IISS Newsletter

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New Publications

In This Issue

Forth Coming Events

- MTC on "Conservation Agriculture for Sustaining Soil Carbon, Quality and Productivity in Rainfed Region" during 10th to 17th September, 2012.
- Short Course on "Application of Nanotechnology in Soil Science" during 18th - 27th September, 2012
- Short Course on Use of "Simulation Modelling in Climate Change" during 3rd - 12th October, 2012
- National Seminar on "Strategies to Rationalize and Reduce Consumption of Water Soluble Phosphorus and Potassium in the Country to Minimize Imports" during 18-20 December, 2012.

Directors Desk

Carbon Trading in Indian Agriculture: The need

Climate change and resulting weather extremes are the two most important issues confronting mankind today. It is caused by increase in concentration of greenhouse gases (GHGs) in the atmosphere. The three most chemically potent GHGs are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) which help to maintain the congenial temperature needed for the existence of all forms of life on earth. However the increase in concentration of GHGs by human activities is the cause of concern otherwise greenhouse effect and GHGs is beneficial. Among different sources, contribution of agricultural soil to total GHG concentration is 28% (world) and 19% (India). Globally, agriculture accounts for 54% of anthropogenic methane and 58% of nitrous oxide emissions. There is a continued scientific consensus globally of the need to make drastic cuts in GHGs emissions. In this context emission trading or carbon credit schemes are required for halting and reversing the global warming and climate change. With the continued development of carbon (C) markets in India, and with little realization that the management of agricultural land is an integral part of that market, the need for listing out climate friendly best management practices is increasing. In India, contribution of agricultural sector is estimated to be approximately 18 per cent to total greenhouse gas emissions. Agricultural soils could be considered as a potential sink for carbon dioxide (CO_2). The potential of soil carbon sequestration in India is estimated at a range of 39 to 52 Tg C yr^{-1}, which includes through restoration of degraded soils (7.2-9.4 Tg C yr^{-1}), and reduction in erosion-induced emission of C (4.3-7.2 Tg C yr^{-1}). From this perspective, the role of soil carbon in mitigating climate change is important.

For agriculture sector, the CDM (Clean development mechanism) has approved only a few methodologies that are directly viable. The potential in agriculture needs to be exploited and greater efforts are needed to demonstrate significant savings through agriculture and forestry projects and to establish markets where farmers are paid to adopt certain practices believed to sequester or store increased amounts of carbon in the soil. The market should also pay for practices which reduce emissions of other GHGs (CH_4 and N_2O). Addressing the issues of defining baseline, additionality, leakage and permanence in agriculture is necessary to earn carbon credits. Initiative should be taken at national policy level to include agriculture in emission trading. Establishing accreditation standards for producers in agriculture help provide market-based incentives to adopt best practices, can gain support by industry-driven research and development. For monitoring the changes in agriculture and forest carbon the MRV (Measurement, Reporting and Verification) of agriculture and forest carbon is essential. Thus the challenge is how can we reliably account for the amount of forest and agriculture carbon, including changes over time? Farmers also need decision tools to weigh up different management options such as crop rotations and make abatement decisions at the farm level. There is a need to effectively integrate farmers into carbon trading processes, so that pools of C mitigation in tradable amounts are formed. Such integration should aim at bringing together a number of smaller parcels of land under mitigation activities.

Farmers could earn direct C credits by following land management practices for soil carbon sequestration, such as agroforestry, wetland restoration, conservation tillage, organic farming, afforestation etc. Further incentives should be given to farmers following alternative abatement policies for agricultural emissions i.e. climate friendly best management practices viz., Innovative nutrient and water management for crop production as adaptation strategies for climate change; Reduced tillage practices to prevent soil erosion, conserve soil moisture and reduce fossil fuel use and CO_2 emission; Composting and manure management to reduce emissions; Reduce crop residue burning through crop

residue management; Increased use of legumes and perennial forages in crop rotation to reduce N_2O emissions; Soil and water conservation measures; Livestock feeding and grazing strategies to reduce CH_4 emissions; Use of Non-monetary and low cost Agro-techniques, such as choice of appropriate crop(s), diversified crops and their genetic make-up, precision planting, balanced fertilizer application, integrated pest management, improve irrigation use efficiency etc.; Use of biofuels, biomass energy, wind and solar power help reduce emissions

Thus steps should be taken to include agriculture sector in carbon trading where farmers could sell their carbon credits directly in voluntary or regulated markets. And this is possible through development and spelling out clearly the government policies for measurement, reporting and verification of agricultural carbon credits.

