** **Investigating the Rice Plant Potential for Consumption of Atmospheric N₂O?**
Muhammad Israr Khan (Gyeongsang National University, Korea, Republic of)
 Gil Won Kim, Tariq Sardar, Pil Joo Kim
- Board No. 025 **135** **Modeling the Variation of Soil Bulk Density with Organic Matters for Different Crops Cultivation in Taiwan to Evaluate Carbon Sequestration**
Kai-Wei Juang (National Chiayi University, Chiayi City, Taiwan)
 Yu-Chan Sie, Chein-Ming Fu, Ting Tsai, Jia-Jun Lin, Jui-Che Lin
- Board No. 026 **309** **Silicate Fertilizer as a Sustainable Alternative to Lime for Improving Soil Carbon Stock**
Lorraine Joule Boiser Estrada (Gyeongsang National University, Korea, Republic of)
 Snowie Jane Carino Galgo, Pil Joo Kim
- Board No. 027 **290** **Soil Loss during Kimchi Cabbage Cultivation Season and Cover Management after the Cultivation in the Slope Lysimeters with Varying Steepness in the Highland**
Jeong-Tae Lee (National Institute of Crop Science, Korea, Republic of)
 Yang-Min Kim, Gye-Ryeong Bak
- Board No. 028 **285** **Strategy of Development of Biochar Business Model for Agricultural Uses in South Korea**
Jin-Hyeob Kwak (Jeonbuk National University, Korea, Republic of)
 Sun-Il Lee, Seong-Jik Park, Won-Pyo Park, Jae Woon Jung, Seok-In Yun, Han-Yong Kim, Woo-Jung Choi
- Board No. 029 **281** **Temporal Variation of Orchard Soils in South Korea**
Eunjin Lee (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Myung-Sook Kim, Tae-Gu Lee, Ha-il Jung, Seon-Hye Baek
- Board No. 030 **276** **The Distribution of Soil Chemical Properties in South Korea: From Soil Testing Database for the Past 3 Years**
Eunjin Lee (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Myung-Sook Kim, Tae-Gu Lee, Ha-il Jung, Seung-Gyu Lee, Seon-Hye Baek



Poster Session 1

Venue: Grand Ballroom Vendôme C (4F)

- Board No. 031 **229** **Using Digital Mapping to Assess the Relationship between Soil Organic Carbon Stocks and Land Cover in South Central Taiwan**
Bo-Jiun Yang (Taiwan Agricultural Research Institute, Taiwan)
 Chien-Hui Syu, Yi-Ting Zhang, Hsin-Ju Yang
- Board No. 032 **291** **Woody Biochar Applications Significantly Enhanced Carbon Balance, Fruit Productivity, and Soil Quality in an Upland Field during Red Pepper Cultivation**
Sohee Yoon (Sunchon National University, Korea, Republic of)
 Juhee Lee, Yeomyeong Lee, Hyerin An, Sang Yoon Kim
- Board No. 033 **253** **Goals to Achieve Soil Security**
Shishir Barua (National University, Bangladesh, Bangladesh, People's Republic of)
- Board No. 034 **286** **A Study on the Development of Nexus-based Platform for Integrated Evaluation of Agricultural Environment Conservation Program**
Jeong-Woo Son (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Seung-Oh Hur, Bu-Yeong Oh
- Board No. 035 **277** **Comparison of Soil Quality Index Methods for the Soil Properties of Reclaimed land of Korea Using Multivariate Statistical Approaches**
Su hwan Lee (National Institute of Crop Science, Korea, Republic of)
 Yang Yeol Oh, Bo Seong Seo, Hui-su Bae, Sang Hoon Lee, Jin Hee Ryu
- Board No. 036 **289** **Development of Soil-Water-Food-Energy Nexus Platform for Agricultural Drought Impact Assessment**
Buyeong Oh (National Institute of Agricultural Sciences/ RDA, Korea, Republic of)
 Joeng-woo Son, Seung-oh Hur, Seon-ah Hwang
- Board No. 037 **316** **Fertilizer Recommendations Based on Soil Testing for Pea (Pisum Sativum L.)**
Hee jeong Je (Gyeongsangnam-do Agricultural Research and Extension Services, Korea, Republic of)
- Board No. 038 **185** **The Soil Footprint: Concept, Development, and Assessment in Spain**
Vanesa García-Gamero (University of Córdoba, Spain)
 Andrés Peñuela, Adolfo Peña, Ana M. Laguna, Tom Vanwallegthem
- Board No. 039 **333** **Effect of Microorganism-added Mixed Litter on Odor Reduction in Livestock Barns**
Jae-Hoon Lee (Division of Applied Life Science(BK21 Four) & Institute of Agriculture and Life Science, Gyeongsang National University, Korea, Republic of)
 Dong-Choel Seo
- Board No. 040 **334** **Effect of Biochar Formulation on Composting Efficiency and Quality within Mixed Livestock Litter**
Jae-Hoon Lee (Division of Applied Life Science(BK21 Four) & Institute of Agriculture and Life Science, Gyeongsang National University, Korea, Republic of)
 Dong-Choel Seo

