



In the Name of Allah, the Merciful the Beneficent

Soil Science News

Quarterly newsletter of **Soil Science Society of Pakistan**

Editor: Dr. M. Mahmood-ul-Hassan

Associate Editor: Dr. A. Rashid

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EDITORIAL

Role of Micronutrients in Fruit Production

Out of 16 plant nutrients, zinc (Zn), boron (B), iron (Fe), copper (Cu), manganese (Mn), molybdenum (Mo), and chloride (Cl), are required in very small quantities by plants and, hence, are classified as micronutrients. However, micronutrients are as essential for plant growth and reproduction as nitrogen, phosphorus and potassium are. Deficiency of a single essential element can reduce plant growth and yield even if the other elements are in sufficient supply. Thus balanced supply of all macro- and micro-nutrients is a key factor for a profitable fruit production.

Almost all cultivated soils in the country are alkaline in reaction, calcareous and low in organic matter. These soil properties are conducive to low micronutrient availability and, thus, deficiencies in plants. Micronutrient deficiencies are not related to their insufficient total contents in soils but rather occur because of their low availability to plants. Research by various institutions in the country has adequately established that out of seven micronutrients field-scale deficiencies of economic significance prevail only in the case of Zn, B, and Fe in susceptible field crops. In fact, micronutrients deficiencies in crops, particularly of Zn in rice and B in cotton and rice – are causing substantial yield losses and impairment of produce quality. However, awareness hardly exists about this important area of plant nutrition in general and fruit plant nutrition in specific.

Properly nourished fruit plants grow stronger, produce more consistently, have better disease resistance, and are more tolerant to stresses. For example, citrus and deciduous fruits plants (i.e., apple, apricot, peach, plum) are highly sensitive to Zn and Fe deficiency. Similarly, strawberry is prone to Fe chlorosis and deciduous fruits to B deficiency. In case of a deficiency, the growth of

Continued at page 4

NEWS AND VIEWS

Training Course

Nuclear Institute for Agriculture and Biology, Faisalabad organized an Interregional Training Course on “Mutation, Biotechnology and Screening Techniques for Tolerance to Salinity”, sponsored jointly by IAEA and PAEC, on 26-30 April 2004. Scientists from China, Costa Rica, Cuba, Guatemala, Pakistan and Thailand and three resource persons, including Dr. Mohan Jain, Technical Officer, from IAEA, participated in the course.

The course aimed at training to plant breeders and salinity specialists in mutation & biotechnology techniques and methods for screening salt tolerant lines for fine tuning their ability to improve agronomic traits and salt tolerance of food crops. The training course comprised of theory lectures as well as practical demonstrations.

Changes In Soil Microbial Biomass and Mineralizable C And N as Affected by Cropping Intensity in No-till Dry-land Agro-ecosystem

While on Fulbright Fellowship at Colorado State University, Professor Dr. Zahir Shah of NWFP Agri. Univ. has conducted a study to measure changes in soil microbial biomass, mineralizable C and N, enzymatic activity, microbial composition and dynamics of microbial community diversity as affected by cropping intensity in no-till dryland agro-ecosystems. The experiment was carried out within a long-term experiment located in the Great Plains of eastern Colorado (USA) at three locations that have approximately the same long-term annual precipitation but different levels of potential transpiration. He evaluated the effect of five cropping systems (i.e., wheat-corn-fallow, wheat-wheat-corn-millet, wheat-corn-millet, opportunity and perennial grass) on surface (0-5 cm depth) soil microbial changes after 19 yr of no-till in

dryland agro-ecosystems. The response of soil microbes varied greatly to changes in cropping system. Location and season of the year also had significant effect on soil microbial community, their composition and activity. The information generated from this study will help to ascertain the practical significance of fluctuations in soil microbial biomass pool and their activity on crop growth and nutrient conservation.

National Seminar on Drainage

Third National Seminar on Drainage in Pakistan was organized by the Department of Water Management and Department of Soil and Environmental Sciences, NWFP Agricultural University, Peshawar, on 7-8 June, 2004 at the University. The seminar was inaugurated by Syed Iftikhar Hussain Shah, Governor NWFP.

A total of 52 research papers were presented in five technical sessions, i.e., i) National Drainage Policies and Industrial Reforms; ii) Drainage Materials, Methods, Operation and Maintenance; iii) Environmentally Safe Use and Disposal of Drainage Water; iv) Drainage Management at the Source; and v) GIS and Irrigation Drainage Modeling.

Soil scientists from various organizations presented their research findings on use of brackish water, and reclamation and management of salt affected soils.

HONOURS AND AWARDS

IRRI Confers Best Article Award upon Dr. A. Rashid

As a part of the International Year of Rice 2004 celebrations, the International Rice Research Institute (IRRI) has conferred **Best Article Award** (consisting of a certificate and cash prize) in **Soil, Nutrient, and Water Management category** upon **Dr. Abdul Rashid**, Chief Scientific Officer, NARC. His article "Boron deficiency in calcareous soils reduces rice yield and impairs grain quality", published in the June 2004 issue of International Rice Research Notes, has been recognized as a significant contribution to knowledge on the subject. The article has been co-authors by: Dr. M. Yasin, PSO (Soils); Dr. M. Ashraf, Plant Physiologist/DG, NARC; and Dr. Riaz A. Mann, Rice Agronomist/Coordinator, National Rice-Wheat Project.

