

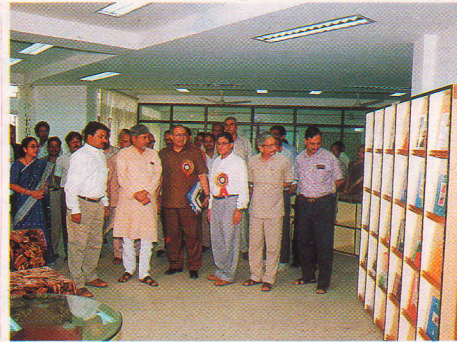


IISS

Newsletter

Vol. 3. No. 1

January - June 2000



Union Agriculture Minister Inaugurates IISS Main Building

The Honourable Union Minister of Agriculture, Shri Nitish Kumar inaugurated the Main Building and ARIS Cell of the Institute on 23rd June, 2000. In his inaugural address, he reminded the scientists about the challenges before the country in increasing the food production to feed the ever-growing population. He emphasized the importance of natural resources especially soils and maintaining their sustainable levels for the improved crop production. Linking the nation's health with the health of soil, he exhorted the Institute's scientists to work for achieving sustainable soil productivity and maintaining soil health. He urged the Institute to strengthen the technology transfer to farmers through IVLP. He pleaded for creation of self-employment opportunities for unemployed graduates through training for the setting up of the nation-wide chain of soil and plant testing clinics for the benefits of the farming community. On this occasion, Dr. R.S. Paroda, Secretary, DARE and DG, ICAR addressed the gathering and lauded the efforts made by the Institute in completing the work in a record time and in utilizing the scarce funds in a judicious manner. He stressed that, this Institute being the only one of its kind in the country, should focus on carrying out research programs on basic and applied aspects to enhance nutrient use efficiency, sustaining soil productivity and minimizing the environmental pollution which are gaining significance especially in the post green revolution era. Later the Honourable Minister and DG planted saplings in front of the Institute's Main Building. Dr. C.L. Acharya, Director, welcomed the chief guest and other dignitaries and took them around the Institute and explained the activities and facilities developed by the Institute.



Union Minister of State visits IISS

Dr. Devendra Pradhan, Union Minister of State for Agriculture, Animal Husbandry and Dairying & DARE visited the Institute on 10th June, 2000. He evinced keen interest in the activities of the Institute and paid visit to Library, Information and Documentation Unit and appreciated various publications brought out by the Institute. In his address to the staff, he appealed to the scientists to take up the task of protecting and improving the soil health of the country. He also congratulated the Director, Dr. C.L. Acharya, and his team of scientists for the research works conducted and also for creating impressive infrastructural facilities.

Indian Institute of Soil Science

Nabi Bagh, Berasia Road, Bhopal - 462 038 (M.P.)

Telephone : (0755) 730946, 730970 Fax : (0755) 733310 E-mail : iiss@iiss.mp.nic.in

Research Highlights

Changes in organic and inorganic sulphur fractions in a Typic Haplustert under long-term cropping, fertiliser and organic manure use

The results of 27 year old long-term field experiment, involving a fixed rotation of Soybean-wheat-fodder maize and use of fertilizers and organic manures on a Typic Haplustert showed that continuous use of NPK (+S) at 50, 100, and 150% of the optimum recommended rates and 100%NPK (+S) with FYM resulted in greater amounts of organic C, total N, organic and inorganic S in the soil. Conversely, intensive cropping with continuous use of 100% NPK without S resulted in an appreciable depletion of total, organic and inorganic S pools and widening of C:N:S ratio in the soil.

Exploiting interdependence of nutrients and water to boost wheat and mustard yield

Wheat receiving three irrigations in combination with 100% NPK gave yield at par with two irrigations with 100% NPK + FYM in the soybean-wheat crop rotation. Similarly, mustard receiving two irrigations at rosette and flowering stages along with 100% NPK gave seed yield equivalent to one irrigation at flowering along with 100% NPK + FYM in the soybean mustard crop rotation. The residual effect of FYM enhanced the water use efficiency (WUE) and yield of both wheat and mustard.

