

Soil Science News

Quarterly Newsletter of Soil Science Society of Pakistan

سوائل سائنس سوسائٹی آف پاکستان

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Editorial

Bio-fortification: Better Crops, Healthy People

More than 1/3 world population is suffering from iron and zinc deficiencies. Particularly, these deficiencies are more common in developing nations because their agricultural systems try their best to produce more food for ever increasing population. As after the green revolution, development of high-yielding varieties of major staple food crops and introduction of mineral fertilizers, the production of cereals increased more rapidly than population growth, including Pakistan – per capita food grain production in 1960 was 143kg/person and was increased to 223 kg/person in 2016 in Pakistan. So, in developing countries, emphasis was given on more food grain production than nutritionally rich food grain.

Various measures (such as fortification - addition of nutrients to prepared food, industrial food fortification, supplementation) are being taken by the community nutrition to fill the gap between requirements and nutrients supplied by agriculture. The use of fortified/industrial fortified foods and supplementation is very limited in developing countries mainly because of additional cost that making it difficult for the poor to afford.

The above interventions (for filling gap between required and supplied nutrients) are costly. Alternately, biofortification is a biotic tool to increase the concentration of minerals (micro-nutrients) in staple food crops.

The biofortification is the practice of purposely increasing the essential micro-nutrients (iron and zinc) nutrients in staple food crops. The biofortification practices include plant breeding (traditional and molecular breeding practices), transgenic techniques (genetic modification), or agronomic practices (foliar and soil application of fertilizers).

During the first decade of 21st century, a worldwide program – 'HarvestPlus' was initiated to improve nutrition and public health by developing and promoting biofortified food crops that are rich in vitamins and minerals, and providing global leadership on biofortification evidence and technology.

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News and Views

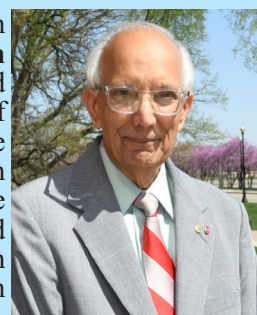
World Environment Day 2020 Celebration

The Department of Environmental Science, Faculty of Agriculture and Environmental Sciences the Islamia University of Bahawalpur (IUB) Celebrated World Environment 2020.

The UN General Assembly designates 5 June as World Environment Day, marking the first day of the Stockholm Conference on the Human Environment. Another resolution, adopted by the General Assembly the same day. Since 1974,

Dr. Rattan Lal Awarded World Food Prize 2020

The Soil Science Community of Pakistan profoundly congratulates to **Dr. Rattan Lal**, a world-renowned soil scientist and Past President of International Union of Soil Science for World Food Prize Laureate-2020 for his innovative research approaches and advocacy of sustainable soil management to increase food production, restoration and conservation of natural resources and mitigation climate change.



https://www.worldfoodprize.org/en/laureates/2020_lal/

World Environment Day has been started celebrating as an annual event on every 5 June to raise the importance of the healthy and green environment in the human lives, to solve the issues of the environment by implementing some positive environmental actions by government, NGOs and individual.

The theme for World Environment Day 2020 is, 'Time for Nature,' with a focus on its role in providing the essential infrastructure that supports life on Earth and human development. On this occasion, Department of Environmental Science conducted a National Quiz Competition online and more than 150 students from different universities of Pakistan participated in the event.

Mr. M. Waseem Tasleem, IUB got 1st position, Mr. Muhammad Arslan from GC University Lahore got 2nd position, while Miss. Manahil Tahir and Miss Ayesha Razzaq got 3rd and 4th position, respectively.



IUB Environmental Protection Society in collaboration with IUB Science Society also organized the Online Essay and Poster Competition on this occasion. The nominated experts committee evaluated 1st, 2nd and 3rd poster as under:

Poster Competition Results: 1st position – Miss Sadaf Tagar, Mehran University, Jamshoro; 2nd position – Mr. Talha Najam, PMAS Arid Agriculture University, Rawalpindi and Miss Rabia Tahir, IUB and 3rd position – Miss Aeena Noor, the Nexus Education System, Bahawalpur.