A. Subba Rao

Soil Science Sector

26th Biennial Workshop of AICRP on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants held at BCKV, Kalyani from 10 to 12th February 2012

The twenty sixth Biennial Workshop of All India Coordinated Research Project on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants (MSPE) organized from 10 to 12 February 2012 at BCKV, Kalyani which was inaugurated by ex-Vice Chancellor BCKV, Kalyani, Professor L. N. Mandal. Professor S. K. Sanyal, V. C., BCKV, Kalyani presided over the function and welcomed the delegates and guests. Dr. A. K. Singh, DDG NRM, ICAR, New Delhi graced the workshop and inaugurated the brain storming session on Micro-and secondary nutrients and pollutant elements in soil –plant animal/human continuum, held on 11th February 2012. Dr P.N. Takkar, Ex-Director IISS, Bhopal, Dr K. N. Tiwari, Ex-Director IPNI (India office) participated in the workshop as expert members appointed by the Council. Besides, Dr A. Subba Rao, Director IISS, Bhopal, Dr. Pradip K. Sharma, Dean College of Agriculture, CSKHPKV, Palampur, Dr Arvind K. Shukla, Project Coordinator Micronutrient, scientists of the project from different centers and scientists from different ICAR institutes (including crop science), Scientists and personnel from more than 15 Industries dealing with micronutrients participated in the workshop. In the brain storming session ten learned speakers/panelists presented their views on various aspects of micronutrients. The highlights of work done by different centers were presented by the PC, Micronutrients and detailed presentations were made by scientists in charge of the centers. Main discussions were held on emergence of multi micro and secondary nutrients deficiencies, redefining the critical limits, fate of heavy feeding of micronutrients on soil and plant system, how to increase efficiency of micronutrients, agronomic biofortification of food crops with micronutrients and micronutrients and pollutant elements in soil-plant-animal/human continuum.

26th Biennial Workshop of AICRP on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants held at BCKV, Kalyani

Institute/ Divisional news

Review meeting of cooperating centres of AICRP's, HODs of Soil Science in SAUs and Scientists of the Institute, and Stakeholders along with Chairman, QRT and RAC was held at IISS, Bhopal during 5-6th January, 2012. In the meeting Project Coordinators presented their work done during 11th plan period in various AICRPs and identified some researchable issues for 12th plan period. Similarly all the four HODs of IISS, Bhopal presented the highlights of the work done by respective division and proposed some researchable issues which are to be addressed by Soil Science community during 12th plan period. All the Soil Scientists participated actively in the discussion and suggested several issues which are of national/international importance. Dr. Pratap Narayan Chairman, QRT, IISS in his remarks told the house that arable land is almost constant since last three decades and land is subjected to various kinds of degradations which are posing threat to our sustenance. Dr. A.K. Singh, DDG (NRM) in his address highlighted several issues like deterioration of quality of soil and water. He emphasized that the costs of inputs like nutrients and water are increasing at a very high rate. He further reiterated that to sustain the productivity, we should work hard to improve their use efficiency and to find out indigenous alternative nutrient sources. In the years to come, water would be the most limiting natural resource available for agriculture due to other competitive uses like industry and urban sector.

Parliamentary Committee on Agriculture headed by Hon. MP, Shri. Vasudev Acharya along with Lok Sabha MPs (Sh. SK Murulluslam, Sh, Hukumdeo Narayan Yadav, Sh. Nirupendranath Yadav and Sh. Naranbhai Kachhadia) and Rajya Sabha MPs (Sh. Shashi Bhusan Behera, Sh. Satyavrat Chaturvedi, Sh. Upendra Kushwaha and Sh. B.P. Parmar)

visited the institute on 1st March 2012. The committee sought information on "Impact of chemical fertilisers on agriculture and allied sectors". The outcome of all the R&D work and AICRPs operating at the institute with respect to soil health and productivity was also reviewed.

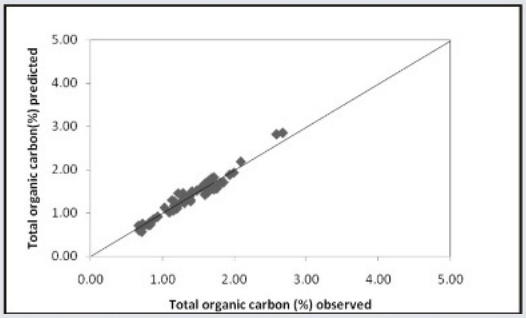
QRT meeting was conducted at IISS during 20th – 21st April, 2012. Director narrated about the achievements of the institute to QRT members. Dr. Pratap Narain, Chairman QRT emphasised in his talk on refinement of technologies, utilisation of wasteland or degraded lands and better coordination among the institutes at national level. The Project Coordinators and HODs of IISS also presented consolidated information on their projects and research activities.