Comparative performance of different compost sources on soil biological activity and crop quality

Phosphocompost contained approximately 1.55 to 1.90% N and 3.1 to 4.2% total P and also citrate soluble P 6 to 9 fold higher than water soluble P. Application of spent mushroom compost maintained higher levels of soil microbial biomass carbon and dehydrogenase activity followed by microbial enriched compost in vertisol under wheat crop.

Sulphur x molybdenum fertilization improves soybean seed quality

Combined application of sulphur (40 mg kg⁻¹ soil) and molybdenum (1.5 mg kg⁻¹ soil) caused marked increase in seed yield (from 5.5 g/plant in control to 6.0 g/plant in treated), oil (18.2 to 21.9%), minerals (4.2 to 4.8%), protein (36.5 to 38.1%) and the content of tryptophan (1.21 to 1.48 g/16 g N), methionine (0.83 to 0.98 g), cystine (0.28 to 0.44 g) and cysteine (0.15 to 0.22g).

Impact of spent wash application on nursery raising of Glyricidia; plant growth and soil health

Application of biomethanated spent wash (BSW) at 25 % concentration produced healthy saplings of Glyricidia and improved soil health in terms of dehydrogenase, acid and alkaline phosphatase activities. However, at higher concentration the growth was affected.

Impact of spentwash on crop production and soil health

Application of raw spent wash(RSW)as well as

biomethanated spent wash(BSW) markedly improved both soybean and wheat yield under field condition. The highest soybean yields of 22 and 21 q ha⁻¹ were recorded with RSW and BSW application, respectively, which were much higher than control (11 q ha⁻¹) and recommended NPK (13 q ha⁻¹) treatments. The highest wheat grain yield of 74 q ha⁻¹ was recorded in plots receiving 10 ha-cm BSW during both kharif and rabi seasons which was 37 % higher than that recorded in NPK plots (54 q ha⁻¹). However, there was a significant build-up of salinity in the soil with the loading of RSW and BSW.

Promising Groundnut biofertilizer demonstrations

Under the Ministry of Agriculture sponsored front line demonstrations on oil seeds on efficiency of Rhizobium inoculation, 14 demonstration trials were laid for ground nut and soybean by the Coimbatore centre of the AICRP on Biological Nitrogen Fixation in various districts of Tamil Nadu. A positive response was obtained at all the locations. In groundnut over a mean control pod yield of 1533 Kg ha⁻¹, inoculation increased it to 1804 Kg ha⁻¹ thus giving an absolute increase of 271 Kg ha⁻¹ (+17.8%).The range of increase at various locations was 11.2- 24.2%. From these highly promising trails Bradyrhizobial strains are being isolated for further improvement of biofertilizer strains.

Awards & Honours

Dr. Anand Swarup, Project Coordinator (LTFE) was admitted to the Fellowship of National Academy of Agricultural Sciences on June 5.



Dr. M.V. Singh, Principal Scientist & Project Coordinator (Micronutrients) was awarded S.N.Ranade Senior Scientist Award for his Excellence in Micronutrient Research by Shobhana Sri Krishana Ranade Memorial Trust, Pune for the year 2000-01.



Dr. C.L. Acharya, Director, was invited to deliver the First Professor Pran Kumar De Memorial Lecture by the Calcutta University, Calcutta on March 16.

Events

Republic Day: Republic Day was celebrated with great enthusiasm. All the staff members along with their families participated in various sports and cultural activities.

Farmer's Day: Farmer's Day was organized on March 27 by IISS Bhopal in collaboration with IFFCO in a village Mugaliahat to demonstrate the benefits of IPNS technology. Shri. Jatav, Assistant Agricultural Commissioner, Bhopal District was the chief guest on the occasion.

