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IN THIS ISSUE

International Decade of Soils 2015-2024

FROM THE PRESIDENT'S DESK

Climate change is affecting almost all aspects of crop growth and productivity, posing significant threats to food security against a backdrop of global population growth and rapid shifts in dietary patterns. Soil erosion, salinization and desertification are further reducing agricultural capacity, while intensive irrigation and poor water management are leading to water scarcity and depletion of groundwater resources. Development of new climate-resilient crop varieties and sustainable cropping strategies, through targeted breeding of climate-resilient traits, will be central in securing future food production. New land management techniques to improve soil health, such as no-till farming and cover cropping, are likely to play important roles in helping improve soil health and function, while simultaneously mitigating greenhouse gas emissions, increasing carbon storage and driving the selection of disease-suppressing soil micro-biomes. Implementation of sustainable agricultural practices such as precision agriculture and regenerative approaches may bolster these efforts.

Climate-smart agriculture should place a strong emphasis on soil health as a crucial component in building resilience to climate change. Regenerative and precision agricultural techniques and technologies and the use of biofertilizers, including inoculation with beneficial soil microbes e.g., mycorrhizal fungi, nitrogen-fixing and/or other rhizospheric growth promoting bacteria, are among the innovations that target conserving and improving soil fertility, enhancing water retention and reducing greenhouse gas emissions.

Soil management practices are integral to biodiversity conservation and ecosystem health. Effective management of soil ecosystems bolsters against environmental degradation, including soil erosion, declining water quality and pollution from agriculture, thereby safeguarding the integrity of terrestrial and aquatic ecosystems. In developing new approaches to improving agricultural productivity against the backdrop of climate change, targets for innovation should centre on leveraging new developments in soils.

32nd National Conference of SCSI on Soil, Water, and Energy Management for Sustainable Agriculture and Livelihood Security

Soil, water, and energy are essential resources under growing pressure due to unsustainable practices and climate change. Soil erosion, nutrient depletion, and inefficient water use have significantly reduced agricultural productivity. Additionally, groundwater over-exploitation, coupled with erratic rainfall patterns, has led to severe water shortages. Energy consumption in agriculture remains highly dependent on conventional sources, necessitating a shift toward sustainable alternatives.

In response to these challenges, the Soil Conservation Society of India (SCSI), New Delhi-UP State Chapter, in collaboration with the Department of Soil Conservation and Water Management, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, organized the 32ndNational Conference on Soil, Water, and Energy Management for Sustainable Agriculture and Livelihood Security from October 18-20, 2024.

The conference was inaugurated by Shri Satish Mahana, Hon'ble Speaker of the U.P. Legislative Assembly, who emphasized the need for scientific policies benefiting farmers and technologies for effective rainwater conservation and wastewater recycling. Dr. R.K. Yadav, Director, ICAR-CSSRI, Karnal, highlighted the threats of excessive chemical use on soil biodiversity, while Dr. A.K. Singh, Vice Chancellor, CSAUAT, Kanpur, emphasized the urgent need to address soil and water resource depletion due to climate change. Dr. T.B.S. Rajput, President, SCSI, New Delhi spoke about the history and significance of the society. Dr. Munish Kumar,Secreatary, U.P. Chapter and Organizing Secretarywelcomed the dignitaries, guest and participants, and highlighted the significance of different themes of the conference.

The conference featured ten technical sessions covering crucial themes related to soil conservation, water management, renewable energy, digital agriculture, and policy frameworks.The technical sessions commenced with the Prof. J.S. Bali Memorial Lecture, chaired by Dr. A.K. Singh and co-chaired by Dr. T.B.S. Rajput. Dr. (Ms) Neelam Patel, from NITI Aayog, New Delhi, delivered a lecture on VIKSIT Bharat @2047 and Precision Agriculture, addressing rising food demand and climate change impacts on rainfed agriculture.