IRC meeting was held during 6-11 June 2012. The research findings of the entire institute funded and external funded projects were presented by concerned Principal Investigators and discussed. New Projects were also presented and discussed.

Research Highlights

Predicting total organic carbon content of soils from original Walkley and Black analysis

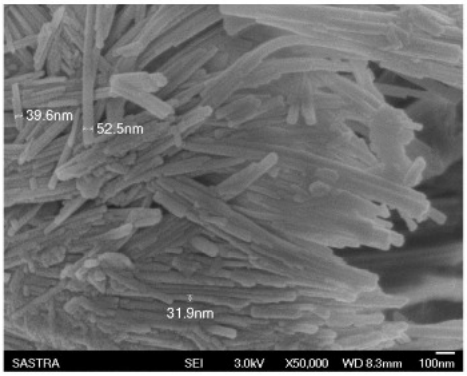
Globally, there is problem of computing soil carbon stock due to prevalence of Walkley-Black method which gives only an approximation of soil organic carbon content. Till now, no universal relationship between Walkley-Black carbon (WBC) and total soil organic carbon (TOC) has been developed which could be applicable in all kinds of soils. In present study, relationships between WBC and TOC were established in diverse soil types of Central and Northern-India under different land uses. TOC was measured by dry combustion technique and WBC by wet digestion method. We developed relationship between WBC and TOC by taking into account of silt+clay content (SICL) of soil and mean annual rainfall (MAR) of the region (Adj. R^2= 0.99, n=100). The Figure shows the relationship between observed and predicted TOC value of soil collected from different agro-eco regions of the country. We clearly demonstrated that a universal correction factor for WBC to TOC is an unrealistic proposition and could lead to error in TOC determination. The present study gives an easy approach to measure TOC by easily available data sets (WBC, SICL and MAR) thereby eliminating the use of sophisticated instrument like TOC/CHNS analyzer. Furthermore, using this relationship, computation of soil carbon stock that was done earlier with WBC values could be revisited and improved for climate change and carbon sequestration related studies.



Relationship between observed and predicted soil total organic carbon

Structure and composition of nanoporous zeolites

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. The morphology and elemental composition of zeolite samples were studied through scanning electron microscope equipped with EDAX. Natural zeolites sample had a tubular assembly while synthetic had cube assembly. Natural zeolites had a Si/Al ratio of 3-5, while synthetic had a value lesser than one.

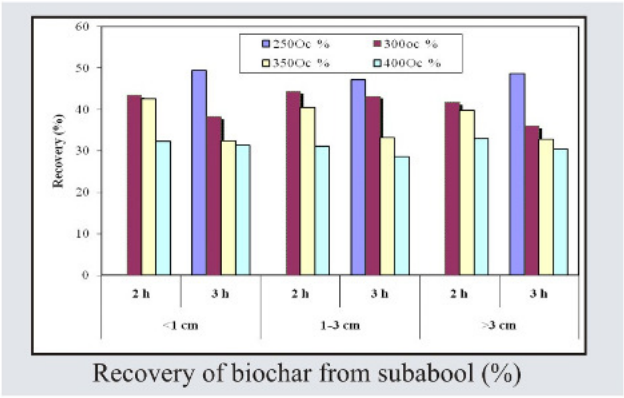


SEM micrograph of a natural zeolite

Biochar preparation and recovery from subabool and pegion pea

Biochar is the product of pyrolysis – of burning plant material under controlled, low-oxygen conditions to produce charcoal. Pyrolytic conditions were standardized for different time and temperature conditions in a furnace. Depending on the time taken for preparation of biochar, from subabool and pegion pea, and its recovery from the raw material, a set time condition was established as 250, 300, 350 and 400°C.

Subabool recovery for three different size classes did not vary much at similar temperatures. However there was a sharp decline in the recovery of biochar from subabool feedstock with increase in temperature. At 350°C temperature the recovery declined with increase in duration of biochar preparation from 2 to 3 hrs. At lowest temperature i.e. 250 °C biochar could not be formed in case of subabool when heated for 2 hrs only. With three hours heating the recovery was between 47 and 50 per cent. At 400°C temperature the recovery of biochar varied between 30.43 and 32.34 per cent respectively across all the sizes of subabool. Similarly in case of pigeon pea, the overall recovery varied between 48.54 to 52.13, 36.97-39.26, 35.89-36.31 and 28.20 – 32.06 percent at 250, 300, 350 and 400°C respectively. The decrease in recovery with increase in temperature was obviously due to loss of carbon as carbon dioxide along with other volatile compounds.