Poster Session 2

Venue: Grand Ballroom Vendôme C (4F)

- Board No. 001 **237** **Do Creosote-preserved Wood Facilities in Hop Plantations Constitute a Real Source of PAHs in Soils?**
Bożena Smreczak (Institute of Soil Science and Plant Cultivation - State Research Institute, Poland)
 Aleksandra Ukalska-Jaruga, Urszula Pasternak, Joanna Ciepiał
- Board No. 002 **151** **Establishment of Models of Predicting Arsenic Concentration in Edible Parts of Vegetables Using Soil Extractable As Concentrations by Various Extractants**
Yi Jie Liao (National Taiwan University, Taiwan)
 Yu Rong Cao, Dar Yuan Lee
- Board No. 003 **123** **Importance and Effectiveness of Waste Decomposer in Biodegradable and Agro-waste Management in Context of Nepal**
Sabina Devkota (Nepal Agricultural Research Council, Nepal)
- Board No. 004 **181** **Results of Research on the Dosage and Norm of Mongolian Sheep's Wool Fertilizer for Agricultural Soil**
Orkhontuya Puntsag (Mongolia University of Life Science, Mongolia)
 Javkhlantuya Altansuvd
- Board No. 005 **141** **A Comprehensive Ecological-health Risk Assessment of As in Paddy Soils in Taiwan**
Bo-Ching Chen (Nanhua University, Taiwan)
 Kai-Wei Juang, Chien-Hui Syu
- Board No. 006 **168** **A Feasibility Assessment for the Stabilization of Arsenic and Mercury Contaminated Soil Using Calcium Sulfate Fertilizer**
Il-Ha Koh (National environment lab. (NeLab), Korea, Republic of)
 Yo-Seb Kwon, Min-Hyeon Lee, So-Young Park, Jung-Eun Kim, Won Hyun Ji