RAC meet: The Research Advisory Committee (RAC) meeting was held on April 24-25 under the chairmanship of Dr. J.S. Kanwar to review the progress of the on going projects and the proposed new research projects of the institute. The members attended the RAC included Dr. N.N. Goswami, Dr. T.N. Chaudhary, Dr. V.K. Nayyar, Dr. C.L. Acharya and Dr. A. Subba Rao.

SRC meet : The Staff Research Council met on 24th, 26th June and 3rd, 6th and 7th July to review the progress of the on going projects and discussed the new research project proposals of the institute.

Workshops held

AICRP on STCR conducted Regional Seminars on Soil Testing at ANGRAU, Hyderabad on January 5-7 and at OUAT, Bhubaneswar on February 1-2.

End of the Year Work-Shop on Eco-Regional Integrated Plant Nutrient Management (FAO-ICAR-IFFCO) at IISS, Bhopal, May 9-13.



Pre-Implementation workshops of NATP Projects, Impact of tillage, land treatment and organic residue management on soil health, drainage and crop productivity of rainfed

cotton based systems (RCPS-11); Integrated nutrient management in major pulse based cropping systems and identification of the most productive and remunerative systems (RCPS-11); and Nutrient management practices for important oil seed based cropping systems for improved yield and oil out put under rainfed conditions (ROPS-11) at IISS, Bhopal during June 20-21.

Group meeting of the scientists of All India Coordinated Research Project of Micro-and Secondary Nutrients and Pollutant Elements in Soils and Plants at Lucknow University, Lucknow, June 28-29.

Participation in Seminars/Symposia/Conferences/Workshops/Training programmes

Dr. C.L. Acharya : 87th Session of the Indian Science Congress Association (ISCA), Pune, January 6-7 ; National Workshop on Wheat Production Management and Trade, Pune, January 15.

Dr. C.L. Acharya, Dr. Anand Swarup, Dr. A.K. Biswas, Dr. J.K. Saha, and Dr. P. Ramesh: Launch Workshop of National Agricultural Technology Project (NATP) of Rainfed Production Systems Research, CRIDA, Hyderabad, June 28-29.

Twenty Four Scientists from the Institute attended the International Conference on Management of Natural Resources for Sustainable Agricultural Production in the 21st Century, New Delhi, February 14-18.

Dr. Ajay: National Seminar on Recent Advances in Plant Biology, Kasargod, February 2-5.

Dr. T.K. Ganguly: 2nd Indian Agricultural Scientists and Farmers Congress, Allahabad, February 19-20.

Dr. K.K. Bandyopadhyay and Mr. M. Mohanthy: 69th Foundation Course for Agricultural Research Service (FOCARS), National Academy of Agricultural Research Management (NAARM), Hyderabad, January 6 - May 4.

Dr. M.V. Singh: National workshop on Integrated Nutrient Management, NDUAT, Kumarganj, January 18-21.

Distinguished Visitors

Dr. Virendra Kumar, Marketing Director, IFFCO, New Delhi on May 9-10.

Dr. R.N. Roy, Senior Officer, FAO, Rome on May 9-11.

Dr. Debendra Pradhan, Union Minister of State (Agriculture, Animal Husbandry and Dairying & DARE), Govt. of India on June 10.

Dr. G.B. Singh, Deputy Director General (NRM), ICAR on June 13.

Shri. Nitish Kumar, Union Minister of Agriculture on June 23.

Dr. R.S. Paroda, Secretary, DARE and DG, ICAR on June 23.

Staff News

Dr. Ashwani Kumar Sharma, Senior Scientist, joined the institute on April 1.



Sukhchain Das

Mr. Sukhchain Das (Beldar) bagged second prize in cycling in ICAR Inter Zonal Sports Meet held at CTCRI, Thiruvananthapuram during May 8-12.

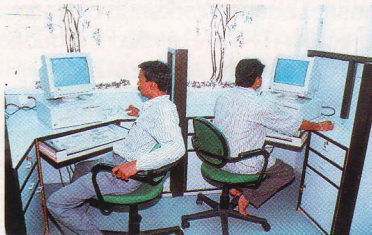
From the Director's Desk.....