Technical Themes and Outcomes

1. **Soil Resource Conservation and Management**
   - GIS and remote sensing applications for hydrological assessments.
   - Integrated soil health management and composting techniques for soil fertility improvement.
   - Micro-watershed level resource management strategies for sustainable agriculture.
2. **Water Harvesting and Efficient Management**
   - Rainwater harvesting and micro-irrigation techniques to enhance soil moisture and water-use efficiency.
   - Integrated geospatial techniques for better land and water management.
3. **Resource Conservation Technologies**
   - Bio-stimulants and advanced irrigation systems for water efficiency.
   - Agroforestry and biodiversity restoration to improve soil health.
   - Integrated Farming Systems (IFS) for environmental sustainability.
4. **Climate-Smart Agriculture and Digital Technologies**
   - AI, IoT, and machine learning applications for optimizing agricultural inputs.
   - Climate-resilient crop varieties and agroforestry models.
   - Smart irrigation and hydrological modeling to enhance water resource management.
5. **Site-Specific Nutrient Management**
   - Balancing organic and inorganic nutrient sources for improved soil health.
   - Nanotechnology and digital soil mapping for higher productivity.
6. **Renewable Energy in Agriculture**
   - Remote sensing for groundwater monitoring and irrigation planning.
   - Energy-efficient farming practices and microbial bioinoculants for water conservation.

7. Women Empowerment in Agriculture
   - Promoting skill development programs for rural women.
   - Strengthening support for women-led agricultural innovations.
   - Encouraging community participation in sustainable farming initiatives.
8. Government Policies and Organic Farming
   - Inclusion of soil and water conservation in agricultural curricula.
   - Promotion of agroforestry for sustainable organic farming.
   - Increased awareness campaigns on the ecological and economic benefits of organic farming.
9. Farmers' Rights and PPVFR Act, 2021
   - Strengthening legal frameworks to protect farmers' seed rights.
   - Supporting community seed banks and traditional knowledge preservation.

The 32nd National Conference successfully facilitated knowledge-sharing among scientists, policymakers, and farmers. The discussions emphasized sustainable soil and water management strategies, renewable energy adoption, and digital technologies to combat climate change and resource depletion. The outcomes and recommendations provide a roadmap for future research and policy formulation to ensure agricultural sustainability and livelihood security.

The Conferenceunderscored the urgency of adopting integrated conservation approaches to secure natural resources for future generations. The conference's findings will significantly contribute to national and global efforts in sustainable agriculture.

List of Awardees for SCSI Award-2023 for 32nd National Conference of SCSI held at CSAUA&T during 18-20 October, 2024

Bhu Ratna

Dr. S.S. Grewal

Life Time Achievement

Dr. Neelam Patel

Life Time Achievement

Dr. Satya Prakash

National Fellow

Dr. Om Prakash Aishwath

National Fellow

Dr. Vinay K. Pandey

Gold Medal

Dr. Ashok Mhaske

Gold Medal

Dr Bhabesh Gogoi

Gold Medal

Dr. Nayan Ahmed

Gold Medal

Dr. Rajan Bhatt

Leadership Award

Dr. Deo Kumar

Student Incentive Award (PhD)

Dr. Navneet Sharma

Student Incentive Award (MSc)

Ms. Bipasha Borkotoky

Special Research Award

Dr. Jitendra Sinha

Sumer Memorial Award

Mr. Abhishek Dhama

Sumer Memorial Award

Sh. Jagdish Singh

Mrs Mohini Kumari Gupta Memorial Award

Dr. Madhukar R. More

VANEE Award

Ms. Shubhavari Chauhan

SCSI Book Award

Dr. Meethali Bharti

SCSI Book Award

Dr.Mukesh Kumar

SCSI Book Award

Dr. V.K. Bharti

Best Referee of JSWC-2023

Dr. Anchal Dass

Best State Chapter-2023

Uttar Pradesh State Chapter of SCSI

Dr. Anand Kumar Singh

The Soil Conservation Society of India feels honored and proud to confer its "Special Honor Award-2023" on Dr. Anand Kumar Singh, Vice-Chancellor, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, for his visionary approach and positive attitude. The society sincerely appreciates his services as the Chairman of the organizing committee of the conference and his wholehearted support in ensuring its successful completion.

