

Scientists Participation in Conferences/ Seminar/ Workshop/ Training/ Group Discussion

Name	Programme	Venue	Period
Drs. A.K. Tripathi and M.C.Manna	NAIP Project meeting for CIC	CRRI, Cuttack	13-15 July & 9 Dec.
Dr. Blaise Desouza	International conference on plant nutrition	ICRISAT, Hyderabad	10-12 Aug
Dr. R.S. Chaudhary	Farmer's club meet organized by IFFDC Ltd, Bhopal	CIAE, Bhopal	9 Aug.
Dr. A.K. Biswas	CAC meeting of NAIP sub-project on "Nanotechnology for enhanced utilization of native P"	IIT, Mumbai	12-13, Aug.
Dr. Ritesh Saha and S.R.Mohanty	Regional Seminar on "Intellectual Property and Innovation management in Knowledge Era" organised by M.P State Biodiversity Board in collaboration with National Research Development Corporation, New Delhi.	Hotel Noor-Us-Sabah, Bhopal.	18 Aug.
Dr. K. Ramesh	2nd national conference on advanced materials	PSN College, Tirunelveli	25-27 Aug
Dr. Blaise Desouza	National Workshop on 'Review and Refinement of Fertilizer-K recommendations in Vertisols' Jointly organized by IPNI-IPB-NBSS & LUP and presented a Lead paper on Need to revise fertilizer-K recommendations in cotton grown on Vertisols.	NBSS&LUP, Nagpur	24-25 Aug.
A Mandal and Radha TK	National Training on "Microbial identification and gene mining: A bioinformatics approach"	NBAIM, Mau (UP)	1-10 Sept.
Dr. Blaise Desouza	Training on 'Managing Quality in Agricultural Research Systems'	IIM, Lucknow	25-29 Oct.
Dr. A.K.Misra	Curtain Raiser Meet on Research needs arising due to Abiotic stresses in agriculture management under Global Climate scenario	NIAM, Baramati	29-30 Oct.
Dr. J. S. Virgine Tenshia	92nd Foundation Course for Agricultural Research Scientists (FOCARS)	NAARM, Hyderabad	1 Sept.-29 Dec.
Dr. A. B. Singh	Workshop on Communication Skills	ISTM, New Delhi	25-27 Oct.
Dr. A. B. Singh	National Symposium on Recent Outlook on Sustainable Agriculture-Livelihood Security and Ecology at Coastal Region	Calangute, Goa	27-30 Oct.
Dr. S. K. Behera	Training programme on "R&D Project Management"	HRD Centre (CSIR), Ghaziabad	20-24 Sept.
Dr. Pramod Jha	Short course on Cropping System Models: Applications in Land Resource Management	ICRISAT, Hyderabad	18-22 Oct.
Dr. K. Ramesh	Training course on Research Station Management	ICRISAT, Hyderabad	Oct 11-16
Dr. M. V. Singh	Group meet on "Solving pulses crises through crop diversification	ARS, Durgapur, Jaipur	25-26 Oct.
Dr. S. K. Behera	Winter school on "System based integrated nutrient management for sustained productivity and soil health"	PDFSR, Modipuram,	1-21 Oct.
Dr.Y. Muralidharudu	Annual convention & Symposium of Indian Agrl .Chemists Society	BHU, Varanasi	12 Nov.
Dr. M. V. Singh	1st Global Conference on "Biofortification: Discovery to Delivery"	Washington DC, USA	09-11 Nov.
All Scientists of the Institute	75th Annual Convention of the Indian Society of Soil Science	IISS, Bhopal	14-17 Nov.
Dr.Y. Muralidharudu	Annual group meeting of groundnut workers of Directorate of Groundnut, Junagadh, Gujarat	BCKV, Kalyani, Kolkatta	18-19 Nov.
Dr. S. K. Behera	Esri India's Geo-vision Seminar Series	Amer Palace, Bhopal	23 Nov.
Dr. Ajay	National Conference on Biodiversity of Medicinal and Aromatic Plants: Collection, Characterization and Utilization.	PDMAP, Anand Gujarat	24-25 Nov.
Dr. S. Ramana	National conference of Plant physiology	BHU, Varanasi	25-27 Nov.
Dr. M.V. Singh	FAI Annual meeting	New Delhi	29 Nov.
Dr.Y. Muralidharudu	National Seminar on "Sustainable Agrl. and Food Security, Challenges Opportunities	OUAT, Bhubaneswar	29-30 Nov.
Dr. J Somasundaram	Interactive meet on Information and Communication Tech. (ICT) in ICAR	NASC Complex, New Delhi	3 Nov.
Dr. J Somasundaram	Network-enabled Research Collaboration Jointly organized by ERNET India and Indiana University (US).	The Lalit Hotel, New Delhi	5-7 Dec.
Dr. N.K.Sinha	IT based DSS for GIS for Rural Livelihood assessment	NIRD, Hyderabad	06-15, Dec.
Dr. Blaise Desouza	National Workshop on 'Best bet management practices in sustainable cotton production'	CRIDA, Hyderabad.	15-16 Dec.
Dr. K. Ramesh	3rd Bangalore Nano on Frontiers of Nanotechnology: Impact on India	Bangalore	8-9 Dec.
Ms. Neenu S.	Training on "Ethnic Issues and Community Management for Young Scientists"	IIFM, Bhopal	6-10 Dec.
Dr. A. B. Singh	International Conference on Improving Access to Global Organic Markets	Mumbai	8-9 Dec.
Dr. R.H. Wanjari	XIX National Symposium of Indian Society of Agronomy on 'Resource Management Approaches towards Livelihood Security'	UAS, Bangalore	2-4 Dec.