Congratulations to Dr. Rashid and his research team for bringing this laurel to Pakistan.

Mr. Ali Raza Gurmani, SO, LRRP, NARC received **Gold Medal** for securing first position in MSc (Hons) Agri (Soil Science), Faculty of Agriculture, Gomal University, DI Khan.



Congratulations to Mr Gurmani for earning this professional distinction!

PROMOTIONS, APPOINTMENTS, POSTINGS

Professor Dr. Riaz A. Khattak, Deptt. of Soil & Environmental Sciences, NWFP Agri. University, Peshawar has been promoted to **BS-21 as a Meritorious Professor**.

Dr. Ahmad Bakhsh, Agricultural Chemist, Agric. Research Institute, D.I. Khan, has been transferred and posted as Director, Barani Agricultural Research Station, Kohat.

Dr. Saifur Rehman, Agronomist, Agricultural Research Station, Serai Naurang, Bannu, has been transferred and posted as Agricultural Chemist ARI, D.I. Khan.

Mr. Muhammad Akram, Agri. Chemist (officiating basis), Soil and Water Conservation Research Institute (SAWCRI), Chakwal; **Mr. Abdul Sattar Javed**, Agri. Chemist (officiating basis), Soil & Water Testing Laboratory, Rawalpindi; **Mr. Javed Iqbal**, Asstt. Agri. Chemist (SF), Rapid Soil Fertility Survey & Testing Institute, Lahore; and **Mr. Muhammad Younis**, Asstt. Agri. Chemist, Fodder Research Institute, Sargodah have been promoted as Agricultural Chemist and posted in SAWCRI, Chakwal; S&WT Lab, Rawalpindi; Rapid Soil Fertility Survey & Testing Institute, Lahore; and Soil Salinity Research Institute, Pindi Bhattian, respectively.

Dr. Muhammad Tariq Sadiqqe, ARO, Soil Chemistry Section, AARI, Faisalabad and **Mr. Muhammad Aslam Avais**, ARO, S&WT Laboratory, Faisalabad have been promoted as Asstt. Agri. Chemist and posted in S&WT Laboratory, Rawalpindi, and Orange Research Institute, Sargodha, respectively.

Mr. Abdul Wakeel, Mr. Aramghan Shahzad, Mr. Ali Raza Gurmani, and Mr. Muhammad Rizwan have joined Land Resources Research Program, NARC, Islamabad as Scientific Officers.

Congratulations to all from Soil Science News!

VISITS AND FELLOWSHIPS

Dr. Zahir Shah, Professor, Department of Soil & Environmental Sciences, NWFP Agricultural University, Peshawar has successfully completed his Fulbright Post-Doctoral Fellowship (September 2003-August 2004) at the Department of Soil & Crop Sciences, Colorado State University, Fort Collins, USA. He conducted a study to measure changes in soil microbial biomass and mineralizable C and N as affected by cropping intensity in no-till dry-land agro-ecosystems.

Dr. Naimatullah Bughio, SSO, LRRP, NARC, Islamabad has proceeded for a 2-year **Postdoctoral Fellowship** of the **Japanese Society for Promotion of Science**, commencing from September 2004. Dr. Bughio will conduct research on “Cloning of Boron Transporter Genes in Plants” at Biotechnology Research Centre, the University of Tokyo, Japan.

Mr. Abdul Wakeel, SO, LRRP, NARC, Islamabad has been awarded an **Overseas Ph.D. scholarship for Germany** (2004) by the Higher Education Commission, Islamabad.

Dr. M. Mohsin Iqbal, Life Member SSSP/Director, NIAB and **Dr. Zahoor Aslam**, PSO, NIAB visited China from May 31 – June 14, 2004 under Pak-China collaborative project on “Salty soil improving technology by using biological measures”. The purpose was to visit saline lands in China and to have first hand information on their physico-chemical properties in order to re-vegetate them with appropriate salt tolerant plants species. They visited saline lands in the coastal area and sandy/saline areas in the north-east of Hebei province. They also delivered seminars in Beijing and Shijiazhuang on R&D activities on bio-saline agriculture underway at NIAB.

RETIREMENT

Mr. Tariq Amin, Soil Fertility Officer, Rapid Soil Fertility Survey & Soil Testing Institute, Lahore, has retired in April 2004. He started his

professional career in 1961 as Research Officer, Chemistry Section, ARRI, Faisalabad.

We pray for his good health and prosperous retired life.

OBITUARY

Mr. Aslam John, ARO, Soil Chemistry Section, AARI, Faisalabad, has expired due to a fatal motor-cycle accident in Multan. Mr. John was an



honest, dedicated, and productive researcher who will be remembered by his colleagues. He won first prize in Poster Presentations during 9th as well as 10th International Congress of Soil Science held at Faisalabad in 2002 and Tandojam in 2004, respectively. He is survived by two sons and a wife.