World Soil Day Celebrated at SCSI-HQ

The Soil Conservation Society of India (SCSI) Headquarters celebrated World Soil Day on December 5, 2024, in hybrid mode, bringing together members both in-person at the society office and virtually via video conferencing. The event aimed to raise awareness about the importance of soil health and promote sustainable management practices.

World Soil Day (WSD) is celebrated annually on December 5th to highlight the vital role of healthy soils in sustaining life on Earth. It was first recommended by the International Union of Soil Sciences (IUSS) in 2002 and later endorsed by the Food and Agriculture Organization (FAO). The United Nations General Assembly officially recognized December 5th as World Soil Day in 2013, and the first official celebration took place in 2014. The date was chosen in honor of King Bhumibol Adulyadej of Thailand, who was a strong advocate for soil conservation and sustainable land

management. Since then, WSD has been a global platform for promoting awareness and encouraging actions to improve soil health and productivity.

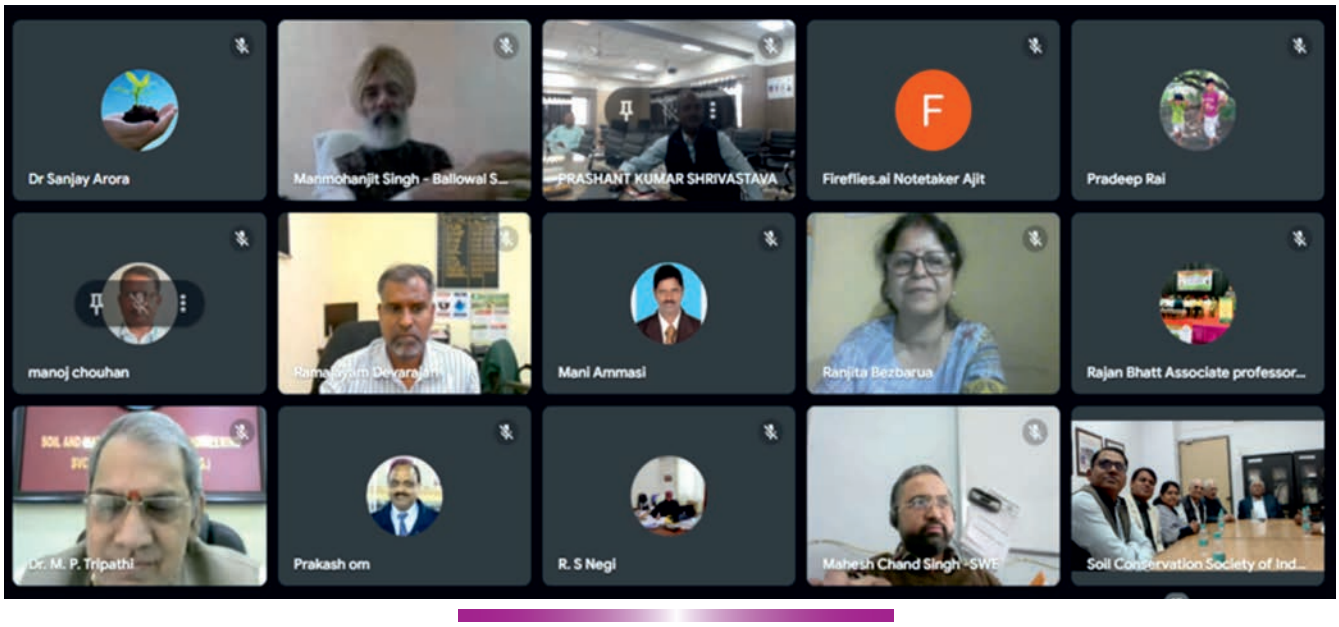
Dr. T.B.S. Rajput, President, Soil Conservation Society of India discussed the theme for World Soil Day 2024, *"Caring for Soil: Measure, Monitor, Manage"*, underscored the need for systematic assessment and proactive management of soil to ensure long-term sustainability. The event featured an insightful talk by Dr. Soumya Bandyopadhyay, Director, Mahalanobis National Crop Forecast Centre (MNCFC), who was invited as the Guest Speaker.