Editors: Dr. K.Sammi Reddy and Dr. J.Somasundaram

For feedback please contact,

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New Publications



In This Issue

- Director's Desk
- Soil Science Sector
- Institute's / Divisional News
- Research Highlights
- Awards and Honours
- National Seminar/Workshop
- Extension Activities
- Scientists' Participation in Conference/Seminar/ Training/Workshop
- Personal News

Forth Coming Events

- STCR National Seminar on 'Soil health improvement for enhancing crop productivity' at TNAU during 17-18 March, 2011.
- National Training on 'Climate change, carbon sequestration and carbon credits' during 5-18 April, 2011.

Director's Desk

Efficient Utilization of Indigenous Phosphate Rocks and Soil Phosphorus is Must to Manage Global Phosphorus Peak

All high intensity agricultural production systems are dependent on continual inputs of mainly nitrogen and phosphatic fertilizers derived from gaseous nitrogen and phosphate rock, respectively. Unlike nitrogen, phosphorus is relying on a finite resource and the current reserves could be depleted during end of this century. More concerning is that before that point is reached, similar to oil peak, we will see a global peak in phosphate rock reserves, estimated to occur in the next 30 years. While the exact timing may be disputed, it is clear that already the quality of remaining phosphate rock reserves is decreasing and the availability of and cheap fertilizers will be a thing of the past.

Peak phosphorus is linked to peak oil. For example, the recent oil price shock and growing concern about climate change has stimulated a drastic increase in biofuel crop production globally, which in turn increases the demand for phosphate fertilizers, and hence the proximity of the phosphorus peak. However a key difference between peak oil and peak phosphorus, is that while oil can be replaced with other forms of energy once it becomes too scarce, there is no substitute for phosphorus in food production. Phosphorus cannot be produced or synthesized and without this nutrient source we cannot produce food crops. A second key difference is that oil is unavailable once it is used. While phosphorus is an element that can be captured after use and recirculated for use within economic and technical limits.

