

ICAR

Reporter

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JANUARY – MARCH 2015



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From the DG's Desk

Dear Readers,

The 68th UN General Assembly has recognized 2015 as the International Year of Soils (IYS). The main goal of the IYS 2015 is to raise awareness about the importance of healthy soils and to advocate for sustainable soil management to protect this precious natural resource. This official recognition will emphasize the importance of soils beyond the soil science. This also puts greater responsibility to the Council that envisions 'Sustainable management of natural resources for achieving food, nutritional, environmental and livelihood security in the country'. Amongst

others, the Council has identified a few major thrust areas such as Land Resource Characterization, Management and Land Use Planning, Soil-Health and Nutrient Management, Management of Problematic Soils-



Saline, Alkaline, Acidic, and Waterlogged Soils, Soil and Water Conservation-Watershed Management, Arid Land Management, and Evaluation of Resource Conservation Technologies. Whilst soil-health remains priority, soil fertility maintenance and soil nutrient restoration in degraded ecosystems become crucial to ensure production and productivity, particularly that in the rainfed region, as soils there are shallow and eroded that has a bearing on the national food security.

Soils have supported world civilizations including that of India. India has a total of 329 million ha of geographical area with 141 million ha of agricultural land. The entire foodgrain along with oilseeds, sugar, fibre, fruits, and vegetables has to come from this finite land. Even though the availability of total agricultural land has been constant the per caput availability is continuously on decline which has put more and more taxation on our soils over the years. Naturally, such a delivery from soils in terms of productivity of crops is only possible, if we give due consideration on the improvement and maintenance of the health of the soils. That means we have to have a regular monitoring of our soils. It is heartening that the Central Government has just initiated a country-wide programme of assessing the soil-health and

distributing the soil-health card to every farmer of the country. In this endeavour ICAR is committed to contribute as desired by the Government of India in the achievement of this noble cause.

There has been a significant progress in the management of soil resources ever since the ICAR came into existence since 1929. For example, the soil maps of the country (1:1 million scale), states (1:250,000 scale) and several districts (1:50,000 scale) have been prepared. Also agro-ecological, soil erosion and soil degradation regions of the country are delineated. Different steps taken include preparation of digitized soil fertility maps (macro- and micro-nutrients) for different states and ready reckoners for soil-test based fertilizer recommendations; on-line soil-test based fertilizer recommendation system; integrated nutrient management packages for major cropping systems of the country; and biofertilizer technology for mass multiplication and adoption by the farmers. Significant work has also been done in the area of management of problem soils, viz. acid soils map (1:1million scale) and salt-affected soils of the

country (1:1million scale) and eight states (1: 2,50,000 scale) have been prepared, a technology package for amelioration of 25 million ha of critically degraded acid soils has been developed. It is estimated that liming @ 2-4 q/ha along with the recommended fertilizers has potential to double foodgrain production in such areas. Similarly, cost effective amelioration technology for acidic and sodic soils has been developed; salt-tolerant varieties for major crops like rice, wheat, mustard and gram released, feasibility of sub-surface drainage technology for waterlogged saline soils has been demonstrated; and Dorovu technology for skimming freshwater overlying the saline water has been perfected for coastal saline areas. In the field of soil and water conservation-watershed management, a network of 47 model watersheds have been developed, that became the basis for the National Watershed Development Programme for Rainfed Areas (NWDPRA) developed; the annual and seasonal erosivity index maps were also prepared. Alternate land uses of salt affected soils specifically geared to growing of halophytes, medicinal, aromatic and spices need to be evolved. Growing and processing of sea weeds for national and international markets, new cost-effective reclamation technologies for salt-affected Vertisols, and reclamation of abandoned aqua ponds along the eastern coast also need attention. The soil maps

prepared earlier now need refinement. More detailed maps at village level need to be prepared for effective planning and a land resource information system of the country need to be developed accessible to all.