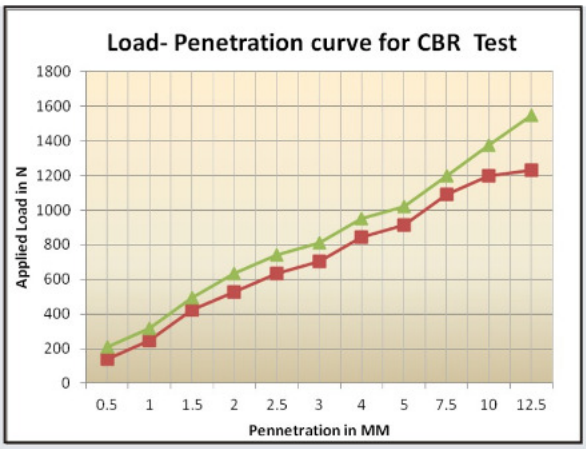
Recovery of biochar from subabool (%)

Green manuring: A remunerative technology for rice farmers

Green manuring is a practice of incorporating legume foliage in the soil to enhance the soil fertility. On the basis of results of LTFE at Pattambi, field demonstrations were conducted at eight farmers' fields nearby Pattambi (Kerala). The results indicated that integrated use of FYM with 50% NPK and 100% NPK resulted in higher yield of rice but net return is less in comparison to 100% NPK which seems to be due to high cost of FYM in the area. However, *in situ* green manuring, one of the best treatment of LTFE being conducted on farm, resulted in maximum profit at farmers' fields on demonstration and also higher return compared to 100% NPK and 100% NPK+FYM. This is due to two factors viz; reduction in input cost and increase in productivity. Survey also revealed that this practice is being adopted in nearly in 9000 ha area in Kerala.

Soil Physical Resilience estimated by Californian Bearing Ratio (CBR) and other Index Properties of Black Soil

Black soils possess low strength and undergo excessive volume changes. Some index properties like swell-shrink potential, plasticity, compaction, maximum dry density and strength characteristics of this soil are very important for estimation of soil physical resilience. Californian Bearing Ratio (*CBR) indicates the soil's resistance to force and the swell and strength potential of the soil with the soil properties.* A laboratory study was carried out to analyse these index properties of black soil under simulated conditions with different moisture and compaction levels. Study indicated that the liquid and plastic limit of black soil were 54.4 and 20.7 %, respectively. The liquid and plastic limits of the black soils are essentially controlled by the thickness of the diffused double layer and the shearing resistance at particle level. The low CBR (range 1.65-2.02 % and 4.36-5.52 % under soaked and unsoaked conditions, respectively) is attributed to its inherent low strength which is due to the dominance of the clay fraction. The reduction in CBR may be attributed to the water holding capacity of the soil subjected to load. Maximum dry density of black soil increased while optimum moisture content reduced under heavy compaction as compared to light compaction. The resilient modulous, defined as the ratio between repeated deviator stress and resilient strain, data (15.93-20.89 MPa and 45.09-57.09 MPa under soaked and unsoaked conditions, respectively) showed that external inputs either in organic form (FYM) or through chemical form (fly ash, lime) must be applied to black soil for having better resilience.



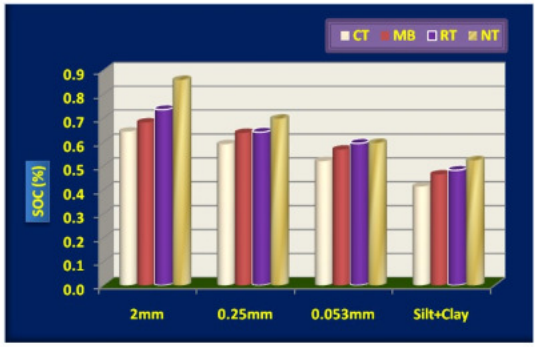
Conservation tillage influence on soil organic carbon content and total carbon stock

Conservation tillage practices reduce the tillage induced disturbance and inversion of the surface soil and add crop residues to the soil. Reduction in pulverization of the soil and addition of organic matter as residues to the soil has profound effect on the organic carbon content of the soil. Results from a long-term tillage experiment conducted at the experimental farm of the institute showed that after ten soybean-wheat cropping cycles, the soil organic carbon content of the surface 0-15 cm soil was significantly higher in conservation tillage treatments namely no tillage (NT) and reduced tillage (RT) treatments than that in conventional tillage (CT) treatment. At 0-5 cm depth SOC content was the highest in NT which was significantly higher than RT and MB (mould board) tillage treatments while it was the lowest in CT. At 5-15 and 15-30 cm depths, SOC content in NT, RT and MB treatments were on par but they were significantly higher than CT treatment. Total carbon stock calculated up to 30 cm depth was the highest in NT treatment (2356 g/m^2) followed by RT (2278 g/m^2) and MB (2206 g/m^2) treatments and was the lowest in CT (2099 g/m^2). The study clearly showed that the carbon stock in Vertisols could be increased through adoption of conservation tillage practices.