When there is not enough reliable data today to predict the exact year peak phosphorus will occur, what is clear is that discussion on alternative phosphorus sources and governance models is required now to ensure that the world's farmers have sufficient access to phosphorus in the long-term to feed humanity, without compromising the environment, livelihoods and economies. While the recent price spike in phosphate rock is likely to trigger further innovations in and adoption of phosphorus recovery and efficiency measures, the market alone does not have enough adaptive capacity to manage phosphorus in a sustainable, equitable and timely manner in the long-term. The current system of mining and processing phosphate rock, international transport and storage, fertilizer application, harvest etc is inefficient and presents many opportunities for both increasing efficiency throughout the system, and for capturing used phosphorus in human and animal excreta and food and crop residues. The fertilizer P use efficiency by the crop to which it is applied is rarely exceeds 20-25% and remaining part of P accumulates in the soil in unavailable forms. Thus, continuous application of P fertilizers to different crops results in the accumulation of residual P in soil. Several strategies have been developed to utilize this residual (accumulated) P by different crops. The P use efficiency could be enhanced by best management practices (BMP), residual P utilization, utilization of insoluble P sources such as phosphate-rock, mobilization of unavailable pools of P in soil through selection of crops with efficient root system, mycorrhizae, earthworms, P solubilizing bacteria etc.

India has reserve of 14.7 million tonnes of high grade rock phosphate (+30 % P₂O₅) and about 190 million tonnes of low grade rock phosphate with an average of 12% P₂O₅. More efforts in making use of low (non-premium) grade unreactive phosphate rock (PR) deposits are needed. Even under acid soil conditions, Indian phosphate rocks are not very effective because of their poor reactivity. Thus, to match the P needs of India, indigenous phosphate rocks need to be made more effective through modifications in the P release pattern of PR. Several techniques have been developed to modify low grade phosphate rocks to promote solubility of P in PRs in different soils. But most of these techniques didn't reach the farmers' fields. Therefore, sincere and determined efforts should be made to implement the technologies of utilization of PRs on farmers' fields in both acid and non-acid soil regions.

A. Subba Rao

Soil Science Sector

75th Annual Convention

75th Annual Convention of the Indian Society of Soil Science (ISSS) and National Seminar on "Developments in Soil Science - 2010" was jointly organized by the Indian Society of Soil Science, New Delhi and Indian Institute of Soil Science, Bhopal during 14-17 November 2010. The Convention was inaugurated by honorable Dr. Ramkrishna Kusmariya, Minister of Farmer Welfare and Agriculture Development, Govt. of M.P. and Honorable Dr. A.K. Singh, President, ISSS & DDG (NRM), ICAR, New Delhi, presided over the function. Dr. A. Subba Rao, Chairman, Organizing Committee & Director, IISS, Bhopal welcomed the guests and delegates. The Chief Guest presented the fellowships and awards to the winners during the inaugural session. A special symposium on "Salt-Affected Soils" was also organized during the convention. Best Doctoral Research Presentation Award was presented to winners on 16 November 2010. An IPNI, Gurgaon sponsored technical session on "plant nutrient management for sustainability and food security in India" was organized during the convention. Valedictory session of 75th Annual Convention of ISSS was held on 16 November 2010 under the chairmanship of Dr. A.K. Singh, President, ISSS. A field visit was also organized for the delegates on 17th November, 2010 to interact with farmers for understanding the nutritional constraints of crop production and their management in adopted villages of Madhya Pradesh.

CAC and CIC meetings of NAIP sub-projects

The third Consortium Advisory Committee (CAC) meeting of the NAIP subproject entitled "Understanding the mechanism of variation in status of a few nutritionally important micronutrients in some important food crops and the mechanism of micronutrient enrichment in plant parts" (C4/C30022) was held at IISS, Bhopal on 28 to 29th July 2010. The meeting was chaired by Dr. P. N. Takkar, Ex-Director, IISS, Bhopal and Chairman CAC. Dr. A. Dabadghao (Member CAC), Dr. C. Chatterjee, (Member CAC), Dr. A. Subba Rao (Consortium leader), Dr. M. V. Singh (CPI) and CCPI's and CoPI's of the subproject attended the meeting. The Consortium Implementation Committee (CIC) meeting for the NAIP sub-project "Assessment of Quality and Resilience of Soils in Diverse Agro-ecosystems" was held at IISS, Bhopal on 18th December 2010. The meeting was chaired by Dr. A. Subba Rao, Director, IISS, Bhopal