- Board No. 007 **178** **A Sedimentation Method with Sieving for Measurement of Different Particle Size Fractions of Microplastics in Farmland Soils**
Zi-Yi Chen (National Chiayi University, Taiwan)
 Wan-Ting Chiao, Hsiao-Pei Hsu, Yen-Cheng Chen, Bo-Ching Chen, Kai-Wei Juang
- Board No. 008 **249** **Arsenic Release from Various Sizes of Excavated Crushed Rock Mixed with Soil at Various Ratios under Three Mass Water Contents for Croplan**
Kyo-Suk Lee (Chungnam National University, Korea, Republic of)
 Doug-Young Chung
- Board No. 009 **295** **Assessment of High-pressure Soil Washing for Lead Contaminated Soil Using a FeCl₃ Washing Solution**
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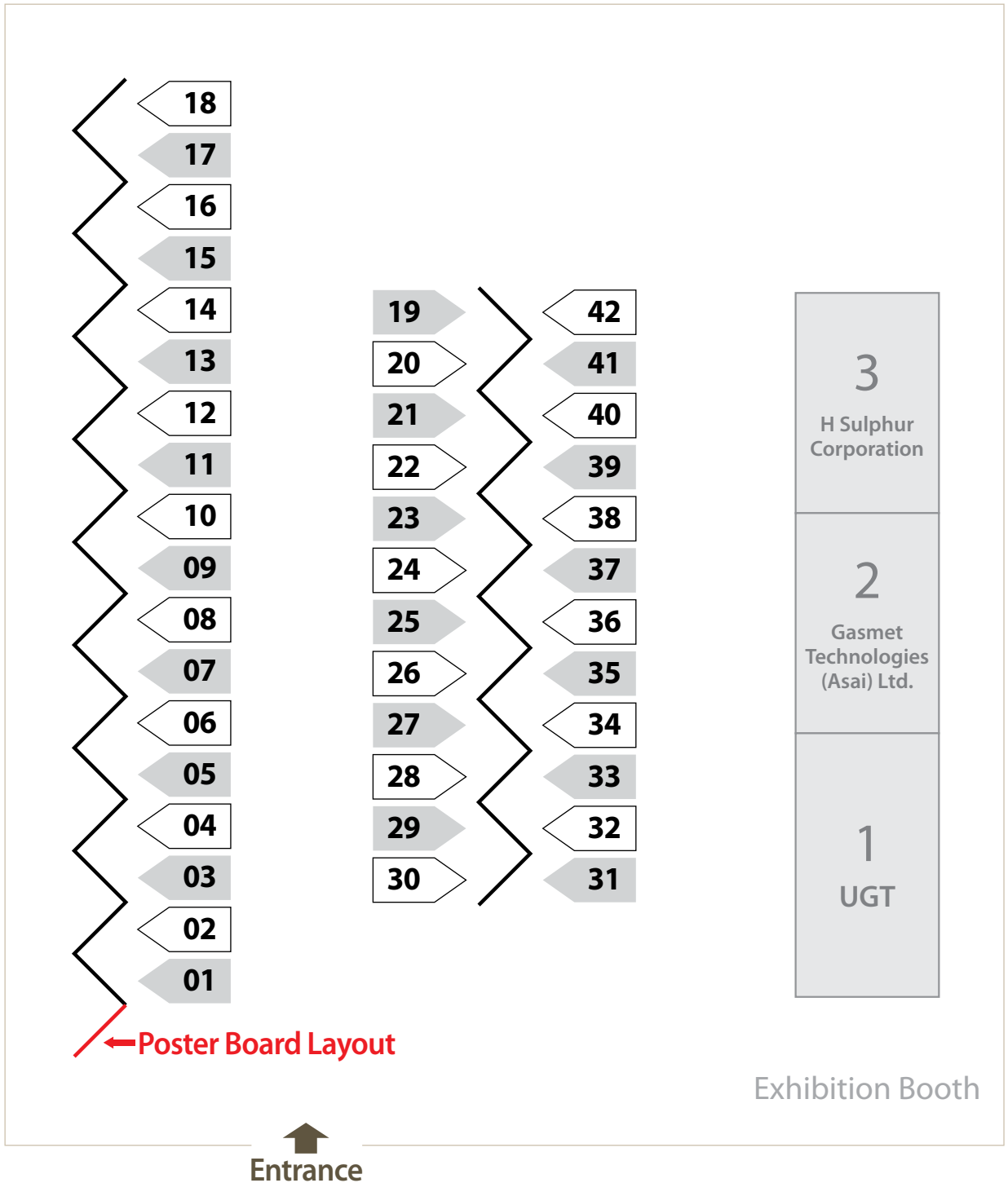
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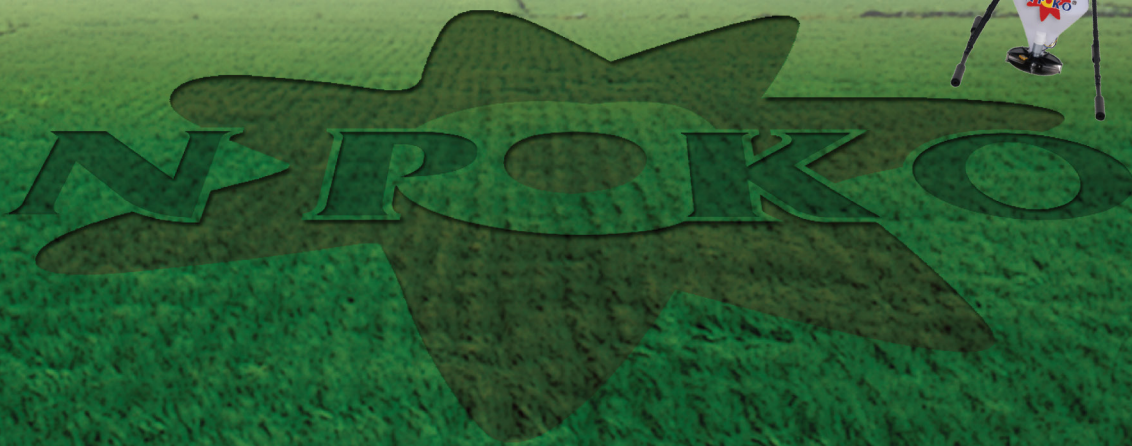
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Useful Information

Business Hours

 Banks	Weekdays: 09:00 - 16:00
	Weekends and Holidays: Closed ※ Exception: Standard Chartered Bank 09:30 - 16:30 / EVERRICH Bank 09:00 - 16:30
 Government Offices and Organizations	Weekdays: 09:00 - 18:00
	Weekends and Holidays: Closed
 Post Offices	Weekdays: 09:00 - 18:00
	Weekends and Holidays: Closed
 Department Stores	Weekdays: 10:30 - 20:00
	Fri-Sun: 10:30 - 20:30 ※ Typically, department stores are closed one day a month (usually Mondays). However, closings vary according to each store.