Wheat crop under no tillage (left) and conventional tillage system (right)

Changes in aggregation and aggregate bound carbon content distribution under conservation tillage

Soil aggregation increases the residence time of carbon in soil and promotes carbon sequestration. Pulverization of soil through tillage operation breaks down the aggregates under conventional tillage practices while addition of organic matter and reduction in tillage operation stimulates formation of aggregates in soil. Results from the long-term tillage experiment showed that aggregate stability as expressed through mean weight diameter increased under conservation tillage system compared to conventional system after ten years of soybean-wheat cropping in Vertisols. The per cent distribution of macroaggregates (>250 µm) were higher in no tillage and reduced tillage treatments compared to conventional tillage system at 0-5, 5-15 and 15-30 cm soil. On the other side relative proportion of microaggregate (<250 µm) and silt and clay size soil fractions were higher in conventional tillage system. This showed that more micro aggregates under conservation tillage system coalesced to from macro-aggregates as suggested under the hierarchical model of aggregate formation of Tisdall and Oates (1982). The organic carbon content was higher in larger aggregates than in microaggregates in all the soils. In both the large macro-aggregate (> 2000 µm) and small macro-aggregates (2000-250 µm), the SOC content was significantly higher in no tillage system followed by reduced tillage and it was lowest in conventional tillage. Improved aggregation increased the soil hydrological regime under conservation tillage as evidenced from the higher soil moisture retention and available water content of the soil under conservation tillage system.



Effect of tillage practices on SOC in different aggregate size fractions at 0-5 cm soil depth

Effect of tillage on water and dissolved organic carbon loss through Bypass flow in soybean-wheat system in vertisols

An investigation was undertaken to evaluate the effect of tillage on loss of water and dissolved organic carbon through bypass flow after third year of experiment in soybean-wheat system in vertisols. Tillage significantly influenced width, depth and volume of cracks in vertisols. The decreasing order of effect was no tillage followed by reduced tillage and conventional tillage. As depth and width of cracks in no tillage was also significantly more than reduced tillage and conventional tillage similarly the bypass loss of water beyond 30, 45 and 60 cm was higher in NT i.e., 60, 56 and 43 % of water applied respectively and least in CT i.e., 48, 35 and 20 % of water applied respectively. Tillage has significant effect on vertical distribution and retention of dissolved organic carbon (DOC) at different soil depths except for 30-45 cm. DOC was the highest in NT (43.24 ppm) and was at par with RT (42.07 ppm) and least in CT (31.28 ppm) at surface 0-5 cm soil.

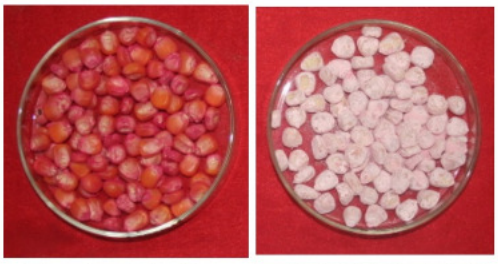
Culturable and Genomic Assessment of Soil Health in High Fertilizer and Pesticide Input Soils

The abundance and diversity of culturable microorganisms, soil enzymes, 16S rDNA and nif H diversity was investigated

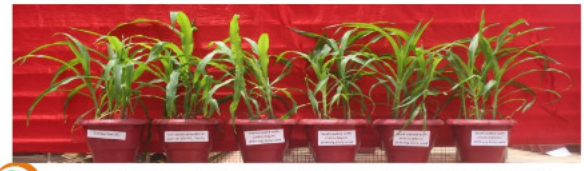
in farmers' fields in Guntur, A.P., cropped to black gram and chillies with high (BG2) or very high (CH2) rates of fertilizer and pesticides application in comparison to normal (BG1, CH1). Chemical inputs at twice the rates recommended in black gram-rice rotation did not have deleterious influence except reduction in rhizobia. However, very high inputs (~5x) in chillies adversely affected fungal and actinomycete populations, ammonifiers, acid phosphatase activity and drastically changed the bacterial community profile and diversity. *Actinobacteria* were dominant in BG1, BG2, and CH1 and were least in CH2 which was most adversely impacted. Diversity of nitrogen fixing community was completely altered in BG2 along with reduction in rhizobial *nifH* gene sequences. Overall, results pointed to adverse consequences of fertilizers and pesticides on soil microorganisms and function with unrealistically high rates of usage.