Sustainable management of natural resources is vital as agricultural development with positive growth and long-term sustainability cannot thrive on a deteriorating natural resource base. We are today, confronted with widespread land degradation, groundwater imbalances, impaired soil-health and contamination of food and environmental pollution etc. The situation is getting further compounded with the recent climate change impacts on agriculture. To have a holistic solution to these emerging problems, the

Natural Resource Management Division, ICAR has set future priority research on abiotic stress management (droughts, cold waves, floods, salinity, alkalinity, acidity and nutritional disorders etc.), climate resilient agriculture, conservation agriculture including organic farming, bioremediation of contaminated soils and water, biofortification, biofuels, bio-industrial watersheds and

development of decision support systems for micro-level land use planning etc. Another research priority domain is applications of nanotechnology to enhance nutrient and water use efficiency and development of bio-sensors for soil-quality assessment etc. Another important strategy for Indian soil-health programme is to focus on available crop residues which need to go back to soils and a serious campaign has to be put forward against burning of crop residues.

A huge quantity of municipal and solid waste is generated in India annually that are usually dumped into ground that not only occupy valuable land resources, but also poses a threat to the environment, besides causing health hazards to the citizens. Therefore, the soil scientists and other environmentalists have to play a pivotal role in converting these wastes into valuable manure through proper composting technology for recycling. Let us join hands with the international community in protecting our soil, one of the most important natural resources, and celebrate 2015 as the 'International Year of Soils'.



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WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, BRAINSTORMING SESSIONS

XII Agricultural Science Congress 2015



Karnal, 6 February 2015. Shri Manohar Lal, Chief Minister of Haryana, delivered the valedictory address of the XII Agricultural Science Congress (ASC) 2015 at ICAR-National Dairy Research Institute. He said that the theme of congress is relevant to Haryana, as more than 70% of the agricultural land is with small-farmers. He urged scientists to work for the development of new technologies for the benefit of small-farmers and stressed upon the need of conservation and improvement of indigenous breeds of cow and advised the farmers to go for diversification by integrating agriculture with fisheries, dairy farming, horticulture, vegetables etc. The Chief Minister also visited concurrently organized ASC India Expo and showed interest in ICAR pavilion, especially in the displayed models of indigenous breeds of cow.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) said that a 'Farmer to Consumer' approach is required to be put in place to avoid middle men. Small-farmers are to be trained to familiarize them with technology in production planning, consumer access and financial management. There were 12 technical sessions and eight plenary sessions during the event in which more than 1,600 participants from various parts of the country and abroad participated. The representatives of World Bank, International Livestock Research Institute (ILRI), Food and Agriculture Organization (FAO), International Crops Research Institute for the Semi-Arid-Tropics (ICRISAT) and International Maize and Wheat Improvement Centre (CIMMYT) participated and presented policy papers. More than 500 farmers from across the country also participated.



The XII Agricultural Science Congress 2015, jointly organized by National Academy of Agricultural Sciences, New Delhi; Indian Council of Agricultural Research, New Delhi; and NDRI, was inaugurated by Shri Kaptan Singh Solanki (HE Governor of Haryana and Punjab) on 3 February 2015 at NDRI. The "Soy-Butter technology" developed to promote use of protein rich soybean in daily diet especially among children has been developed at CIAE, Bhopal. The technology was licensed to a commercial firm at Bhopal in August 2014. Subsequently, the firm joined CIAE-BPD Unit for hands on training on product and have now set up their own production unit for commercial production. The product would soon be available to public in small- and large-sized packs through the marketing channels.

The Indian Council of Agricultural Research participated and showcased its technologies at ASC India Expo concurrently organized with XII Agricultural Science Congress at National Dairy Research Institute, Karnal. H E Governor of Haryana and Punjab, Prof. Kaptan Singh Solanki, inaugurated the expo. Prof. Solanki took keen interest in the ICAR technologies on display and appreciated the efforts to empower the small-farmers with user friendly technologies. ICAR pavilion presented a glimpse of recent technologies that have potential for wide spread use by farming community and related industries. The pavilion also focused on some of the recent achievements in the field of agricultural research and education along with the initiatives that have been taken to make agriculture more yielding and profitable.

