



ICAR-IISS Newsletter



IISS

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January - June 2016

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VISIT OF OUR NEW SECRETARY, DARE AND DIRECTOR GENERAL, ICAR



We are greatly privileged to congratulate Dr. Trilochan Mohapatra on assuming the charge of Secretary, Department of Agricultural Research and Education & Director General, Indian Council of Agricultural Research, New Delhi on 22nd February, 2016. An internationally renowned scientist of excellence Dr. Mohapatra was earlier holding the position of Director-cum-Vice Chancellor of the prestigious ICAR-Indian Agricultural Research Institute, New Delhi. Prior to this, he worked as the Director of ICAR-National Rice Research Institute (formerly CRRI),

Cuttack. He is a scientist of global repute working in the area of molecular genetics and genomics. He has over 150 research papers in national and international journals of repute and several other publications. His research accomplishments include development of the first high yielding Basmati rice variety resistant to bacterial leaf blight through molecular marker assisted selection, and physical mapping and genome sequencing of rice and tomato. He is a recipient of several fellowships and prestigious awards for his outstanding contribution in the field of agricultural sciences. He is a Fellow of the Indian National Science Academy, New Delhi, National Academy of Sciences-India, Allahabad and the National Academy of Agricultural Sciences, New Delhi. He has an impeccable track record as researcher, teacher and an able administrator.

He made a visit to ICAR-Indian Institute of Soil Science, Bhopal on 24th February, 2016 and addressed a gathering of scientists and staff of ICAR-Indian Institute of Soil Science, Bhopal. He was accompanied by Dr. J.S. Sandhu, DDG (Crop Science), Dr. P.K. Ghosh, Director, ICAR-IGFRI and Dr. N.P. Singh, Director, ICAR-IIPR. Dr. Ashok K. Patra Director, ICAR-IISS welcomed Honorable DG Dr. Mohapatra and other dignitaries and briefed about the institute's activities. In his address honorable DG emphasized that declining total factor productivity and deteriorating soil health is a major concern and natural resource management scientists need to play a pivotal role in sustaining productivity without deteriorating soil health in the long run. He stressed the importance of best management practices to sustain the soil organic carbon for major soil types. He lauded the achievements made by ICAR-IISS especially in preparation of soil fertility maps, formulating INM packages and *Mridhaparishak*. We strongly believe that under his dynamic leadership and guidance, ICAR will stride new heights of success and the institute will grow further to become a distinguished research institute. We extend him our full co-operation and wish him grand success in his all endeavours.



ICAR-Indian Institute of Soil Science, Bhopal (An ISO 9001: 2008 Certified Institute)



Spectroscopic Techniques for Soil Characterization

The fundamental ability of a soil to continually provide ecosystem sustaining functions is ensured by preserving its health and taking immediate measures to restore it whenever necessary. This requires continuous acquisition of relevant soil property information. Several methods have been developed to obtain soil quality information. Traditionally, soil health information has been obtained through conventional laboratory analysis. This is, however, time consuming, labour intensive and costly. Diffuse reflectance infrared spectroscopy (IR) is an evolving technology for rapid, non-destructive characterization of the composition of soil based on the interaction of electromagnetic energy with matter.

Internationally, considerable research effort is going on for developing near infra-red (NIR) and middle infra-red (MIR) calibrations for rapid estimation of soil parameters. The application of infrared spectroscopy in soil fertility is largely dependent on spectra pre-treatment and multivariate calibration due to strong interferences in the spectra. Partial least square (PLS), random forest (RF) and artificial neural network (ANN) are widely used mathematical tools in the prediction of soil properties and generation of information on soil health. Due to advances in spectrometer hardware, computing and statistical software, MIR spectroscopy have shown great potential compared to the NIR spectroscopy for fast, accurate and cheap soil analysis with particular application in the field and where high spatial density is needed. Over the last two decades or so, the application of MIR spectroscopy has come under increasing investigation for the analysis of soils. To make full use of soil MIR spectra, soil spectral library construction is needed and standardized chemometric models are required to be constructed for regional or localized prediction of soil properties. Recently, different prediction models for soil properties are being developed by this institute in collaboration with World Agroforestry Centre (ICRAF), Nairobi using partial least square (PLS) regression and random forest regression techniques. The chemometric models developed for black soils of Madhya Pradesh are being validated with independent data set. The infrared spectra of soil can be used as an integrated measure of soil quality, so as to classify sites according to their degradation status or for monitoring the effect of an ecological factor on soil quality. X-ray fluorescent spectroscopic techniques supplement soil analysis by quantitatively estimating the elemental composition of soil samples. This is very useful for identification of heavy metal contamination in soils irrigated with sewage sludge in the peri-urban areas and also for micro-nutrient analysis of soil.