Inauguration of 75th Annual Convention

Model Training course

An 8-day model training course (MTC) on 'Conservation Agriculture in Rainfed Ecosystems for Soil Quality and Productivity Enhancement' was organized during September 24 to October 1, 2010. Participants from the Departments of Agriculture of Meghalaya, Chhattisgarh, Andhra Pradesh, Karnataka, Maharashtra and Madhya Pradesh participated in this training programme. Dr. D. N. Sharma, Director of Agriculture, Govt. of Madhya Pradesh was the Chief Guest of the inaugural function on 24 September 2010 (Photo). In the training programme the participants were briefed about the various Impacts on CA on soil physical, chemical and biological properties. The various implements and machinery for CA was demonstrated.



Dr. D. N. Sharma, Director of Agriculture, Govt of MP Chief Guest of the MTC.

Regional workshops under AICRP on STCR.

- Organized Northern Regional Workshop cum training to the soil testing personnel at HPKVV, Palampur during 24 - 25 November 2010.
- Organized Southern Regional workshop cum training to the soil testing personnel at TNAU, Coimbatore during 15 - 16 December 2010.
- Organized Eastern Regional workshop cum training on soil testing at IGKV, Raipur during 23 - 24 December 2010.

Institute's / Divisional News

- RAC meeting held during 9-10 September 2010.

Research Highlights

Soil carbon saturation and stabilization in some soils of India

For soils to act as a sink, organic C needs to be stabilized in stable pools. A laboratory incubation study was carried out by taking soil samples from forest, agriculture & horticulture land use systems to determine the effect of soil initial carbon content on wheat straw carbon mineralization. Within agriculture land use, stabilization of C followed the trend as per the soil carbon saturation theory. However, the amount of carbon evolved from wheat straw under forest & horticulture land use systems was at par with agriculture soil, where initial carbon was only 3.7 g kg⁻¹. It was probably due to the prevalence of substrate specific soil heterotrophs population which may degrade only the native residue (SOM) or it may be due to high microbial population, where added wheat straw carbon might have been turned into microbial metabolites which may be released after the decay of microbial biomass provided the incubation study would have been for longer duration.

Laboratory studies on the effect of neutral salts on carbon mineralization from wheat straw showed the C mineralized in un-amended soil was 24% whereas addition of CaCl₂ and CaSO₄ reduced the carbon mineralization to the extent of 8%. Chloride salt depressed carbon mineralization more than the sulphate. Water soluble carbon decreased significantly with the addition of calcium salts. Dehydrogenase activity was enhanced by the application of CaSO₄ whereas CaCl₂ had the opposite effect. The present investigation gave an insight that carbon stabilization could be enhanced by using the calcium salts.

Region-specific databases on nutrient resources in agriculture developed

The district-wise nutrient database has been created in MS Access. The database can be queried districtwise or statewise. The database provides information on the availability of nutrients in different districts from various sources viz., organic manures, fertilizers, compost, green manures, irrigation as well as their uptake and losses. The data is also presented in the form of district and state maps. The state-wise availability of dung (cow + buffalo) manure has been mapped (Fig. 1).

Study on nanoporous zeolites for soil and crop management

Zeolites are porous crystals with the ability to exchange ions and catalyze reactions owing to fixed pore sizes and active sites in the crystal lattice. They can be used both as carriers of nutrients and as a medium to free nutrients. Laboratory incubation studies conducted with a natural zeolite (Fig. 2) over a period of 28 days in Vertisol revealed that addition of zeolite delayed the N release from the soil-zeolite system possibly through sorption of released ammonia in the zeolite pores.