Zinc Delivery to Plants through Nano ZnO Particles

Higher plants generally absorb Zn as a divalent cation and are intermediate in its mobility or phloem transport. Supplementing the Zn requirement of agricultural crops through water soluble $ZnSO_4$ fertilizer is a costly management option whereas, utilization of ZnO (water insoluble) as a source of Zn could be an alternative cost effective option to encourage farmers for wider adoption. In order to supply the requisite amount of Zn to the plants, we developed a protocol to coat the seeds of maize, soybean, pigeon pea and ladies finger with microns scale (<30µm) and nano scale (<100nm) ZnO powder @25 mg Zn/g seed and @50 mg Zn/g seed. The protocol involves preparation of a stable suspension of requisite amount of ZnO (1.55g ZnO for coating @ 25 mg Zn/g seed and 3.11 g ZnO for coating @ 50 mg Zn/g seed) in 15 ml of ethyl alcohol (containing 1% crude pine oleoresin as binding agent) and mixing the same with 50 g seed in a closed container followed by transfer of the whole content to a plastic tray fitted on a horizontal shaker for evaporation of the alcohol.



Uncoated and coated maize seeds with ZnO (<50 nm) @ 50 mg Zn/g

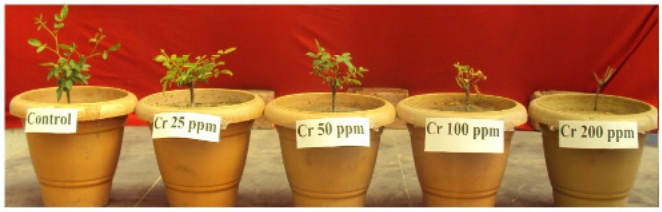


Maize grown (30 DAS) with seeds coated with ZnO

The seed germination test indicated better germination percentage (93-100%) due to ZnO coating as compared to uncoated seeds (80%). Pot culture experiment conducted with coated seeds also revealed that the crop growth with ZnO coated seeds were similar to that observed with soluble Zn treatment applied as $ZnSO_4.7H_2O$ (@2.5 ppm Zn) which is evident from the periodic SPAD reading taken after 20, 25 and 30 days after sowing. Germination test conducted with coated and uncoated seeds in normal water revealed that ZnO coating inhibited bacterial and fungal infection of the seed at the time of germination. This inhibitory effect could be attributed to pine oleoresin used as a binding agent for coating ZnO. This protocol of seed coating with ZnO can be used by the seed producing agencies to produce customized seed for Zn deficient areas of the country.

Phytostabilization of chromium by rose

Phytoremediation of soils contaminated with heavy metals has received considerable attention in recent years. Because of the contamination of food and vegetable crops with heavy metals, more attention has been paid to the cultivation of floriculture plants for remediation of the contaminated soils. Therefore, a study was undertaken to examine the response of rose to different levels of chromium (0, 25, 50, 100 and 200 mg/kg soil) and its possible use for remediation of soils contaminated with chromium. Rose plant grew well and tolerated up to 50 ppm. However, there was a reduction in the dry weight of roots and shoots. The applied Cr decreased the dry weight of the roots by 18% at 25 ppm and 43 % at Cr 50 ppm. The partitioning of Cr revealed a higher concentration of Cr in roots (1985 µg/g DW) followed by shoots (760 µg/g DW). It was concluded that, this plant has a great potential to be used for phytostabilization of soils contaminated with moderate levels of chromium.



Awards and Honours

Dr. Pramod Jha has been awarded Young Scientist Award-2011 of Indian Association of Soil & Water Conservationists, Dehradun.

Dr. R. S. Chaudhary received Bharat Jyothi award from India International Friendship Society New Delhi at the National Seminar "Economic Growth and National Integration" held on 27th March 2012.

Dr. Pradip Dey chaired Technical Session-I in *TATA-ICRISAT-ICAR and Model Watershed Projects' Review and Planning Meeting* organized by ICRISAT, Hyderabad during 22-25 May 2012.

Dr. Pradip Dey Co-Chaired Technical Session-III of *All India Research Co-operators' Meet* organized by International Plant Nutrition Institute at NASC Complex, New Delhi on 14-15 May 2012.

Major Events

Foundation Day

The 25th Foundation Day (Silver Jubilee) of Indian Institute of Soil Science was celebrated on 16th April, 2012. The day long function was inaugurated by renowned soil scientist Dr. U.S. Sreeramulu as Chief Guest. He gave a thematic lecture to bridge the missing link between research centres and famers. Scientists and staff of the institute who has served the institute since beginning as well as progressive farmers of the region were felicitated during the function.