This ICAR-IISS newsletter entails the work done by the institute scientists on different aspects of soil science research, extension and capacity building during the period January-June, 2016. During this period, the institute continued to work on different aspects of conservation agriculture and demonstrated the best conservation agriculture practices on farmers' field. The institute has also done work on soil carbon modeling and climate change scenarios. During this period, institute scientists initiated the work on *in situ* decomposition of residues and enhancement of soil health, which will have larger implication in the years to come as residue burning is a challenging problem before the agricultural scientist. The institute scientists were bestowed with different awards, fellowships and foreign visits during this period. I firmly believe that with the active involvement of scientists in institute activities, we shall definitely attain the goal of food sufficiency with minimal environmental degradation.


(Ashok K. Patra)
Director

Short-Term Effect of Conservation Agriculture Practices on Soil Quality

Short-term (3 years) effect of three contrasting tillage systems viz., no-tillage, reduced tillage and conventional tillage and four cropping systems viz., soybean + pigeon pea (2:1), soybean-wheat, maize + pigeon pea (1:1) and maize-chick pea on crop yield and soil quality parameters were studied through a field experiment in a Vertisol of central India. Correlation analysis of seven soil physico-chemical attributes showed a highly significant correlation ($P < 0.01$) in eight and significant correlation ($P < 0.05$) in four attribute pairs out of the 49 soil attribute pairs. Soil quality as expressed through soil quality index (SQI) was better in maize + pigeon pea (1:1) and soybean + pigeon pea (2:1) under reduced tillage and no tillage systems as compared to the conventional tillage system. Conventional tillage showed negative effect on soil quality and it may not be good for maintaining good soil health and sustainable agricultural production in the long run. The value of SQI



was positively and significantly correlated with soybean grain equivalent (SGE) yield for all the tillage and cropping system. This indicates that the index parameters may be used for computing the soil quality under different management practices.

Modelling Soil Organic Carbon using APSIM Model from the Long-term Fertilizer Experiment (LTFE) of Jabalpur

Worldwide, several biogeochemical models such as Century, RothC and DNDC have been used to simulate soil organic carbon (SOC) dynamics from field to regional scale. Most models divide SOC into several conceptual pools and simulate the decomposition as a first-order decay process. In agro-ecosystems the composition of SOC, can be significantly altered by changing the crop rotations and management practices such as nutrient, tillage and addition of crop residue. Further, an increase or decrease in crop growth can potentially affect the amount of SOC that can be sequestered in soil. Hence, crop models that involve SOC dynamics may provide robust and more precise methods to estimate SOC changes arising from management practices over different landscapes and time periods. In this study, we have tried to explore the possibilities of using APSIM crop simulation model to simulate SOC from the surface layer (0-15 cm) under the balanced fertilization of a long-term fertilizer experiment. Results indicated that the APSIM model could explain the observed changes in SOC over 40 years of experimentation with good coefficient of determination ($R^2=0.69$) and root mean square error (RMSE=0.02%).

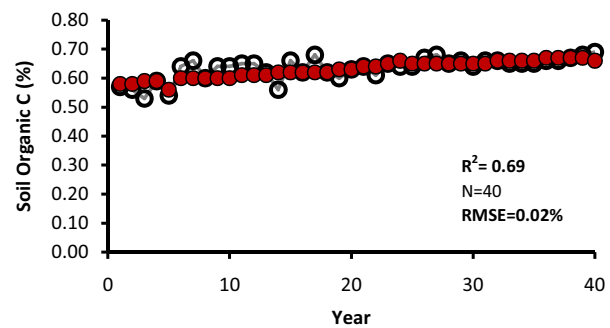


Fig. 1. Validation of APSIM model for SOC concentration at 0-15 cm soil layer in balanced fertilization treatment from the long-term fertilizer experiments in vertisols from Jabalpur. Empty circle represents observed data and filled circles represent predicted values from the

Quantification of Carbon Sequestration and Soil Quality Changes under the Practice of Conservation Agriculture

