



In the Name of Allah, the Beneficent, the Merciful

Soil Science News

Quarterly Newsletter of Soil Science Society of Pakistan

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Editorial

Greenhouse Gases Emission: Role of Agricultural Sector

Uncontrolled emission of greenhouse gasses, i.e., carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) is a serious global issue which severely affecting/changing climate due to the rapid industrialization on the one hand. On the other hand, production of more food, feed and fiber for ever-increasing population put tremendous pressure on agriculture resulting in considerable changes in emission of GHGs. These GHGs trap the outgoing infrared radiations from the earth surface and thus raise the atmospheric temperature. As a result, glaciers are melting at a faster rate and sea level is rising. This global climate change will have considerable impact on the crop, soil, livestock, fishery and pest.

The total global emission of GHGs is about 50 giga tons (Gt) CO_2 eq./yr and share of industry and energy sector is 46% and agriculture (and forestry) sector is $\approx 24\%$. In Pakistan's total GHG emission annually is about 362 million tons of CO_2 equivalents. These comprised: CO_2 50%; Methane (CH_4) 33%; Nitrous Oxide (N_2O) 16%; Carbon Monoxide (CO) 0.7%; and Non-Methane Volatile Organic Compounds 0.3%. The energy sector accounts for nearly 44% of these emissions and is followed by the agriculture sector (43%), industrial processes (5%), land use, land use change and forestry (7%) emissions and waste (1%). As such, the most

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News and Views

National Seminar on "Sustainable Soil Management under Changing Climate"

On the behalf of the soil science community of Pakistan, we commend the Executive Council of Soil Science Society of Pakistan as well as Faculty members of Department of Soil and Environmental Sciences, University of Agriculture, Peshawar (UAP) for jointly organizing a National Seminar "Sustainable Soil Management under Changing Climate" on December 12, 2019 at University of Agriculture, Peshawar. The seminar comprised of two sessions including inaugural and technical session and was attended by large number of researchers, academicians, officials and students from different Institutes.

The Inaugural Session of the Seminar was chaired by Professor Dr. Jehan Bakht, Vice Chancellor, The University of Agriculture, Peshawar and Professor Dr. Riaz Ahmad Khattak (Rtd.) and Professor Dr. Zahir Shah (Rtd.), former Presidents, SSSP/Deans, Faculty of Crop Production, UAP were Guest of Honor. The proceeding of the session was started with recitation from Holy Quran and Mr. Sair Sarwar, Joint Secretary, SSSP brief the participants about the history and activities of the Society. Professor Dr. M. Kaleem Abbasi, President, SSSP/Vice Chancellor, University of Azad Jammu & Kashmir, Muzaffarabad welcome the Guests and participants.

The Chief Guest Proferrsor Dr. Jehan Bakht and Guest of Honor Professor Dr. Zahir Shah highlighted that the climate changes are adversely effecting productivity of our soils. The fertility and productivity of our soils are





deteriorating day-by-day due to surface erosion of prime land. The rapid urbanization, industrialization and construction of road also threatening the agriculture. The professor Dr. Jamal Khan Khattak, Chairman, Department of Soil and Environmental Sciences, UAP, Dr. Shahzada Sohail Ijaz, Associate Professor, Institute of Soil Science, PMAS Arid Agriculture University,



Rawalpindi also addressed the participants of the seminar. At the end, the Chief Guest Professor Dr. Jehan Bakht thanked the guests, faculty members, students and distribute the shields. He also congratulated the Department of Soil and Environmental Sciences and Soil Science Society of Pakistan for successfully organizing the seminar. Special thank was extended to Dr. Dost Muhammad, Dr. Maria Mussarat, Miss Munazza Yousra and Miss Mah Noor for their hard work to make this seminar successful.

Bio Saline and Climate Smart Agriculture Workshop

Two days training workshop "Bio Saline and Climate Smart Agriculture" was organized jointly by Action Against Hunger



(ACF- An International NGO), Department of Soil Science, Sindh Agriculture University, Tandojam and Agriculture Extension wing of Agriculture Supply and Prices Department, Government of Sindh on October 3-31, 2019. Prof. Dr. Inayatullah Rajpar, Dr. Ghulam Murtaza Jamro from SAU, Tandojam, Dr. Mansoor Ahmed Bughio, Deputy Director Agriculture Extension acted as resource persons of the workshop.

Promotion/appointment/posting

Dr. Maqshoof Ahmad, Assistant Professor, Department of Soil Science, College of Agriculture & Environmental Sciences, The Islamia University of Bahawalpur has been promoted as Associate Professor.



Dr. Zia Chisti, Agricultural Officer, Soil and Water Testing Laboratory, Ayub Agriculture Research Institute Faisalabad has been promoted as Assistant Soil Fertility Officer and posted at Water Testing Laboratory, Faisalabad.