Dr. Bandyopadhyay highlighted the significance of soil conservation, emphasizing that soil is fundamental to food security, ecological balance, and sustainable development. However, rapid agricultural expansion, industrialization, urbanization, and climate change have put immense pressure on soil systems, leading to severe land degradation. One of the alarming statistics presented was that India loses approximately one millimeter of topsoil annually due to soil erosion, amounting to an estimated 5.3 billion tons of soil loss per year. This erosion results in the depletion of nearly 8 million tons of plant-available nutrients annually, significantly affecting soil fertility. Degradation processes such as soil erosion, organic carbon depletion, biodiversity loss, and nutrient imbalances are rapidly diminishing soil productivity, which in turn impacts ecosystem services and agricultural sustainability.

Dr. Bandyopadhyay emphasized the role of Digital Soil Mapping (DSM) in addressing soil degradation. DSM leverages advanced technologies such as Geographic Information Systems (GIS), remote sensing, statistical models, and machine learning to generate high-resolution soil maps. Unlike traditional soil mapping methods that rely heavily on field surveys, DSM integrates multiple data sources, allowing for a more comprehensive and precise understanding of soil properties across landscapes. The advantages of DSM include producing high-resolution soil maps with greater accuracy, enabling soil assessment in difficult-to-access areas, and enhancing predictive modeling capabilities for agriculture, environmental monitoring, and sustainable land management. However, challenges such as data accuracy, computational resource requirements, and model dependency on quality inputs must be addressed to maximize the effectiveness of DSM in soil conservation efforts.

Dr. Bandyopadhyay acknowledged the significant steps taken by the Government of India in promoting soil health, including the Integrated Watershed Development Program, Drought-Prone Area Program, Desert Development Program, and the Soil Health Card Scheme, which provides farmers with soil analysis-based recommendations for balanced fertilizer application. Furthermore, he highlighted the Draft National Policy on Soil and Land Degradation, which aims to reduce soil loss by one-third by 2030 from the 146.8 million hectares affected in 2004. The policy emphasizes knowledge dissemination, community participation, and evidence-based decision-making to combat land degradation effectively.

In his concluding remarks, Dr. Bandyopadhyay stressed that restoring and conserving soil resources should be a top priority. Key strategies for sustainable soil management include the adoption of conservation agriculture, integrated nutrient management, maintaining continuous vegetative cover, and regulated grazing practices. The World Soil Day celebration at SCSI-HQ served as a reminder of the critical role soil plays in sustaining life on Earth. The participants of the event in physical as well as virtual mode were encouraged to express their views and thoughts which were discussed by all present at the event.



World Soil Day-2024 Observed by Bihar Chapter of SCSI

The Department of Soil Science and Agricultural Chemistry, Bihar Agricultural University (BAU), Sabour, in collaboration with Soil Conservation Society of India, Bihar Chapter celebrated the World Soil Day-2024 on 5th December, 2024 with great enthusiasm and active participation of members and PG and Ph.D. students. More than 100 school children from Jawahar Navodaya Vidyalaya, Nagarpara, Bhagalpur also joined the event and took part in various activities planned for the day. The theme of this year's World Soil Day was "Caring for Soils: Measure, Monitor, Manage," which laid emphasis on the dire need for sustainable soil management for food security and environmental resilience.