To monitor the changes in soil quality parameters under the conservation agricultural practices, soil samples from 0-15 and 15-30 cm of soil depths were collected from experiments under soybean, rice and maize based cropping systems at Directorate of Weed Science, Jabalpur. Soils chemical (pH, EC, Organic Carbon, Labile C, and available N, P, and K) and biological parameters (Dehydrogenase

activity, FDA and alkaline phosphatase activity) were analyzed after the completion of 3 years of experimentation. The perusal of data from CA experiments of Jabalpur indicated that maximum build up of SOC (0.87%) was recorded from rice based cropping system where zero tillage along with residue retention was practiced. This is significantly higher than the SOC content of conventional tilled plots both with the residue burnt and retained treatments. Similar observations were also recorded in maize based cropping system. We measured $KMnO_4$ oxidisable C under different CA experiments of Jabalpur to measure management induced changes in soil quality parameters. It was observed that labile C content (0-15 cm soil depth) was significantly higher under zero tilled plots along with residue retained (519 mg kg^{-1}) in rice based cropping system in comparison to conventionally tilled with residue retained (429 mg kg^{-1}). Similar trend was also recorded in maize and soybean based cropping systems. In both these experiments, zero tilled plots with residue retained maintained higher level of labile C in comparison to conventional tilled plots with no residue retention.

Integrated Assessment of Some IISS Technologies for Enhancing Agro-Ecosystem Productivity and Livelihood Sustainability

Three promising technologies developed by the institute viz., Integrated Plant Nutrient Supply System (IPNS-I) that recommends integrated use of farmyard manure, synthetic and bio-fertilizers, Soil Test based Fertilizer Recommendation for Targeted Crop Yields (STCR), and use of Phospho-Sulpho-Nitro Compost in IPNS instead of farmyard manure (IPNS-II) were demonstrated for three years in six farmers' fields. The average yields of wheat cv. GW-322 recorded were 40.32 q ha^{-1} for IPNS-I, 44.92 q ha^{-1} for IPNS-II, 42.67 q ha^{-1} for STCR, and 37.17 q ha^{-1} for farmers' practice. The highest yield in the current season was recorded in the IPNS-II treatment field of a resource rich farmer (48.00 q ha^{-1}) while the yield from farmers' practice treatment for the same farmer field was 41.25 q

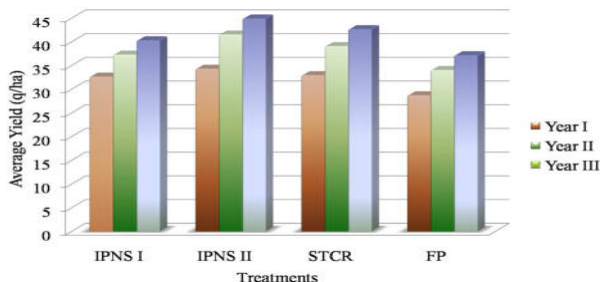


Fig. 2 Performance of wheat crop during the three years period

ha^{-1} . The lowest yield was recorded in the farmers' practice treatment of a degraded field (28.75 q ha^{-1}) while the maximum obtained for the same farmer's field was 37.50 q ha^{-1} in IPNS-II treatment. The average yields for the wheat crop in the three crop seasons (Fig. 2) showed positive response of IISS interventions.

Performance of Maize under N Delivery through Biochar

Nitrogen supply to maize crop was studied through biochar, prepared from pigeon pea stalks, as a carrier with an objective to improve the productivity by minimizing the leaching losses of nitrogen. The nitrogen dose was supplied at 15 and 50 DAS. Application of 120 kg N ha^{-1} in two splits resulted in highest grain yield. The grain yield was significantly reduced with the supply of N after mixing with $2 \text{ t biochar ha}^{-1}$ in two splits. Further decrease in the yield was recorded with application of same quantity of nitrogen through 5 and $10 \text{ t biochar ha}^{-1}$. A similar trend in yield was observed with a lower dose of 80 kg N ha^{-1} .

Impact of Fe, Cu and Zn Nanoparticles (NPs) on Wheat Growth and Metabolism

The impact of Fe, Cu and Zn nano-micronutrient fertilization on growth and metabolism of wheat was studied under sand culture system. Plant growth and yield parameters viz., plant height, root length, shoot biomass, root biomass, grain yield and chlorophyll content were analyzed in the nano-micronutrient treated plants (Fig. 3). The optimal concentration (100%) of Fe ($54 \mu\text{M}$), Cu ($0.5 \mu\text{M}$) and Zn ($2 \mu\text{M}$) NPs positively influenced plant growth parameters of wheat, while sub-optimal concentration (50% of optimal) positively influenced biochemical metabolism only. Gas exchange parameters were also positively influenced by NPs. Enhancement of antioxidant enzyme activities with NP application was observed which



Fig. 3. Impact of optimal and sub-optimal concentration of Fe NP on wheat

indicated reactive oxygen species scavenging in the cell. NPs at reduced concentration might have acted as catalyst for growth, metabolism and yield of plants. These findings indicated that there is a possibility of reducing the dose of Fe supplement of plants using its nano form which can increase the nutrient use efficiency in a major cereal crop.