Dr. Khalid Kaluqi, Assistant Soil Fertility Officer, Soil and Water Testing Laboratory, Faisalabad has been taken over the charge of Assistant Agricultural Chemist, Soil & Water Testing Laboratory, Toba Tek Singh.

Dr. Muhammad Ashraf has joined the Department of Soil Science, University College of Agriculture, Bahauddin Zakariya University, Multan as Associate Professor in Same Department.



Dr. Qaiser Hussain, Assistant Professor, Institute of Soil Science, PMAS-Arid Agriculture University has been promoted as Associate Professor.



Prof. Dr. Muhammad Abid, Department of Soil Science, University College of Agriculture, Bahauddin Zakariya University, Multan has assumed the charge of the Department as Chairman. Dr. Abid also got time scale promotion in Basic Pay Scale -22.



Dr. Arif Ali, Assistant Professor, Department of Soil Science, University College of Agriculture, Bahauddin Zakariya University, Multan has been promoted as Associate Professor.

Dr. Abdur Rahim, Assistant Professor, Department of Soil Science, University College of Agriculture, Bahauddin Zakariya University, Multan, has been promoted as Associate Professor and joined Layyah Campus of BZU, Multan as Director.



Congratulation from Soil Science News desk

Honor and Award

Soil Science Society of Pakistan Gold Medal Wards

Soil Science Society of Pakistan has decided to bestow 7 SSSP Gold Medals to fresh students graduated in Soil Science/Soil and Environmental Sciences from Universities of Pakistan during 2019. Details of medals and criteria will be displayed on the Society's website very soon. The Gold Medals will be conferred during 18th International Congress of Soil Science (ICSS-2020) at Sindh Agriculture University, Tandojam.

We congratulate the sitting Executive Council for initiating the prestigious SSSP Gold Medal

Dr. Iftikhar Ahmed, Principal Scientific Office/program Leader, National Microbial Culture Collection Program,



National Agricultural Research Centre, Islamabad has been awarded **'Pakistan Academy of Sciences Gold Medal'** in the field of Emerging Technology for the year 2019 on his outstanding research contribution. The prestigious award decoration ceremony was held at Pakistan Academy Sciences, Islamabad. On his scientific achievements, he has been also awarded A. R. Shakoori Gold Medal-2018 by the Zoological Society of Pakistan.

Congratulation to Dr. Ahmad from Soil Science News desk

Results of IUSS Poster Contest 'Soilutions' to solve soil degradation problems

IUSS received 42 posters and after the evaluation and approval by the Executive Committee, the IUSS awarded H. H. A. Alfredo (Mexico) with 1,000 USD for the best poster and R.



Gantlett (U. K.) and the group of M.A. Samarasekara, A.G.S.D. De Silva and R. Thusyanthini (all Sri Lanka) with 500 USD each for the second and third best posters.

Recent Ph. D. Degree Completion

Dr. Saima Sadiq, has successfully completed PhD from the Department of Plant and Environmental Protection, PARC Institute of Advanced Studies in Agriculture, affiliated with Quaid-I-Azam University, Islamabad. She conducted her Ph. D. research work on "Bioremediation potential of Spent Mushroom Waste of *Pleurotus* against Organochlorines Contaminated Soil" under the supervision of Professor Dr. M.

Mahmood-ul-Hassan.

Dr. Muhammad Irfan Sohail, Research Fellow, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad successfully completed PhD degree in the discipline of Soil Science. He conducted his Ph. D. thesis research under the supervision of Dr. Muhammad Zia-ur-Rehman, Assistant Professor, Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad.

Congratulation to both the scholars from Soil Science News desk

Foreign Visits/Training

MS Kausar Majeed, Research Officers, Soil and Water Testing Laboratory, Jhelum/Ph. D. Scholar, Soil Science Institute, PMAS Arid Agriculture University, Rawalpindi participated and presented her research finding in the 13th Environmental Conference for Doctoral Students was held on October 18-21, 2019, at Tsinghua University (Beijing, China).

Dr. Arif Ali, Associate Professor, Department of Soil Science, Bahauddin



Zakariya University, Multan and **Dr. Muhammad Saleem Sarki**, Associate Professor, Department of Soil Science, Sindh Agriculture University, Tandojam have attended a training course on "Hybrid Rice High Yield Cultivation and Extension for Pakistan" held at Changsha, China.

Mr. Sanaullah Solangi, Senior Scientist/Incharge, Soil and Water Laboratory, Sakrand, Shaheed Benzeerabad has attended a training course on "Agriculture Technology for Pakistan" held at Huazong University of Agriculture, Wuhan, China.

Mrs. Saroosh Rashid, Research Officer, Water Testing Laboratory, Rawalpindi and **MS Kausar Majeed** Research Officer, Soil and Water Testing Laboratory, Jhelum and have



successfully completed training course on "Budget Preparation, Implementation & Secretariat Instructions" from September 30 to October 02, 2019 organized by Pakistan Manpower Institute, Islamabad.