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IX Uttarakhand Science and Technology Congress 2015

Dehra Dun, 28 February 2015. Shri Harish Rawat, Chief Minister of Uttarakhand, inaugurated a three-day IX Uttarakhand Science and Technology Congress 2015 on 26 February 2015 at Jhajra. The Natural Resource Management Technologies for water-harvesting and recycling, moisture conservation, torrent control, mine spoil rehabilitation, mass erosion control and landslides, reclamation of ravines and degraded lands were displayed during the show, which were highly appreciated by the visitors.

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Symposium on Genetic Engineering of Agricultural Crops and...



Hyderabad, 25 February 2015. 'Transfer of genetic material across taxonomical groups is now possible that can transform the life of the society,' said Dr E. Haribabu (Vice-Chancellor, University of Hyderabad) during his address at the XVIII ADNAT Convention Symposium on 'Genetic Engineering of Agricultural Crops and Livestock: Current Status, Social, Ethical and Regulatory Issues' at the University of Hyderabad on 23 February 2015. He also said, "However, genetic engineering has legal, social, and patent issues that need to be addressed for the technology to get popularized. The other important facet of genetic engineering is in cattle that plays an important part in farming systems. Risk is another facet of genetic engineering that has to be considered before any technology is transferred for commercial use." Dr Lalji Singh (President of ADNAT) said, "Technology is driving science today, and India has to develop its own technology to stay ahead." Sensitization of the citizens and exploitation of system biology that is considered as the future of science biology is of paramount importance," said Dr D. Rama Rao (Director, National Academy of Agricultural Research Management, Hyderabad) during his address. Dr Rama Rao emphasized on the need of a policy dialogue so that the benefits of genetic engineering will benefit the society at large. The Symposium was spread over six sessions, namely, Current Methods of Plant Genetic



Manipulation and Stresses, Resistance to Plant Biotic Stresses, Biotechnology –Myths and Facts, Abiotic Stresses Tolerance in Plants, Plant Biotechnology, Animal Genetic Engineering, Current Status and Biosafety, Ethical and Regulatory Issues.

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Workshop on Climate Change: Impact and Mitigation

Burhanpur, 2 March 2015. A two-day workshop on 'Climate change and its impact on agriculture', jointly organized by ATMA, Kisan Kalyan and Krishi Vibhag (Burhanpur) was started on 1 March 2015 at KVK, Burhanpur.



Prof. A.K. Singh (Vice Chancellor, Rajmata Vijayraje Scindhiya Krishi Vishwa Vidyalaya) gave emphasis on soil and water conservation and promote climate resilient varieties with drought, insect and disease resistant.

Shri Hamid Kazi (KVK Chairman) expressed his views on climate change and advised the participants for paying attention during two days workshop and act as per scientists', recommendations.

Smt J.P. Irien Cynthia (District Collector) advised the scientist to recommend technologies/varieties based on the fluctuating climate during the days. She also appealed to the farmers to start the farming based on climate resilient agriculture and follow the workshop recommendations.

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Institute Industry Interface Workshop

Kolkata, 12 February 2015. An Institute Industry Interface Workshop was held at National Institute of Research on Jute and Allied Fibre Technology (NIRJAFT) to present and promote three testing equipments namely Fabric Flexural Rigidity Tester, Yarn Characterisation Unit and Fabric Electrical Insulation Tester, which were designed and developed by the joint efforts of NIRJAFT, Kolkata and Indian Institute of Engineering Science and Technology, Shibpur, Howrah.

Dr D. Nag (Director, NIRJAFT) elaborated the importance and role of Institute Industry Interface Workshop and mentioned that the concept has been coined by the Indian Council of Agricultural Research, the apex body of NIRJAFT and DST, Govt of India with the idea as the first step of commercialization, any fruitful research or development will be showcased to beneficiaries or stakeholders to rectify the technologies as per the suggestions of experts and stakeholders.