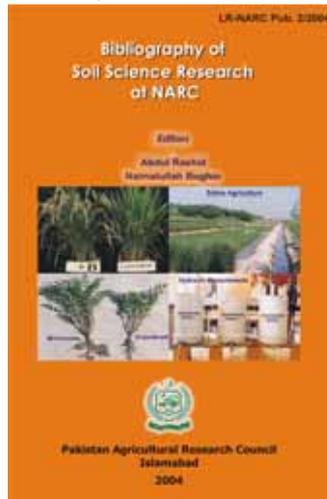
We pray for the departed soul.

PUBLICATIONS

Bibliography of Soil Science Research at NARC, A. Rashid and Naimatullah Bughio

(Editors), Pakistan Agricultural Research Council Islamabad (2004). The Bibliography enlists 638 publications – by the NARC Land Resources Scientists during the last more than two decades. The research results reported in the Bibliography pertain to laboratory,

greenhouse and field studies conducted on almost all predominant soil types – located in various geographical regions and cropping systems of the country – in the disciplines of soil fertility, plant nutrition, soil chemistry, soil salinity, soil



mineralogy, soil microbiology, soil physics, soil environment, land use planning, & soil testing and plant analysis.

Those led by the desire to understand and manage soil resources for sustaining their productivity and environment can now have an easy access to a wealth of scientific information hitherto unavailable. We foresee extensive use of this Bibliography by graduate students, researchers and other professionals for formulation of new hypotheses, re-orientation of research activities and for solving the soil and environmental issues.

SPECIAL SYMPOSIUM

The Soil Science Society is organizing a 2-day special symposium on “**Plant Nutrition Management for Horticultural Crops under Water Stress Conditions**” at **Agricultural Research Institute, Sariab Road, Quetta** on **October 5-6, 2004**. For registration and abstract please contact:

Dr. Muhammad Ibrahim, Agricultural Chemist (Soils), Secretary Technical Committee, Ayub Agricultural Research Institute, Faisalabad
Tele: 042-657281-90/240, Email: soilchem@fsd.paknet.com.

Detailed information is available on society's website: www.sssp.20m.com.

Land Quality, Agricultural Productivity, and Food Security: Biophysical Processes and Economic Choices at Local, Regional, and Global Levels. K. Wiebe (Editor). Edward Elgar, Cheltenham and Northampton (2003). This book presents the results of innovative, collaborative research conducted over the past four years by soil scientists, geographers, economists and other scientists. Part one of this book presents overviews from the perspectives of soil science and economics, the 2nd part examines the role of land quality in explaining differences in agricultural productivity between countries, 3rd part turns to land degradation over time and its impact on changes in agricultural productivity, 4th part explores the implications of land

degradation-induced productivity losses and depletion of water resources, and, finally, 5th part discusses continuing challenges for research and policy.

Price: GBP 95.00. Orders to: Edward Elgar Publishing, P.O. Box Williston, VT 05495-0575, USA. Fax: +1-802-864-7626.

Email: eep.orders@aidcvt.com

Handbook of Processes and Modeling in the Soil-Plant System. D.K. Bendi and R.

Nieder (Editors). This book presents a holistic view of the processes within the soil-plant-

atmosphere continuum. In 22 chapters, written by one or more leading experts in their field, the book examines the physical, chemical and biological processes; soil formation and weathering process; the impact of radioactive fallout on the soil-plant system; soil degradation and remediation; water and matter dynamics in the

soil-plant system; growth and development of crops at various levels of production; and the potentials and limitations of using simulation models.

Price: US \$ 89.95, soft cover; US \$ 149.95, hardcover. Orders to: The Haworth Press, 10 Alice Street, Binghamton, NY 13904-1580, USA. Fax: 1-607-771-0012.

Email: orders@haworthpress.com

Role of Micronutrients in Fruit Production:

from page 1

young trees is severely restricted, and fruit yields and quality are adversely affected. Thus, balanced fruit plant nutrition should be a high priority management objective of every fruit grower.

News and Views, for next issue of the Soil Science News, may be conveyed to:

- **Dr. M. Mahmood-ul-Hassan**, SSO/Editor, Soil Science News, Land Resources Research Program, NARC, Islamabad-45500. **E-mail:** mmh@comsats.net.pk
- **Prof. Dr. Kazi Suleman Memon**, Dean, Faculty of Crop Production, Sindh Agricultural University, Tandojam, Sindh. **Email:** ksmemon@hyd.paknet.com.pk
- **Dr. M. Ibrahim**, Agricultural Chemist, Soil Chemistry Section, Ayub Agricultural Research Institute, Faisalabad. **E-mail:** soilchem@fsd.paknet.com.pk
- **Dr. Amanullah Bhatti**, Professor & Chairman, Deptt. of Soil & Environmental Sciences, NWFP Agricultural University, Peshawar. **E-mail:** drbhatti@brain.net.pk
- **Mr. Ahmad Sami Ullah**, SSO, Land & Water Use Section, Arid Zone Agricultural Research Centre, Quetta. **Email:** ahmadsamiullah@yahoo.com