Dr. D.R. Singh, Hon'ble Vice-Chancellor, BAU, Sabour, in his message for the event, highlighted the significance of managing soil health to ensure a sustainable future for the upcoming generations. He expressed immense pleasure on observing such important days with awareness and responsibility. The celebration began with a *Prabhat Pheri* (morning walk) with enthusiastic participation of school students and student representatives from BAU along with faculty members, who traversed the university campus with banners and slogans to promote the importance of soil health awareness. This was followed by formal registration and the unveiling of a newly curated wall magazine prepared by the postgraduate students of the department.

One of the event's key highlight was an invited lecture by Professor Goutam Kumar Ghosh, Visva-Bharati, Sriniketan, West Bengal. His insightful discourse focused on strategies for soil health governance, highlighting the delicate balance between crop productivity and environmental sustainability through Integrated Nutrient Management (INM). Interactive student-centric activities, including the "KNOW YOUR SOIL" quiz and a Just-A-Minute (JAM) competition, fostered engagement and deepened understanding of soil conservation among the participants. Winners were awarded with prizes presented by the Soil Conservation Society of India, Sabour Chapter. To add a hands-on learning experience, a training session on soil testing kits was conducted for school students with practical knowledge about soil health assessment. Throughout the day, educational posters showcasing soil conservation methods were displayed at the plantation area near PG Lab-1 at BAU.

The programme concluded with a powerful message emphasizing the collective responsibility to preserve soil health for future generations, reinforcing its critical role in achieving sustainable agriculture and environmental resilience. At the end of various events, life membership certificates of Soil Conservation Society of India, Sabour Chapter were awarded to Dr. Nintu Mandal and Dr. Kasturikasen Beura.

Meghalaya Chapter Observed Soil Day: Measure, Monitor, Manage

'World Soil Day' was observed by Meghalaya Chapter of Soil Conservation Society of India at College of Agriculture (CoA), Kyrdemkulai on 5th December, 2024. At the outset, dean of the college, Dr. Ram Singh welcomed the members of SCSI and appreciated the Meghalaya Chapter for selecting the CoA, Kyrdemkulai for celebrating this day to create awareness among the young minds on the importance of healthy soil and advocating for the sustainable management of soil resources. He also lauded the Meghalaya State Chapter for providing more than 200 fruit plant sapling to the college in the June month on the occasion of World Environment Day and initiating a plantation drive at the campus. He appraised that each planted saplings have been assigned to a specific student against roll number, who are taking care of the specific plant, and all the plants are growing well.

Dr. Sanjay Swami, Professor (Soils) & Chairman of the SCSI-Meghalaya Chapter, while addressing the students informed that World Soil Day (WSD) is observed annually on 5th December and every year, focus of World Soil Day is given on a specific soil problem assigning specific theme. This year's theme is *"Caring for Soils: Measure, Monitor, Manage,"* which underscores the importance of accurate soil data and information in understanding soil characteristics and supporting informed decision making on sustainable soil management for food security. He further stated that soil is the centre for all development of human and humanity. Soil health is critical to building diverse and resilient ecosystems. Healthy soils support a more diverse range of microorganisms, plants and animals significantly contributing to increased biodiversity and broader environmental outcomes including decreasing and, under the right conditions, sequestering carbon.

Speaking on the occasion, Dr. N. Janaki Singh, Associate Professor (Soils) and Secretary of the Meghalaya Chapter stressed that our planet's survival depends on how we maintain soil, urgently calling for more sustainable farming practices that improve soil health and urged the student to follow simple and easy to adopt actions from the college campus or their home to restore soil health. He said that climate change is one of the main drivers of land degradation, with erosion of topsoil reducing the land's carbon sink ability and water storage function. Continuing his speech, Dr. Singh further emphasized on collecting the accurate soil data and information to promote well-informed decisions on soil management. He also elaborated the scientific method of collecting representative soil samples, their processing and analysis procedures of important soil physical, chemical and biological parameters.