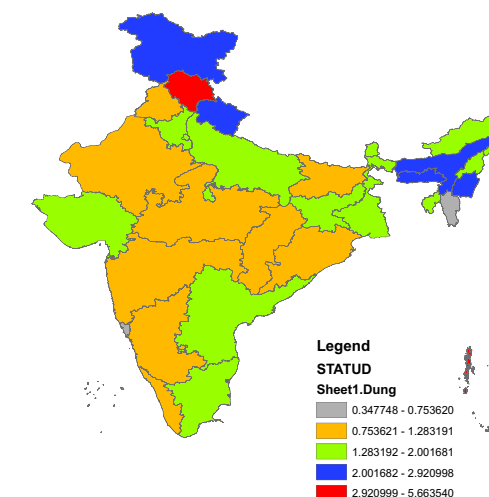


Fig. 1. Availability of dung manure (t/ha)



Fig. 2. Natural zeolite sample collected from Maheswar (Khandwa district)

Effect of Allwin wonder and Allwin top on maize productivity and soil fertility

Allwin powder and Allwin top are patented special fertilizer mixtures. Field trials showed that the application

of Allwin wonder and Allwin top as separate doses along with 100% of recommended fertilizer dose increased yield of maize marginally. However the combined application of Allwin wonder and Allwin top at half of the rate used for individual application along with 100% of recommended fertilizer dose increased maize yield up to 10% over the application of chemical fertilizers alone (Fig.3).



Fig. 3. Maize growth with combined application of Allwin wonder and Allwin top along with recommended dose of fertilizers

Tillage and residue incorporation on soil organic carbon and bypass flow in Vertisol

Soil organic carbon was found to be significantly more in conventional tillage (CT, one pass rotavator and sowing by seed drill) with residue incorporation compared to No tillage (NT) with residue on the surface at all soil depths 0-5, 5-15, 15-30 and 30-45 cm, after two years of soybean-wheat cropping system. The profile distribution of SOC showed 15-30 cm soil depth registered maximum SOC in conventional tillage and where as 5-15 cm under no-tillage. Loss of water through Bypass flow was also studied after harvest of wheat in April 2010 and no tillage significantly reduced the bypass loss of water by 40% compared to conventional tillage beyond 60 cm soil depth due to lesser crack width and intensity.

The soil biological activities in terms of soil respiration, dehydrogenase activity, FDA (flourescein diacetate assay), SMBC (soil microbial biomass carbon) and alkaline phosphatase were substaintially improved with increase level of FYM application (0.25 to 10 tonnes of carbon per hectare) and it was relatively higher in zero tillage as compared to conventional tillage.

Risk assessment of heavy metals in soil under sensitive agro-ecosystem contaminated with municipal solid waste compost

In soils contaminated with municipal solid waste composts, adverse effect of heavy metals (Cd, Cr, Ni etc)

on microbial activity and contamination of food chain occurred much earlier than the adverse effect on plant growth. The ED₂₀ (ecological dose corresponding to 20% decrease in soil microbial activity) values were 392 mg Zn kg⁻¹, 179 mg Cu kg⁻¹, 9.5 mg Cd kg⁻¹, 81 mg Pb kg⁻¹, 51 mg Ni kg⁻¹ and 31 mg Cr kg⁻¹. As the lowest among the determined values of maximum protective concentration of metals in soil through three different approaches (viz., phytotoxicity, food contamination and soil microbial activity diminution approaches) can protect all the targeted organisms. The values 392 mg Zn kg⁻¹, 179 mg Cu kg⁻¹, 0.34 mg Cd kg⁻¹, 81 mg Pb kg⁻¹, 30.7 mg Ni kg⁻¹ and 31 mg Cr kg⁻¹ can be considered as safe concentration limits in soil for the purpose of environment protection from metal pollution.