Essay Competition Results : 1st position – Mr. Talha Najam, PMAS Arid Agriculture University, Rawalpindi, 2nd position: Miss Faryal Yousaf, University of Sargodha and Mr. Ali Anwar, IUB and 3rd position – Miss Misbah Parveen, IUB.

Promotion/appointment/posting

Mr. Muhammad Ahmed Akram, Junior Scientist, Soil & Environmental Sciences Division, Nuclear Institute of Agriculture (NIA), Tando Jam has been transferred and posted at Soil & Environmental Sciences Division, Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad.



Mr. Sana Ullah, Junior Scientist, Soil & Environmental Sciences Division, Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad has been transferred and posted at Soil & Environmental Sciences Division, Nuclear Institute of Agriculture (NIA), Tando Jam

Pro. Dr. Moazzam Jamil, Principal, University College of Agricultural and Environmental Sciences, IUB/Chairman, Department of Soil Science assumed the charge as Registrar, the Islamia University of Bahawalpur.



Dr. Maqshoof Ahmad, Associate Professor, Department of Soil Science/SSSP Councillor (All Pakistan) assumed the charge as Director, Directorate of Academics, the Islamia University of Bahawalpur.

Dr. Ghulam Hassan Abbasi, Associate Professor, Department of Soil Science, assumed the charge as Chairman, Department of Environmental Science, The Islamia University of Bahawalpur. Dr. Abbasi also assumed the additional charge of Director, Directorate of Financial Assistance



Mr. Abdul Waheed, Assistant Agricultural Chemist (SF) Soil and Water Testing Laboratory Chakwal has been

transferred and posted as Assistant Soil Fertility Officer, Soil and Water Testing Laboratory Rawalpindi.

Dr. Rizwan Latif, Agricultural Research Officer, Barani Agricultural Research Institute Chakwal has been promoted to the post of Assistant Agricultural Chemist (BS 18), and posted at Soil and Water Testing Laboratory, Chakwal.



Dr. Muhammad Ashfaq Anjum, Agricultural Chemist (BS-18+Rs.165/SP), Provincial Pesticide Reference Laboratory, Kala Shah Kaku is hereby assigned look after charge along with administrative and financial powers of the post of Director, Soil Salinity Research Institute, Pindi Bhattian in addition to his own duties.



Mr. Hafeez-ur-Rehman, Agricultural Officer (Lab) (BS-17), Soil & Water Testing laboratory, Sialkot is hereby entrusted look after charge along with administrative and financial powers of the post of Assistant Agricultural Chemist (SF) (BS-18) Soil & Water Testing Laboratory, Sialkot.

Mr. Abdul Razzaq, Assistant Agricultural Chemist (BS-18), Fodder Research Institute, Sargodha is hereby transferred and posted as Assistant Agricultural Chemist (SF), Soil and Water Testing Laboratory, Gujrat.

Dr. Badar-uz-Zaman, Principal Scientific Officer, Crop Sciences Institute, National Agricultural Research Centre, Islamabad has been appointed as Director, Human Resources Development, Pakistan Agriculture Research Council, Islamabad.



Dr. Asma Majeed join Department of Environmental Sciences, Faculty of Agriculture & Environmental, The Islamia University of Bahawalpur as an Assistant Professor. Dr Asma earned PhD degree in Environmental Sciences from Punjab University, Lahore.

Congratulation from the desk of Soil Science News

Soil and Environment Portal

Executive Council of Soil Science Society of Pakistan decided to develop a "Soil and Environment Portal" to highlight and publicized the innovative and outstanding research findings in the areas of Soil and Environment sciences. All the scientists working in these areas are requested to share 100 words summary of research along with pictorial if any to Dr. Ghulam Murtaza Jamro, General Secretary, SSSP (Email: general.secretary@sss-pakistan.org/gmjamro@gmail.com/ Cell: 0307-0364559).