Greenhouse Gases Emission: Role of Agricultural Sector *Continued from page 1*

important targets for mitigation efforts focused on reduction of GHG emissions are the energy and agriculture sectors. While in India, the sectorial contribution is: energy 69%, agriculture 20%, industrial processes 6%, land use, land use change and forestry 4% and waste 2%.

It is obvious that the contribution in agriculture in total GHGs emission is high (43%) as compare to global contribution (24%) and our neighbor country India (20%), while energy sector contribution is otherwise. The contributions of agriculture to total GHGs emissions are essentially all NH_4 (79%) and N_2O (21%) respectively. The NH_4 mainly originated from enteric fermentation in cattle and rice cultivation, while N_2O from agricultural soils/nitrous fertilizer and manure management. There is a pressing need to find ways to contain these emissions or at least to slow down their growth rate.

Along other measures, we need to develop our own precise conversion factors for calculation of GHGs emission from agriculture sector as they are strongly affected by agro-climatic conditions, agronomic practices, and soil properties. For example, our soils are very low in organic matter and fields do not remained flood throughout growing period as there is intermittent flooding and drying and low fertilizer use. It is also true for other greenhouse gases as well. Other practices which can reduce GHGs emission from agriculture sector are; appropriate nitrogen fertilizer application for optimal production and fertilizer use efficiency, drying-wetting cyclic rice growth to reduce CH_4 emissions, enhancement of soil carbon sequestration, adjustment of feeding practices and other management methods to reduce enteric fermentation and CH_4 emission, controlling the way in which manure decomposes to reduce N_2O and CH_4 emissions and capturing CH_4 from manure decomposition to produce renewable energy.

Retirements

Ch. Muhammad Hussain, Assistant Agricultural Chemist, Soil & Water Testing Laboratory, Toba Tek Singh has been retired from government services on attaining the age of superannuation.

Mr. Muhammad Hashmat, Assistant Agricultural Chemist, Soil & Water Testing Laboratory, Rawalpindi has been retired from government services on attaining the age of superannuation.

We pray for good health and prosperous retired lives of our respected colleagues.

World Soil Day

The International Union of Soil Sciences (IUSS), in 2002, adopted a resolution proposing the 5th of December as World Soil Day to celebrate the importance of soil as a critical component of the natural system and as a vital contributor to human well-being.

In Pakistan, World Soil Day was celebrated in different institutes.

University of Agriculture, Faisalabad (UAF) World Soil Day was celebrated at the Institute of Soil and Environmental Sciences, UAF. Soil and Environmental Sciences Students society organized a handmade poster competition in this concern. Prof. Dr. Muhammad Ashraf (T.I.



S.I.) Vice-Chancellor UAF was the chief guest of this event. Prof. Dr. Muhammad Ashraf said that we must conserve the soil for future generations and should organize the different events in this concern. Prof. Dr. Muhammad Yaseen (Director ISES) & Dr. Hafiz Naeem Asghar (Convener SESSS) speak with participant on this event. On this occasion, a poster competition was organized and Miss Arooj Abbas & Mr. Hamza Ijaz got the 1st,



Miss Rabia Khalid & Miss Sana Tariq got the 2nd and Miss Sadia Amir got the 3rd position.

Sindh Agriculture University, Tandojam (SAU) – World Soil Day was celebrated at Department of Soil Science, SAU and scientists from Sindh Chapter of Soil Science Society of Pakistan, Agricultural Research Centre, (ARC), Tandojam,



Soil Salinity Research Institute, ARC, Tandojam, Soil and Environmental Sciences Division, NIA, Tandojam, Central Cotton Research Institute, Sakrand participated in the celebration.

National Agricultural Research Centre, Islamabad - Land Resources Research Institute, NARC has celebrated World Soil Day on December 5, 2019 and was



participated large number of scientist and students. **University of Agriculture, Peshawar (UAP)** – Department of Soil and Environmental Sciences celebrated



World Soil Day on December 5, 2019 and was participated large number of Faculty members and students.

Department of Soil Science, Lasbela University of Agriculture, Water and Marine Sciences, Uthal, Baluchistan. At the World Soil Day was celebrated by faculty members and students by displaying thematic charts of world soil day.



Baluchistan Agriculture College Quetta. Teaching Faculty and students of department of Soil Science actively participated in the event.



News and Views for next issue of the 'Soil Science News' may be conveyed to the Society office bearers of your chapter or to Dr. M. Mahmood-ul-Hassan (mmh@comsats.net.pk), Editor/ Dr. Azhar Hussain (azharhaseen@gmail.com), Assoc. Editor, Soil Science News. The news can also be mailed at info@sss-pakistan.org