Microbial solubilization of P from nano rock phosphates

Soil microbes play very important role in bio-weathering and biodegradation of nano-particles. It is a well-known fact that as the particle size of rock phosphate decreases, the microbe mediated solubilization of rock-phosphate increases in soil. In order to quantify the extent of benefit of P solubilization due to interaction of microbes and nano-size particles, we carried out some laboratory studies. The results indicated that bacterial inoculation resulted 8.6, 10.5 and 14.5% solubilization of the total P contained in BRP (Udaipur) rock phosphate, respectively.

When the same rock phosphate with nano size particles (106.6 nm) was inoculated with bacterial culture, 11.5, 33.7 and 36.2% solubilization of the total P was observed after 24, 48 and 72 hours of incubation, respectively. Without any inoculation, the solubilization of P from nano-rock phosphate (NBRP- 106.6nm) was higher than TCP (micron sized laboratory grade TCP). After different incubation period, the uninoculated NBRIP broth was centrifuged and thereafter filtered using Nylon membrane filter (whatman, cat-No. 7402-004) having pore size 200 nm. Possibly, some of the nano-particles passed through this filter and resulted higher P content at the time of estimation. Whereas, TCP being micron sized particles, was retained by this 200 nm size filter. Attempt was also made to study the effect of fungal inoculation on the solubilization of P from nano-rock phosphates. Two fungal cultures (black spores and green spores farming) were used. Among the two fungal cultures, black spores forming fungal showed higher potential to solubilize P from nano-rock phosphate.

Effect of Nano Rock Phosphates on Plant Growth

Pot culture experiment was carried out to study the effect of nano-rock phosphate (HGRP-3 and SRP-II) on growth of maize on four distinctly different soils, namely, Vertisol (Bhopal), Alfisol (Betul), Inceptisol (Ludhiana) and Aridisol (Jodhpur). The biomass yield of crop harvested after 60 day of sowing, on different soils, showed distinctly different response to P applied in the form of SSP, nano rock-phosphate and micron sized rock phosphate. This exploratory investigation clearly indicated relatively higher yield response to nano-rock phosphate in all the soils as compared to micron sized rock-phosphates. Further the results suggested that crop utilization of P from nano-rock phosphate was at par with that of P from SSP in Vertisol and Inceptisol, while the yield response to P from nano-rock phosphate was marginally lower than to P from SSP in Alfisol and Aridisol. However, there is a need for extensive field trials to establish the efficacy of nano-rock phosphate for crop production and commercial utilization of large deposits of low-grade indigenous phosphate rocks as source of P for direct application.

Soil and water pollution near Bandi river by textile industries in Pali, Rajasthan

Pali, textile hub in western Rajasthan, is one of the severely polluted areas identified by the Central Pollution Control Board. The industries here discharge a variety of chemicals, dyes, acids and alkalis besides heavy metals and other toxic compounds. Textile dyes are toxic, highly stable and do not degrade easily and are not removed by conventional waste water treatment methods. The textile printing and dyeing industries located in Pali town are discharging industrial effluents into the river *Bandi*, a non-perennial river with no flow in the lean season, thus severely contaminating both the river as well as the groundwater. The groundwater has turned alkaline and total dissolved solids, chloride, sulphate, sodium are very high in the groundwater rendering wells in the area unfit for drinking and even for irrigation. The ground water from downstream villages (Javadia, Kerla and Sukarlai) were highly saline (6.8 - 21.6 dSm⁻¹) as compared to upstream villages (3.8 - 4.2 dSm⁻¹) (Icyea and Hemavas). These downstream well waters were high in soluble Na (54.9 - 82.7 meq L⁻¹) which clearly affects the soil properties.

The heavy metal content of well water samples clearly showed that Cu concentration exceeds drinking water standards in all the wells in downstream villages; Pb is



Polluted *Bandi* river with textile mill effluents

Soil irrigated with contaminated well waters become saline

high in Kerla, Sukarlai and Nehada; Cr level is high in Kerla, Sukarlai, Gadhara and Phikaria; As is high in Jewadiya, Kerla and Phikaria. Nickel, for which there is no standard, was detected in all villages. The above well water is coming well within permissible limits with regard to heavy metals but due to high salinity it is not suitable for irrigation. The soils cultivated by using contaminated well waters were also show high salinity (irrigation with high saline water). These soils were not high in any of the heavy metals.