Differential role of Ammonia Oxidizing Bacteria and Archaea in Redox Metabolism

To elucidate the cross phyla interaction, rhizospheric soil samples from rice and chickpea were collected from experimental plots located at JNKV, Jabalpur. Soils were treated with and without sulfadiazine and incubated under flooded condition to induce TEAPs (Terminal Electron Accepting Processes). Concentration of NO_3^- , Fe^{3+} , SO_4^{2-} in slurry and headspace CH_4 were analyzed. Bacterial population was estimated by real time PCR targeting 16S rRNA gene.

During incubation, anaerobic respiratory redox processes occurred with alternative electron acceptors being sequentially reduced in the order of NO_3^- , Fe^{3+} , SO_4^{2-} and CO_2 . Concentration of NO_3^- in chickpea was 0.4 mM. Fe^{3+} reduction started after 5 days and peaked to 0.08mM after a week. Initial SO_4^{2-} was 0.14 mM g^{-1} soil. Reduction of SO_4^{2-} occurred after 12 days and decreased to 0.025Mm after 20 days. CH_4 production started after 40 days of flooding and steadily increased to 300 $\mu\text{g g}^{-1}$ soil. In rice, initial NO_3^- concentration was 0.28mM and denitrification was completed after 2 days. Fe^{3+} reduction started after 3 days and peaked to 0.07mM at 6 day. Initial SO_4^{2-} concentration in rice soil was 0.15mM and sulfate reduction started after 12 days. Methanogenesis started after 35 days and peaked to 600ug g^{-1} soil after end of incubation. In both soils, sulfadiazine inhibited reduction of terminal electron acceptors. Copy number of bacterial 16S rRNA gene was estimated from soil samples before after each TEAPs. Rhizospheric soil of chickpea had higher bacterial population than rice soil irrespective of treatments. Bacterial abundance decreased over TEAPs. Experiment was based on the fact that sulfadiazine inhibits growth of AOB (Ammonia Oxidizing Bacteria). Linkage of AOA (Ammonia Oxidizing Archaea) with TEAPs was established by restricting the growth of AOB by sulfadiazine. Real time PCR revealed that bacterial population decreased over reductive phases. It could be due to niche specificity of bacteria in response to soil reduction. Soil without sulfadiazine represented metabolic response

of both AOB and AOA, while with sulfadiazine the metabolic response was restricted to AOA. Our experiment indicated that the linkage between nitrification and TEAPs is generally established by AOB and AOA. If AOB nitrification is blocked then AOA would initiate the nitrification and modulate TEAPs in flooded soil ecosystem.

Risk Assessment of Sewage Water Irrigation for Crop Production

Crop plant samples were collected from *Patranala* sewage water irrigated field and analyzed for risk assessment by computing hazard quotients (HQ) described by Pierzynski et al. (2000), i.e. the ratio of average daily dose to reference dose for intake of heavy metal through consumption of these green leafy vegetables. The HQ values for wheat, palak, coriander, radish, *chenopodium* regarding Cu, Pb, Cr, Ni and Zn showed less HQ value i.e. far less than 1. Hence, all these leafy vegetables produced from the sewage water are not likely to induce any ill effect to consumers (human) as far as heavy metal concentrations are concerned.