Call for Awards

Rien van Genuchten Award

The biennial Rien van Genuchten Award is issued for outstanding contributions to the understanding of flow and transport processes in soils. It is dedicated to recognizing outstanding scientific achievements made by well-established researchers in the field of soil and vadose zone sciences. Granting merit to the scientific findings and breakthroughs in the soil and hydrological sciences by Rien van Genuchten, the award honors a senior/mid-career scientist with a certificate and a cash award of \$2,000.

ISMC Early Career Award

The ISMC Early Career Award is dedicated to recognizing outstanding scientific achievements made by early career researchers in the field of soil and vadose zone sciences. Both awards will be conferred during the 3rd ISMC Conference. Deadline for nomination is Nov. 30th, 2020.

Further details can be found here: <https://soil-modeling.org/ismc-conference/rien-van-genuchten-award/>

Glinka World Soil Prize 2020

Nominations for the Glinka World Soil Prize 2020 are officially open. The prize consists of a USD 15,000 check and a medal. If you think you are an eligible candidate, propose your nomination to the Global Soil Partnership (GSP) country focal point or the closest GSP partner. For further details visit: <http://www.fao.org/global-soil-partnership/partners/en/>. The last date for nominations: 30 September 2020 to GSP-Secretariat@fao.org.

New Publications

Soil and Fertilizers: Managing the Environmental Footprint. 2020. Rattan Lal.

Published by CRC Press

Soil and Fertilizers: Managing the Environmental Footprint presents strategies to improve soil health by reducing the rate of fertilizer input while maintaining high agronomic yields.

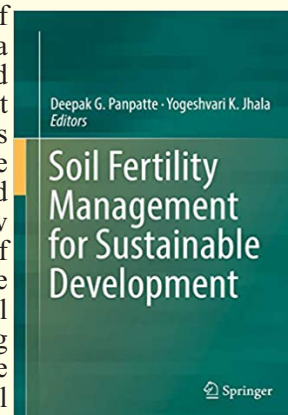
Highlighting a tenfold increase in global fertilizer consumption between 2002 and 2016, the book explains the effects on the quality of soil, water, air and biota from overuse of chemical fertilizers. Written by an interdisciplinary author team, this book presents methods for enhancing the efficiency of fertilizer use and outlines agricultural practices that can reduce the environmental footprint.



Soil Fertility Management for Sustainable Development. 2019. Panpatte, D. G. and Y. K. Jhala.

Published by Springer.

Soil fertility is the backbone of agricultural systems and plays a key role in determining food quantity and quality. In recent decades, soil fertility has decreased due to indiscriminate use of agrochemicals, and nations around the globe are now facing the challenge of increasing food production while sustainably maintaining soil fertility. Written by leading international scientists in the field, this book explores soil fertility management strategies, including agronomic, microbiological and soil-science based strategies. Highlighting the practices that can be incorporated into organic farming and discussing recent advances, it is a valuable resource for researchers wanting to broaden their vision and the scope of their investigations.



Bio-fortification: Better Crops, Healthy People

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Pakistan Agricultural Research Council, Islamabad has already developed a Zn enriched wheat variety – Zincol (35 µg/kg as compared to national standard check 25 µg/kg) with financial and technical support of USDA and CIMMYT. Another huge activity “HarvestZinc Fertilizer Project” was also accomplished in Pakistan under HarvestPlus program. The results of the project reveal the feasibility of the fertilizer strategy and its vast potential in alleviating deficiencies of zinc, iodine, iron and selenium and positively impact on human health.

Although, the biofortification is a slow process to remediate the minerals deficiencies (compare to supplements and fortification), it is highly sustainable and cost effective. Consumption of minerals enriched stable food crops (through bio-fortification) when consumed regularly make significant improvements in human health. Further, it has ability to reach common peoples who may have limited access to diverse diets or other micro-nutrient interventions.

All the biofortification techniques have merits and demerits, which is the our concern here. Biofortification may therefore present a way to reach populations where supplementation and conventional fortification activities may be difficult to implement and/or limited.