Republic day

The Staff Recreation Club (SRC) celebrated the republic day on 26th January 2012 with great gaiety and honour. On that day various cultural and sports programs were held for the family members of the staff.

Training program organised/ Extension activities:

Dr. A. K. Biswas as Course Director organized a DAC sponsored Model Training Course on "Soil Organic Matter Management for Climate Resilient Agriculture" during Feb. 14-21, 2012.

Dr. R. Elanchezhian as Coordinator, organized a training program entitled "Disaster Management with Special Focus on Agriculture and Environment" for Subject Matter Specialist of Agriculture Department, Bihar during 9-13th Jan 2012 at ICAR RCER, Patna.

Shri. V. Rajagopal, Scientist from NIAM, Baramati undergone 3 months (Feb 1- April 30, 2012) professional attachment training under Dr Pramod Jha.

Ms. Reshma, Scientist from CRIDA, Hyderabad undergone 3 months (Feb 1- April 30, 2012) professional attachment training under Dr Sammi Reddy.

Mr. Jitendra Kumar, Scientist from ICAR-NEH Barapani has undergone Professional Attachment Training under Dr. M. Mohanty, and Dr. R.S. Chaudhary (8 Feb to 7 May 2012).

Dr. Ashok Kumar Indoria, Scientist from CRIDA, Hyderabad undergone three months (23 Jan to 22 Apr 2012) Professional Attachment Training under Dr. KM Hati.

Dr A. B. Singh organized three farmers training of 6 days duration in the institute during 15-20 January, 2-7 February, 2-7 June 2012 which were sponsored by ATMA of District Supaul, Darbhanga and Banka of Bihar, respectively.

Dr A. B. Singh attended Krishi Vikas-2012 Mela held at Indore (16-18 February 2012) and Krishi Vigyan Mela held at Hoshangabad (23-25 February 2012) and Ujjain (19-21 March 2012).

Dr K. Bharati and K.C. Shinogi participated in Krishi Vigyan Mela during March, 1-3, 2012 at IARI, New Delhi.

Staff News

New Appointments / Joining

Shri Sanjay Kumar Kori appointed as Stenographer Gr.III on 3rd January 2012.

Dr. Pradip Dey joined the institute on 1st Feb 2012 upon selection as Project Coordinator (STCR).

Dr. R. Elanchezhian joined the institute on 17th Feb 2012 upon selection as Principal Scientist (Plant Physiology).

Shri V.K. Derashri joined as Administrative officer on 16.06.2012

Promotions

Shri. N. S. Yadav (T-3) got promoted to T-4 on 21.01.2012.

Shri. Sukhram Sen (T-2) got promoted to T-3 on 21.01.2012

Transfers

Dr. Sanjib Kumar Behra, Scientist has been transferred on selection as Sr. Scientist to Directorate of Oil Palm Research, Andhra Pradesh on 30.04.2012

Dr. K.S. Reddy, Pr. Scientist has been transferred to CRIDA, Hyderabad on 21.05.2012.

Superannuation

Shri N.R. Verma, Senior administrative officer retired from ICAR service on 30.06.2012

Scientists' Participation in Conference/Seminar/Training/Workshop/Group Discussion