Fig 4. Collection of plant samples from Patranala sewage water irrigated field

Influence of Climate Change and Biochar on Biodegradation of Chloropyrifos and Imidacloprid

Experiments were carried out to determine degradation of pesticide (imidacloprid, chloropyrifos) under the influence of climate factors and biochar (BC). Climate factors were soil moisture holding capacity (MHC) (60% MHC, 100% MHC), CO_2 concentration (400 ppm, 800 ppm), and temperature (25° C and 45° C). Soils were incubated in pre-sterilized serum vials. Biochar produced from pigeon pea biomass was added at 10% w/w. Sterile distilled water was added to maintain 60% and 100% moisture holding capacity (MHC). Aqueous stock solution of imidacloprid

RESEARCH HIGHLIGHTS

and chloropyrifos were added to soil at 10 ppm final concentrations. CO₂ mixing ratios in the vial headspaces were maintained at ambient (400±20, and 800±20 μmol mol⁻¹ (ppm). Vials were incubated at different temperature in incubators. Result revealed that pesticide degradation was not complete even after 30 days. Climate factors influenced pesticide degradation. Both pesticides varied in their response to climate changing factors. In general,

chloropyrifos degradation was low at 25°C than that at 45°C. Biochar stimulated pesticides degradation irrespective of treatments. Elevated CO₂ negatively impacted biodegradation process. Chloropyrifos concentration (μg g⁻¹) ranged from 3.11 to 8.05 at 25°C. Similarly, at 45°C its concentration ranged from 1.48 to 5.39 (μg g⁻¹). Imidacloprid concentration ranged from 2.68 to 6.77 (μg g⁻¹) at 25°C and 1.03 to 6.74 (μg g⁻¹) at 45°C.

AWARDS/HONOURS/RECOGNITIONS

- ICAR-IISS: Awarded Mahindra Samriddhi Krishi Sansthan Samman-2016, a recognition given to a public sector organization for its noteworthy and purposeful contribution to the field of agriculture



- Dr. Pramod Jha received Dr. B.C. Deb Memorial Award, for Soil/ Physical Chemistry of Indian Science Congress Association
- Dr. S. Rajendiran received Young Scientist Award by Aufau Periodicals, Salem (T.N.) on the occasion of 2nd National Conference on Fundamental and Applied Chemistry on 4th June 2016 at Salem
- Dr. Asha Sahu awarded Young Scientist Fellowship-2016 for training by Madhya Pradesh Council of Science and Technology
- Dr. A.K. Patra (Director) elected as Vice President of the Indian Society of Soil Science, New Delhi for the period of 2016-17
- Dr. A.K. Patra (Director) elected as Sectional President of Agriculture & Forestry Sciences Section of the Indian Science Congress Association, Kolkata for the period of 2016-2017
- Dr. A.K. Patra (Director) acted as Associate Editor, European Journal of Soil Science, UK
- Dr. Pradip Dey acted as Member Secretary, National Level Committee under Mission Soil Health Card Scheme constituted by Honourable Secretary, DARE & DG, ICAR
- Dr. Pradip Dey elected as Vice President, Indian Society of Agrophysics, New Delhi
- Dr. Sanjay Srivastava elected as Councillor of Indian Society of Soil Science for the Biennium 2016-17 and 2017-18
- Dr. K. Ramesh elected as Councillor of Indian Society of Agronomy, Madhya Pradesh for the year 2015-17
- Dr. Pramod Jha delivered lecture on Soil Carbon Dynamics and Stabilization in different Agro-ecosystems of India during 103rd Indian Science Congress held at Mysore University, Mysuru during 3-7 Jan 2016.
- Dr. A. K. Vishwakarma as Chairman of the team participated and displayed Institute technologies and won Best Vigyaan Pavellion Award in the 5th Bhopal Vigyan Mela during 20-23 February, 2016 organized by M.P. Council of Science and Technology
- Dr. M. L. Dotaniya awarded Excellence in Research Award-2016 by EET CRS Science & Technology on 12th June 2016 at Bangalore
- Dr. Sangeeta Lenka received Best Research Paper Award in International Conference on Water, Environment, Energy and Society jointly organized by AISECT University, Bhopal and ATM Texas A & M University, USA, from 15th to 18th March 2016

INTERNATIONAL COOPERATION/DEPUTATION

- Dr. T. Adhikari, Pr. Scientist has successfully completed six months deputation (26th August 2015 to 25th February 2016) on Postdoctoral fellowship sponsored by Endeavour Research Programme at Global Centre for Environmental Remediation, Faculty of Science and Information Technology, The University of Newcastle (UN), Callaghan, New South Wales, Australia
- Dr. Ashok K. Patra attended 'IGAD-GODAN Pre-Meeting at RDA 7' during February 27- March 02, 2016 at Tokyo, Japan
- Dr. M. Mohanty participated in 'Workshop cum Group Meeting on Climate Change and Agriculture' at New York University, New York, USA during April 11-14, 2016.
- Deputation of Dr. M. C. Manna for Endeavour Executive Fellowship at The University of Newcastle, Callaghan Campus, GCER, NSW, Australia from 01 June 2016 to 30 September, 2016.
- Deputation of Dr. M. Vassanda Coumar for Endeavour Research Fellowship at The University of Newcastle, Callaghan Campus, GCER, NSW, Australia from 01 June 2016 to 30 November, 2016.