For ensuring availability of biofortified staple food crops to common peoples for improvement of their health, all the stakeholders must give higher priority to the role of agriculture system in this regard. Federal/provincial governments and multilateral institutions must realize the importance of biofortification and be included in the nutrition policy. Public and private sector breeding programs must mainstream the biofortified trait across their product lines. Food processors and other actors along the value chain must include biofortified crops in their products.

Retirements

Dr. Muhammad Anwar Zaka, Agri. Chemist (Soil Physics), Soil Salinity Research Institute (SSRI), Pindi Bhattian retired from services on attaining the age of superannuation. He started his professional career as Research Officer, Soil Chemistry Section, Ayub Agricultural Research Institute, Faisalabad in 1987. Dr. Zaka completed his M. Sc. (Hons.) Agri. from University of Agriculture, Faisalabad and Ph. D. from University of Kassel, Germany in 2007. He served as Agri. Officer (Lab.) at Soil & Water Testing Laboratory, Sargodha. Subsequently, He was promoted as Assistant Agri. Chemist and posted at SSRI, Pindi Bhattian. He also



National Directory of Soil and Environmental Science

Soil Science Society of Pakistan has decided to update National Directory of Soil and Environmental Scientists and SSSP Members Profile. For more information please visit:
<https://www.sss-pakistan.org/>

worked on citrus during his stay at Citrus Research Institute, Sargodha and produced valuable data on budgeting of irrigation for citrus production in addition to micronutrient requirements of kinnow. Dr. Zaka has also executed different development projects (such as ALP, Biosaline11, NFDC phosphate project, Endowment fund from UAF, and PARB) as Team Leader/Member. Lately, he worked on screening of medicinal plant against salinity during his stay at SSRI, Pindi Bhattian. He developed different strategies for rehabilitation of salt affected soil and utilization of brackish water for crop production.

Mr. Mansoor Azam, Agr. Chemist, Soil and Water Testing Laboratory, Sargodha on 14-4-2020 has been retired from service on superannuation. He started his professional career in 1987 as Agricultural Officer, Soil & Water Testing Laboratory Sargodha after earning M.Sc. (Hons) Agri. degree from University of Agriculture, Faisalabad. Mr. Azam also worked at Fodder Research Institute, Sargodha as Research Officer and Assistant Agri. Chemist. He authored a good



number of research papers and reports.

Mr. Hashmat Mehmood, Assistant Agri. Chemist, Soil and Water Testing Laboratory, Rawalpindi has been retired from service on 13-06-2020.



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

Obituary

Prof. (Rtd) Dr. Muhammad Saleem Saif has died a natural death. He served more than 35 years as teacher. Dr. Saif started his professional career as Demonstrator and was retired as Professor, Department of Soil Science, Sindh Agriculture University, Tandojam. He was the most dedicated teacher and was specialized in Soil Taxonomy. He supervised forty-five postgraduates' students and authored several research articles in peer reviewed journals of international repute. He has also published a "Manual for Thesis and Report Writing". He attended several national and international conferences and seminars. He also severed Soil Science Society of Pakistan as Vice President and Councilor (of Sindh Chapter) and Pakistan Journal of Soil



Science as a member of Editorial Board. His sad demise is a big loss for the agriculture community in general and Soil Science in particular.

Mr. Raza Saleem, Assistant Agri. Chemist (SF), Soil and Water Testing Laboratory, Narowal has passed away on 11-06-2020 due to fatal head attack. Mr. Saleem was a nice and through gentleman with kind heard.

The Society records with a deep sense of grief and sorrow the sad demise and prays for the departed soul.

Renewal/new membership

Society's membership fee for the year 2020 is due. All regular members are requested to renew their membership by paying Rs. 1000/-. Those who are interested to become a new regular member, please pay Rs 2000/- (Rs. 1000/- registration fee +Rs. 1000/- annual fee) cash, or by pay order/bank draft (cheques not acceptable) in favor of Soil Science Society of Pakistan:

Dr. Muhammad Iqbal, Treasurer, SSSP/Manager Scientific Research, Space Application & Research Complex, Islamabad. miqbalkhalid@gmail.com; Cell: +92-3314371388)

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