Conference Hall



Seminar Hall



ARIS Cell



Library, Information & Documentation unit

In this Issue

Union Minister of Agriculture...
State Minister of Agriculture
Research Highlights
Awards and Honours
Events
Workshops held
Participation in Seminar/Symposium/ Training Programme
Distinguished Visitors
Staff News

Editors

P. Ramesh
S. Ramana

Design & Scheme

A.K. Sharma

Published by

C.L. Acharya, Director

Indian agriculture has made impressive strides in food grain production. However, the combined impact of population increase, industrial expansion and exploitative agriculture causing degradation of our soil resource base, poses a serious challenge to our ability to do so in future. The problem is further compounded by the rising cost of fertilizers, limited land resources, chronic water shortages, low input use efficiency and concern for sustainability of high productivity without detriment to environment. A working group of the ICAR felt that spectacular developments in agriculture sector have brought into prominence numerous problems related to the understanding of soils and crop production. The group was of the opinion that fundamental research in many aspects of the soil was not addressed to by any of the existing ICAR Institutes. The planning commission approved the proposal of the working group for the establishment of a new Institute namely Indian Institute of Soil Science during the sixth five year plan (1980-85) to conduct basic and strategic research, to extend support to the development activities in the field of fertilizer use and irrigation water management. The Institute came into physical existence in April 1988. The Institute functioned up to November 1995 in a hired building at M.P. Nagar, Bhopal and was shifted to its own campus at Nabi Bagh.

The mandate of the Institute is "to provide a Scientific basis for enhancing and sustaining productivity of soil resources with minimal environmental degradation". The main thrust areas of research are (1) Nutrient management and fertility improvement (2) Management of soil physical and biological components (3) Soil qualities for sustaining productivity, and (4) Minimizing environmental pollution.

Since its inception, the Institute has completed over a decade of its existence after crossing a number of hurdles and has grown up in its stature in terms of scientific manpower and R & D infrastructure. The Institute activity has been strengthened further by the scientific co-ordinating activities of six All India Coordinated Research Projects on Soil Test Crop Response Correlation (STCR), Long Term Fertilizer Experiments (LTFE), Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants (Micronutrient), Microbiological Decomposition and Recycling of Farm & City Waste (MDRW), Biological Nitrogen Fixation (BNF) and Soil Physical Constraints and their Amelioration (SPC). These Institute based AICRPs act as a part of the "Network-support-programmes" of the IISS with centres located in State Agricultural Universities, providing access to the diverse soils, agro-ecosystems across the agro-ecological zones of the country for effective implementation of the programmes of the Institute on regional basis.

The organizational structure of the Institute includes four divisions with the state-of-art facilities i.e. Soil Chemistry & Fertility, Soil Physics, Soil Biology and Environmental Soil Science, a section of Statistics and Computer Application, Central and Referral Laboratories and six All India Co-ordinated Research Projects. All the units are provided with computer facilities under the ARIS (Agricultural Research Information System) cell, Local Area Network (LAN) having provision for connectivity to all the scientists and other support sections. The Institute has excellent Library, Information and Documentation services, computerized with the UNESCO software CDS/ISIS (3.07) to maintain database of books, annual reports, etc. It is also equipped with the SOIL-CD and AGRIS CD, providing search facility to the Institute scientists. Also, the facilities include well established experimental farm, ponds to harvest runoff, automatic weather station, screen houses, 46 staff quarters, training hostel, indoor and outdoor sports facilities.

The cherished dream of formal inauguration of the newly constructed and well furnished main building of the Institute was fulfilled by Honourable Union Minister of Agriculture, Shri. Nitish Kumar on 23rd June, 2000 in the presence of Dr. R.S. Paroda, Secretary, DARE and DG, ICAR.

- C.L. Acharya