Name	Programme	Venue	Duration
Dr. Ajay	ISCA conference	Bhubaneswar	3-7 Jan, 2012
Dr. K.C. Shinogi	Presented Institute activities in Zonal technology management workshop	CIRCOT, Mumbai	13-14 January 2012
Dr. Asha Sahu	Effective Enhancement Programme for Women Scientists	Institute of Management Training and Research, Goa	16-20 Jan 2012
Dr. N.K. Sinha	Website Design, Development, Hosting & Management	IIFM, Bhopal	30 Jan - 1 Feb 2012
Dr. Brij Lal Lakaria and Dr. J. Somasundaram	Interaction Workshop - HYPM	CIFE, Mumbai	2 Feb, 2012
Dr. A. Subba Rao, Dr. Pradip Dey Dr. Brij Lal Lakaria Dr. R. Elanchezhian Dr. J. Somasundaram Dr. M. Mohanty Dr. Sangeeta Lenka	International conference on "Climate change, Sustainable agriculture and public leadership"	NASC, IARI, New Delhi	7-9 Feb, 2012
Dr. A. Subba Rao, Dr. A.K. Shukhla and Dr. J.K. Saha	26th Biennial Workshop of AICRP on Micro-, secondary and pollutant elements in soils and plants	BCKV Kalyani	10-12 Feb, 2012.
Dr Muneshwar Singh	Interface Meeting with DG ICAR in Director's - VCs Conference	NAAS Complex New Delhi	17-18 Feb, 2012
Dr. J.K. Saha	National Seminar on 'Safe Food for All'	Dept. of ASEPAN, Visva-Bharati	21-23 Feb, 2012.
Dr. Asha Sahu	International Conference on Environmentally Sustainable Urban Ecosystem	Indian Institute of Technology (IIT), Guwahati, Assam	24-26 Feb 2012
Dr. Rajendiran,S.	Training programme on "Nanoparticle production characterization and utilization in Agriculture"	Central Arid Zone Research Institute, Jodhpur	23 Feb to 3 Mar 2012
Dr. N.K. Sinha	National Training on "Predicting Soil Carbon Interest Exploration Respond Meeting	NBSSLUP, Nagpur	24 Feb- 8 Mar 2012
Dr. R.S. Chaudhary and Dr. M. Mohanty	Sequestration in View of Global Warming and Climate Change"	MPCST, Bhopal	5 Mar 2012
Dr. Asha Sahu	1st Biennial International Congress on Urban Green Spaces (CUGS 2012)	India International Centre, New Delhi	5-7 Mar 2012
Dr. Sangeeta Lenka	Society for Science of Climate Change and Sustainable Environment	NASC Complex, New Delhi	12 Mar 2012
Dr. M. Mohanty	National Level Training on "Climate Change and Geospatial Technologies"	NISCAIR, New Delhi	12-18 Mar 2012
Dr. Pradip Dey	7th FAI-IPNI Round Table on Refinement of K Recommendation in Vertisols	NASC Complex, New Delhi	20 Mar 2012
Dr. Sangeetha Lenka and Dr. N.K Lenka	National Conference on Livelihood and Environment Security through Resource Conservation in Eastern Region of India	Orissa University of Agriculture and technology, Bhubaneswar	5-7 Apr 2012
Dr. J.K. Saha	NAAS Brainstorming meeting on 'Urban and Peri urban Agriculture.'	NASC, New Delhi	14 Apr, 2012
Dr. Pradip Dey	Brainstorming Session on Crop residue management in the context of conservation agriculture organised by NAAS	NASC Complex, New Delhi	15-16 Apr, 2012
Dr. Sangeeta Lenka	3rd International conference on Climate Protection and Resource Conservation for Young Academics "Global Climate Change-Approaches to International Cooperation"	Bonn, Germany	24-27 Apr 2012
Dr. A. Subba Rao and Dr. J.K. Saha	Meeting with DDG(NRM) and DG (ICAR) regarding preparation of EFC document for Institutes/AICRP/AINC/Consortia Platforms	NASC, New Delhi.	27-28 Apr, 2012
Dr. Asit Mandal	Website Design, Hosting & Management	IIFM, Bhopal	2-4 May, 2012
Dr. Pradip Dey	All India Research Co-operators' Meet organized by International Plant Nutrition Institute	NASC Complex New Delhi	14-15 May, 2012
Dr Muneshwar Singh	IMC Meeting	CSSRI Karnal	19 May, 2012.
Dr. A. Subba Rao and Dr. J.K. Saha	Meeting called by DG (ICAR) on preparation of EFC document for Consortia Platforms	NASC, New Delhi Hotel Noor-us	24 May, 2012
Dr A. B. Singh	Organic farming, certification and Marketing	Sabah Palace, Bhopal	30 May, 2012
Dr. J. Somasundaram	First Annual Review Workshop of NICRA	CRIDA Hyderabad	12-14 June 2012
Dr RH Wanjari	Summer School (21 days) on Engineering Interventions in Conservation Agriculture for Enhancing Agricultural Productivity and Climate Change Mitigation	Central Institute of Agricultural Engineering, Bhopal.	22 June-12 Jul, 2012
Dr. J.K. Saha	Indo-French Seminar on "Successful Indo-French Science & Technology Co-operation: CEFIPRA" organized by Indo-French Centre for the Promotion of Advanced Research (IFCPAR)	Hotel MY Fortune, Chennai	23 Jun, 2012
Dr. A. Subba Rao, Dr Muneshwar Singh, Dr. DLN Rao, Dr. AK Shukhla and Dr. Pradip Dey	QRT Meeting of LTFE, STCR, , MSN and BNF	GBPUA&T, Pantnagar	28-30 Jun 2012

Editors: Dr. R. Elanchezhian and Ms. T.K. Radha

For feedback please contact,

Dr. A. Subba Rao
Director
Indian Institute of Soil Science
Nabibagh, Berasia Road, Bhopal - 462 038 (M.P.)

Web Site: http://www.iiss.nic.in E-mail: director@iiss.ernet.in Phone: +91 755 2730946 Fax: +91 755 2733310