Korean Currency

Korea's official monetary unit is the won.

Bills			
			
fifty thousand won (o-man-won)	ten thousand won (man-won)	five thousand won (o-cheon-won)	one thousand won (cheon-won)
Coins			
			
five hundred won (o-baek-won)	one hundred won (back-won)	fifty won (o-sip-won)	ten won (sip-won)

Traveler's Checks

Traveler's checks can be exchanged for cash at banks or exchange booths. A number of stores still accept the checks instead cash, nonetheless, the form of credit cards, debit cards have become more preferred means by travelers. Thus trading checks is hardly observed nowadays as there is seemingly decreasing number of stores that offer this service.

Credit Card

Most of the businesses in Korea widely uses and accepts payment by credit cards at major hotels, department stores, large restaurants, and stores. Visa, Master, American Express and other credit cards can be used; however do check the service availability before making purchase as some stores may not be subject to this service.

Exchanging Money

When you need to exchange your foreign currency into Korean won, visit a bank, exchange service center, or an authorized exchange. (Bank business hour: 09:00-16:00, closed on Saturdays, Sundays and public holidays.)



General Information

■ Electricity & Communication

■ Electricity and Voltage

The standard voltage in Korea is 220 volts at 60 Hertz, and the outlet has two round holes. If you do not have a multi-voltage travel adapter, you may ask to borrow or purchase one from your hotel's front desk. You can also find them at the airport, retail stores, major duty-free shops, and even convenience stores.

■ Roaming services of major network carriers

- **Kt Roaming Center:** globalroaming.kt.com (Korean, English, Chinese, Vietnamese)
- **SK TELECOM Roaming Center:** www.skroaming.com (Korean, English, Japanese, Chinese)
- **LG U+ Roaming Center:** www.uplus.co.kr (Korean, English, Japanese, Chinese)

■ Internet

Internet service is often provided in public places such as airports, train stations, and bus terminals in Korea. PC rooms and internet cafes are also great places to go and they are mostly open 24 hours.

■ Mobile Phone Rentals and Roaming Service

Korea's major airports, including Incheon, Gimpo, Gimhae and Jeju International Airports, have roaming centers, operated by local network service providers. Visitors can get their mobile devices connected for roaming here after a simple registration process. In addition to roaming services, SIM Card purchase, Wi-Fi egg rentals and even smart phone rentals are available. More information about the fees, location of roaming centers and other details can be found on the service provider's official website.

■ SIM Card Purchase (Korea SIM card)

Travelers can purchase a SIM card to insert in their personal cell phone device to enjoy unlimited data or receive a personal number while traveling in Korea. These prepaid SIM cards usually cost less than roaming services and offer unlimited data for a period of 5, 10 or 30 days. The SIM cards can be purchased at CU and 7-Eleven convenience stores at Incheon International Airport and Korea SIM Card's official website. Although they can also be found at certain CU and 7-Eleven branch stores in Seoul and Busan, visitors are recommended to make a purchase in advance via online or at the airport.

[SIM Card Retail Locations]

- Convenience stores (airport, downtown, etc.):
Incheon International Airport (7-Eleven, CU) and limited 7-Eleven branch stores (Myeong-dong, Dongdaemun, Jongno, & Haeundae)
- Korea SIM Card website: www.krsim.net (English, Chinese)

■ Helpful Services

■ Emergency Call

- Police Department Tel: **+82-112**
- Fire Department Tel: **+82-119**
- Medical Emergencies Tel: **+82-119**

■ LOST 112 (Lost & Found Information)

- Tel: **+82-2-182**
- Website: www.lost112.go.kr
(Korean, English, Japanese, Chinese)

■ 1330 Korea Travel Hotline

- Tel: **+82-2-1330**
(Korean, English, Japanese, Chinese, Russian, Vietnamese, Thai, Malay)
- Website: www.visitkorea.or.kr
(Korean, English, Japanese, Chinese, French, Spanish, German, Russian)

■ Local Telephone Directory (Assistance)

- Tel: **Local area code + 114**
- Local area code search website: www.countrycode.org

■ Diplomatic Missions in Korea

- Website: www.mofa.go.kr (Korean, English)

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