Continuing the series of lectures, other active members of the Meghalaya Chapter, Ms. Pritisha Patgiri, Mr. Deepak, Mr. Basant Tamang and Ms. Ventina Yumnam highlighted that over 95 per cent of our food comes from soil, making it an essential resource to bolster food security in the coming years. To meet global demand, agricultural production will have to increase by around 60 per cent by 2050. They further highlighted that up to 58 per cent more food could be produced through sustainable soil management, which would help in increasing food supplies significantly. They appealed the students to scale-up and speed-up the actions to tackle the crisis with available science and solutions.

A poster competition on the theme of World Soil Day was also organized for the students of the College of Agriculture, Kyrdemkulai by the members of SCSI-Meghalaya Chapter and the best performing entries were displayed and the students were awarded. SCSI Members also took pledge to save the natural resources and reconnect themselves with nature.

The Dean, College of Agriculture, Kyrdemkulai congratulated the SCSI-Meghalaya Chapter team for

organizing such a wonderful programme involving students, teachers and non-teaching staff. A formal vote of thanks was proposed by Mr. Deepak Kumar, a member of SCSI, Meghalaya Chapter.

Mountain Solutions for Sustainable Future: Meghalaya Chapter Celebrated Mountain Day

International Mountain Day was celebrated by the Meghalaya Chapter of Soil Conservation Society of India on 11th December, 2024 on the theme "Mountain Solutions for A Sustainable Future – Innovation, Adaptation and Youth," in collaboration with School of Natural Resource Management, College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University, Barapani Campus, Meghalaya, wherein the members of Meghalaya Chapter, faculty members and students participated. The event focused on the resilience and ingenuity of mountain communities in addressing the climate crisis and poverty while conserving biodiversity. It also called for action to support sustainable mountain development and to highlight innovative solutions for a more resilient future.

Dr. Sanjay Swami, Professor (Soils) and Chairman of the Meghalaya Chapter highlighted that that mountains cover around 27 percent of the earth's land surface and host about half of the world's biodiversity hotspots. As the water towers of the world, they supply freshwater to an estimated half of humanity. Mountains are home to an extraordinary range of plants and animals, and to many culturally diverse communities with different languages and traditions. From climate regulation and water provisioning services, to soil maintenance and conservation, mountains are key to our lives and livelihoods. However, mountains are suffering from the impacts of climate change and unsustainable development, escalating risks for people and the planet. Climate change threatens the flow of water, and fast-rising temperatures are forcing mountain species and the people that depend on these ecosystems to adapt or migrate. Steep slopes mean the clearing of forest for farming, settlements or infrastructure can cause soil erosion as well as the loss of habitat. Erosion and pollution harm the quality of water flowing downstream. According to the Intergovernmental Panel on Climate Change, up to 84 percent of endemic mountain species are at risk of extinction, while populations of a range of other montane, plant and animal species are projected to decline and face extinction.

He also shared that the theme of this year's mountain day honours indigenous peoples, youth, women and local communities, who are the most affected by major global challenges. On the human side, there is widespread poverty among mountain inhabitants and loss of indigenous knowledge. Hence, proper management of mountain resources and socio-economic development of the mountain people deserves immediate action.

Dr. N.J. Singh, Associate Professor (Soils) & Secretary, Meghalaya Chapter of SCSI informed that nature-based solutions are vital to conserving ecosystems and supporting biodiversity. He further stressed that mountain agri-food systems should be integrated into national policies as key solutions for addressing the challenges of climate change and biodiversity loss. The members also took a pledge to work together for the protection of mountain ecosystems and ensure their vital services, and safeguard the livelihoods of mountain communities and their posterities in particular and generations to come at large.

The programme ended with vote of thanks proposed by Ms. Ventina Yumnam, an active member of the Meghalaya Chapter.

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