EXTENSION ACTIVITIES

- Kisan Divas were organized at Khamkheda and Momanpur villages on 5th March, 2016 and 11th March, 2016, respectively under the Aegis of Consortium Research Platform on Conservation Agriculture
- Kisan Sangosti was organized on 16th March, 2016 at Perwalia Sadak Bhopal under Mera Gaon and Mera Gaurav (MGMG) National Programme.
- Kisan Sangosti was organized on Soil Health Management in Pulse Crop Production at Shahpur, Bhopal on 16th May, 2016.



Workshops/Training Programmes Organized

- A capacity building programme was organized on Importance of Soil Health Card for Soil Health Management during 27-28 January 2016 in collaboration with Directorate of Extension Services, RVSKVV, Gwalior.
- Three training programmes on Soil Testing and Preparation of Soil Health Cards for Officers from State Department of Farmers' Welfare & Agriculture, Govt. of MP were organized during 8-12 February 2016, 9-10, March and 21-22 March, 2016.
- A one-day workshop on soil health card preparation at ICAR-IISS, Bhopal was organized for officials (125 nos.) of Dept. of Farmers' Welfare and Agricultural Development on 26th March, 2016.
- The Annual Progress-cum-Review Meeting of

Workshops/Training Programmes Organized

Consortia Research Platform on Conservation Agriculture at ICAR-IISS, Bhopal was organized on 29th March, 2016. Dr. AK Sikka, DDG (NRM), Dr. SK Chaudhari, ADG (SWM) and Dr. CL Acharya, Chairman, RAC apart from participants from 11 cooperating centres graced the occasion.

- A training on Advance Tools and Analysis of Micro and Secondary Nutrients and Pollutant Elements was organized from 2 - 12 March 2016 at IARI, New Delhi for scientific staff of AICRP-MSN.
- A field day cum capacity building program on Soil Test and Target Yield Approach for Increased Crop Productivity was conducted at Ngairangbam village of Haorang Sabal Block, Imphal West district, Manipur on 7th March, 2016.
- A short course was organized on Secondary and Micronutrient Analysis in Soil for Enhancing Crop



Production sponsored by Department of Farmers Welfare and Agriculture Development, Ujjain Division, M.P during 23-28 May, 2016 at ICAR-IISS, Bhopal.

- A training programme on Soil Health Assessment and Management for Agriculture Officers of MP was organized during 6-10 June, 2016 at ICAR-IISS, Bhopal.
- ICAR-IISS and ICAR-CRIDA jointly organized one-day workshop on enhancing the preparedness of Agricultural Contingencies in *Kharif* 2016, for Madhya Pradesh, under NICRA on 21 June, 2016.
- A one-day Co-ordination cum Review Meeting of the ICAR-ICRAF Collaborative Programme on 'Infrared Spectroscopy Use in Soil Health Assessment' was organized on June 26, 2016.



DISTINGUISHED VISITORS

Name	Designation	Date
Dr. J.C. Rama	Member of Legislative Assembly, Kanke, Ranchi	14-01-2016
Dr. Trilochan Mohapatra	Secretary (DARE) and Director General (ICAR)	24-02-2016
Dr. J.S. Sandhu	DDG (Crop Science)	24-02-2016
Dr. P.K. Ghosh	Director, ICAR-IGFRI	24-02-2016
Dr. N.P. Singh	Director, ICAR-IIPR	24-02-2016
Dr. A.K. Sikka	DDG (NRM)	29-03-2016
Dr. I. P. Abrol	Director, Centre for Advancement of Sustainable Agriculture	16-04-2016
Dr. S. K. Chaudhari	ADG (SWM)	26-06-2016
Dr. Javed Rizvi	Regional Coordinator, South Asia, ICRAF	26-06-2016
Dr. Erick Towett	Expert from World Agroforestry Centre, Nairobi, Kenya	26-06-2016

DISTINGUISHED VISITORS



Dr. S. K. Chaudhari, Dr. Javed Rizvi, Dr. Eric Towett reviewing the ICAR-IISS and ICRAF collaborating research project



Dr. J.C. Rama Honourable Member of Legislative Assembly, Kanke, Ranchi interacting with Scientists of the Institute



Dr. T. Mohapatra, Hon'ble DG, ICAR, Dr.J.S. Sandhu, DDG (Crop Science), Dr. P.K. Ghosh, Director, ICAR- IGFRI addressing the staffs of ICAR-IISS.