Improving nutritional quality of wheat grains under LTFE experiment

Quality parameters of food grains are generally controlled genetically but agricultural practices like use of fertilizers, irrigation and tillage operations are also important modifiers. Nutritional quality parameters such as protein, true protein and tryptophan content in wheat grain influenced significantly due to continuous use of different nutrient management practices over control. However, methionine, cysteine, N, P, and K contents in wheat grain did not vary significantly due to different nutrient management practices, but these constituents were relatively higher in all the nutrient management practices compared to control.

Identifying floriculture plant species for Phytoremediation

Screened three popular floriculture plant species i.e., marigold, chrysanthemum and gladiolus for their tolerance and phytoremediation capacity of soils contaminated with Cd and Pb. The application of lead (Pb) even @500 ppm did not show any toxic effect in all the three plant species. Chrysanthemum was highly tolerant to Cd than gladiolus and absorbed a large amount of Cd from soil but its movement from roots to shoots was limited while, marigold was less efficient in accumulating Cd, but was more efficient in translocating Cd from root to above ground plant parts. Marigold was found to be a

hyperaccumulator for Cd. Aster was found to be highly susceptible to chromium and gladiolus was found to be tolerant.

Zinc and S must for Vertisols to sustain the productivity

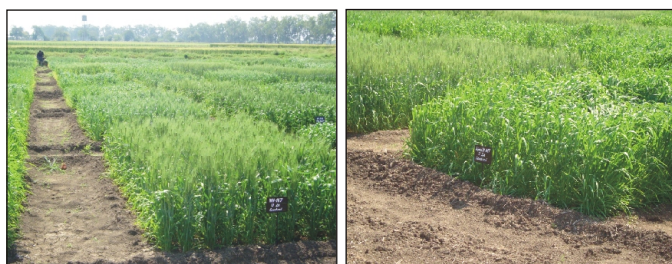
Continuous application of NPK fertilizers without Zn and S to soybean-wheat in Vertisols of Akola showed hidden hunger of Zn and S after few years. Survey revealed that farmers are using only DAP and not applying Zn and S. Demonstration trials conducted in two districts viz., Akola and Bhusawal through farmers' participation revealed that application of both S and Zn resulted in higher productivity of soybean by 2-3 q ha⁻¹ and by 2-5 q ha⁻¹ in wheat. Thus, field experiment at farmers' field confirmed that to harness the potential yield of these crops, application of Zn and S is essential. However, the farmers who are using FYM regularly may skip application of Zn and S fertilizers.



Demonstration of LTFE technology in soybean on farmers' fields at Akola

Evaluation of zinc efficiency in wheat varieties

Twenty varieties of wheat namely C-306, DL-803-3, GW-322, GW-366, HD-2864, HD-2932, JW-17, JW-3211, LOK-1, HI-627, HW-2004, HW-147, AKW-1071, AKW-381, AKW-4627, HI-1479, HI-1418, HI-8627, HD-4672, HI-1500 were grown in zinc deficient Vertisol with control (no zinc), soil application of Zn (@ 20 kg Zn/ha) and soil application + foliar spray treatments at Bhopal under NAIP subproject C4/C30022. Recommended doses of N-P₂O₅-K₂O were applied to all the treatments. The varieties of wheat differed from one another with respect to grain as



Wheat varieties in the field

well as stover yield. On an average, highest yield of 4145 kg/ha of wheat grain was obtained from HI-8627 whereas that of lowest was recorded from HI-1500 across the treatments. Almost all the varieties responded positively, with respect to grain yield to soil as well as soil + foliar application of Zn. Zinc efficiency of the wheat varieties based on grain yield ranged from 82 to 98%.