Dr. I. P. Abrol, Director, CASA grace the occasion of Institute's Foundation Day

Programmes Held

Institute Research Council (IRC) Meeting

Institute Research Council (IRC) meeting for presentation of concluding projects and new projects was organized during 15-16th January, 2016. The meeting was organized under the chairmanship of Dr. A.K. Patra, Director. The salient findings of 12 projects to be completed were presented and deliberated in the meeting. Also, 2 new project proposals were presented and discussed.

Republic Day Celebration

ICAR-IISS celebrated the 67th Republic Day on 26th January, 2016 with great zeal and enthusiasm. On the occasion, Director of the institute hoisted the National Flag in presence of all staff members and their families. In his address, Director appreciated the accomplishment achieved by the staff members during the previous year and reminded about the responsibilities to make our institute as well as the country proud. The Staff Recreation Club of the institute organized various sports and cultural events for the staff and their family members on the day.

International Women's Day

ICAR-IISS celebrated International Women's Day with great enthusiasm with the theme of "Planet 50-50 by 2030: Step It Up for Gender Equality" on 11th March 2016. The Women Cell of IISS organized different competitions for the women staffs and spouses. The program was

inaugurated by Chief guests namely Dr Lekha Sushil, Mrs Aradhana Hans and Mrs Reena Patra.



Kisan Sangosthi

ICAR-Indian Institute of Soil Science, Bhopal organized a *Kisan Sangosthi* on Soil Health Management in Crop Production with special emphasis on Pulse Crops under 'Mera Gaon Mera Gaurav' program on 16th March, 2016 at Parwalia Sadak village, Phanda Block, Bhopal.



Programmes Held

Research Advisory Committee (RAC) Meeting

The XXII meeting of the Research Advisory Committee (RAC) of the Institute was held under the chairmanship of Dr. CL Acharya on April 4-5, 2016. Dr. T.K. Adhya, Dr. N.S. Raghuwanshi, Dr. S.K. Chaudhari, ADG (S&WM), Dr. A.N. Ganeshamurthy attended the meeting. The RAC deliberated on the work in progress and thrust areas of research keeping in view the mandate and vision of the Institute and made recommendations.



29th Foundation Day

The 29th Foundation Day of ICAR- Indian Institute of Soil Science was celebrated on April 16, 2016 at the institute campus. Dr. I.P. Abrol, Director, Centre of Advancement of Sustainable Agricultural, NASC, New Delhi and Former Deputy Director General (NRM), ICAR graced the occasion as the Chief Guest. Dr. A. Subba Rao, Former Director, ICAR-IISS, Dr. K. K. Singh, Director, ICAR-CIAE and Dr. P.K. Ghosh, Director, ICAR-IGFRI, Jhansi were Guests of Honour of the foundation day celebration function. Dr A.K. Patra, Director, welcomed the dignitaries and participants and appraised about the progress made by the institute. Dr. Abrol in his lecture emphasized the importance of soil organic carbon and conservation agriculture for the sustainability of soil health. He also stressed on the need of interdisciplinary research for solving the complex future research problems. Some important publications from the institute were released on the occasion.



Swachhhta Pakhwada

Swachhhta Pakhwada at ICAR-Indian Institute of Soil Science was celebrated with great enthusiasm and activities during 16-30 May, 2016. During the *Pakhwada* several cleanliness activities were initiated on and off the institute campus. On the very first day, all the scientific, administrative and supporting staff of the Institute had taken *Swachhhta Pledge* and attended a cleanliness drive in and around the campus. Further, 12 teams each comprising of 6-7 members were formed and was allocated discrete responsibilities to clean institute premises along with the adjoining areas.



Swachhhta pledge at ICAR-Indian Institute of Soil Science



Creating awareness and organizing seminar on environment related issues at Parwakheda village during the *Swachhhta Pakhwada*

International Yoga Day

International Yoga Day was celebrated at ICAR - Indian Institute of Soil Science, Bhopal with great zeal and enthusiasm on 21st June, 2016. The program was organized in two sessions. The first session started



Programmes Held

with Surya Namaskar. Yoga experts – Mrs Arma Shri Saxena, Masharshi Vedik Sanskrit Kendra, Bhopal conducted the Surya Namaskar comprising 12 sets of

Asanaas in a span of 15 minutes. Yoga and various asanas were practiced by the staff of the institute in the morning.