Awards and Honours

- Dr. M. V. Singh received IZA-FAI award 2010 for promoting the use of Zn in Agriculture (Below Left).
- Dr. Muneshwar Singh, Project Coordinator (LTFE) received the Fellow of the Indian Society of Soil Science during its 75th Annual Convention held at IISS, Bhopal during November 14-17, 2010 (Below Right).



- Dr. Asit Mandal received ISSS Best Doctoral Research presentation award during 75th Annual Convention of Indian Society of Soil Science held at IISS, Bhopal during November 14-17, 2010. (Bottom Left)
- Dr. S. Ramana received the fellowship and the Academy for Advancement of Agricultural Science award from Indian Society for Plant Physiology during November 25-27, 2010. (Bottom Right)



Extension activities

Drs. N.R. Panwar and Asit Mandal participated in Science Fiesta organized by Regional Science Centre, Bhopal during 10- 12 November 2010. During this programme institute activities and achievements were demonstrated.

Various students from schools and colleges visited and discussed about the institute activities and achievements.

Dr. A. B. Singh coordinated the visits of the farmers in the institute on 24/11/2010, arranged by Agriculture Development Department, Dewas.

Drs. A. B. Singh, M. C. Manna and A. K. Tripathi delivered lectures on 14/12/2010 on "Organic Farming" and "Composting Techniques" to the farmers and extension workers.

Independence Day

The Staff Recreation Club (SRC) celebrated the Independence Day on 15th August, 2010.

Visits Abroad

Dr. A. Subba Rao, Director and Dr. K. Sammi Reddy, Principal Scientist visited Australia and participated in the 19th World Congress of Soil Science (WCSS) at Brisbane during 1-5 August 2010. They presented two papers in oral session on Integrated Nutrient Management at WCSS. The visit paved the way for an opportunity to share the research outcomes of ICAR-ACIAR project on integrated nutrient management with other scientists of different countries who are working on the subject. A new research proposal has also been developed and concept note submitted to the ACIAR, Canberra for funding. In this project, IISS will have collaboration with the Queensland Department of Energy and Resource Management (QDERM), Brisbane and the University of Queensland (UQ) in the proposed project.



Indian delegates with Dr. N. S. Bolan at 19th WCSS, Brisbane

Dr. A. Subba Rao and Dr. K. S. Reddy at the University of Queensland, Brisbane

International Cooperation Activities/ Foreign Training Attended

Dr. S. Ramana had undergone a foreign training on Bioremediation at Centre for Environmental Risk Assessment and Remediation, Australia (USA, Adelaide) during July to September, 2010.

Dr. Ramana also participated in the 19th World Congress of Soil Science (WCSS) at Brisbane, Australia during 1-5 August 2010.

Visit of South African delegates

South African delegates visited IISS, Bhopal during 17-19 November 2010 under ASARECA- ICAR Agreement. Dr. R.S. Chaudhary and Mr. Manoranjan Mohanty of Soil Physics division coordinated the visit. The delegates were appraised with the research activities, basic and applied research achievements of the institute and the delegates were impressed with the technologies developed by the institute



South African delegates at the institute

Personnel News

New Appointments

Dr. Nishant Kumar Sinha joined as Scientist on 27/08/2010.

Dr. Jyoti Kumar Thakur joined as Scientist on 27/08/2010.

Mr. Mohan Lal Dotaniya joined as Scientist on 28/08/2010.

Shri S. Rajendran joined as Scientist on 10/01/2011.

Joining

Shri N.R.Verma joined as Senior Administrative Officer on 08/10/2010.

Promotions

Shri P.S. Sunil, Assistant promoted to Assistant Administrative Officer on 16/10/2010

Smt. Kirti Singh Bais, Stenographer Gr.III promoted as Personal Assistant on 18/12/2010.

Transfers

Dr. K.B. Hebbar, Pr. Scientist transferred as Head to CPCRI, Kasargod on 28/09/2010.

Shri Kumar Vivek, Administrative Officer transferred to CPRI, Shimla on 16/10/2010.