Staff News

Promotion of Scientist through CAS		w.e.f.
Dr. Sangeeta Lenka	Scientist RGP 7000 to 8000	08.01.2016
Dr. N.K. Sinha	Scientist RGP 6000 to 7000	20.04.2014
Dr. M. Mohanty	Scientist RGP 8000 to Sr. Scientist 9000	10.11.2013

Staff Promoted		w.e.f.
Shri. Jai Singh	Technical Officer to Sr. Technical Officer	22.05.2016
Shri. N.S. Yadav	Sr. Technical Assistant to Technical Officer	29.06.2016
Shri. Sukhram Sen	Technical Assistant to Sr. Technical Assistant	29.06.2016

New Staff Joined		Date
Dr. Sonalika Sahoo, Scientist		11.04.2016
Dr. Gurav Priya Pandurang, Scientist		11.04.2016
Shri Somnath Mukherjee, LDC Revert back		06.06.2016

Scientists' Participation in Conferences/ Seminars/ Trainings/ Workshops

Name	Programme	Venue	Date
Drs. AK Patra, Pradip Dey, K. Ramesh, Pramod Jha and Asha Sahu,	103 rd Indian Science Congress	University of Mysore, Mysuru, Karnataka.	January 5-7, 2016
Dr. A B Singh	Workshop on Organic Farming	IIFSR, Modipuram (Uttar Pradesh)	January 7-8, 2016
Dr. Pradip Dey	National Conference on Sustainable Agriculture and Farmers' Welfare	Chintan Bhawan, Gangtok, Sikkim	January 17 – 18, 2016.
Dr. K.M. Hati	Workshop on “Competency Development for HRD Nodal Officers of ICAR”	NAARM, Hyderabad	February 10-12, 2016.
Dr. Ashok K. Patra	Technical Advisory Committee Meeting	Krishi Bhawan, New Delhi	February 12, 2016.
Dr. A.K. Shukla	MOSAIC Seminar	New Delhi	February 26, 2016
Dr. Pradip Dey	National Seminar on Environmental Concern for Fertilizer use in Future	BCKV, Kalyani	February 26, 2016
Dr. Ashok K. Patra and Dr. Sanjay Srivastava	Mahindra Samridhi India Agri Award Ceremony and received the "Best Krishi Sansthan Samman National Award" for ICAR-IISS, Bhopal	New Delhi	March 03, 2016

Name	Programme	Venue	Date
Dr. Pradip Dey	National Seminar on Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption	Imphal, Manipur	March 3, 2016
Dr. Ashok K. Patra	India Consultation Meeting	CGIAR and ICAR at NASC Complex , New Delhi	March 22, 2016
Drs. N.K. Lenka and M. Mohanty	Workshop on DST's Knowledge Network on Climate Change and Agriculture	NASC Complex, New Delhi	April 28-29, 2016
Dr. Sanjay Srivastava	Delegation deputed to participate in the First Meeting of India-Afghan Task Force	Kabul, Afghanistan	May 9, 2016
Dr. A.K. Shukla	FAI Roundtable Conference	New Delhi	May 23, 2016
Dr. D.L.N. Rao	Conference on 'Pulses for Sustainable Agriculture and Human Health' organized by IFPRI	NAAS, New Delhi	May 31- June 1, 2016
Dr. Ashok K. Patra	NAAS Foundation Day and General Body Meeting	NAAS, New Delhi	June 4-5, 2016
Drs. Pradip Dey and A.K. Biswas	Workshop to Review the Status of Nutrient Use Efficiency (NUE) in Different Crops	Krishi Bhawan, New Delhi	June 21, 2016
Dr. N. K. Sinha	Meeting on Roth C Model Calibration and Validation under NICRA Project	ICAR-NBSS&LUP, Nagpur	22-23, June, 2016
Dr. M. Mohanty	Theme Co-ordinator Meeting (agriculture) of DST Program on Hyperspectral Remote Sensing	ICAR-NBSS & LUP Nagpur	22-23, June, 2016

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Dr. Ashok K. Patra

Director

ICAR-Indian Institute of Soil Science

Nabibagh, Berasia Road, Bhopal, Madhya Pradesh-462038

Web: <http://www.iiss.nic.in> Email:director@iiss.res.in Phone:+917552730946 Fax: +917552733310