Dr S Gupta, the Guest of Honour, emphasized to develop the technologies according to users' want and it should be simple to operate, low manufacturing and maintenance costs, compact and cost effective. Moreover, measurement and standardization of testing equipment should be precise and sometimes it should be portable to measure online or in the field. Dr A Ray, the Chief Guest, encouraged the joint effort in characterization of yarn and fabric.

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Workshop on Natural Resins and Gums

Ranchi, 28 February 2015. The Third Winter Student Workshop on Natural Resins and Gums, organized by Indian Institute of Natural Resins and Gums and Transfer of Technology Division, ICAR, was inaugurated by Dr R Ramani (Director, IINRG) on 16 February 2015, in which Postgraduate students of Forestry from Guru Ghasidas Central University, Bilaspur, Chhattisgarh



participated. It focussed on processing of natural resins like lac, rosin, oleoresins and their industrial applications. Students were also educated about seed and exudates gums, harvesting, tapping, collection, processing, quality control and their industrial uses. Students were also exposed to horticulture, tasar culture, forestry and allied activities.

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Workshop of the AMAAS Projects, 2015

New Delhi, 23 January 2015. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) chaired the Workshop of the Application of Microorganisms in Agriculture and Allied Sectors (AMAAS) Projects at the NASC Complex on 22 and 23 January 2015.

The scientists of ICAR presented the work which was done in the first phase of AMAAS (XI Plan). A Memorandum of Understanding (MoU) was signed between Dr Arun K. Sharma (Director, NBAIM), and Dr Manjit Singh (Director, DMR), and counter signed by Dr Swapan K. Datta and Dr N.K. Krishna Kumar (Deputy Directors General, ICAR).

This workshop was conducted in four sessions in which research progress of more than 50 projects was presented by the Principal investigators/Co-Principal Investigators before the review panel.

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Fish milt cryopreservation technology

Aizwal, 7 February 2015. The Minister of Fisheries, Government of Mizoram, Dr B. D. Chakma, inaugurated a three-day awareness-cum-workshop on 'Fish Milt Cryopreservation Technology,' organized by the Central Institute of Fisheries Education, at Department of Fisheries, Mizoram from 5 to 7 February 2015. Dr Chakama emphasized that the technology was an ideal one for fish conservation and an important tool for increasing fish production in Mizoram. He appreciated the efforts of Central Institute of Fisheries Education, Mumbai for



demonstrating the techniques and providing hands-on practice to the fish farmers, entrepreneurs and state fisheries officials. The lectures were delivered on methods and techniques of cryopreservation; Brood-stock management and reproductive health of the broods; Nutritional aspects of broodstock and their maintenance; Identifications of quality broods; Milt collection and physical evaluation; Extender preparation technique and its significance etc.

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VII Action Plan Workshop of KVKs

Rahuri, 19 March 2015. A two-day VII Action Plan Workshop of Krishi Vigyan Kendras (KVKs) of western Maharashtra was held at the Mahatma Phule Krishi Vidyapeeth, in co-ordination with the Zonal Project Directorate, Zone-V, Hyderabad on 18-19 March 2015. Dr T.A. More (Vice-Chancellor, MPKV) hoped that the



agricultural technologies need to reach the end users, especially the tribal farmers. Looking to the large majority of small-farmers (90%) the Integrated Farming

System model assures their livelihood security. Mitigation of adverse conditions like unseasonal rains, hailstorms, climate change in limited time is a major challenge before us, Dr More said. Dr N. Sudhakar (Zonal Project Director, Zone-V, Hyderabad) emphasized the need for increasing vocational training programmes for rural youth by the KVKs. Emphasis on the drudgery reduction of women for improving their efficiency need to be focused along with value addition and processing aspects. Farmers need to be trained on INM, IPM, zero tillage for reducing the cost of cultivation. Dr Sudhakar Rao said that the *in situ* soil and moisture conservation practices are vital in rainfed areas which the KVKs need to look upon. Dr K.D. Kokate (Director of Extension Education) said that 2015 is being celebrated as the International Year of Soils followed by 2016 as the International Year of Pulses and hence, KVKs need to redirect their action plan accordingly. Appropriate suggestions were made by the university experts on the OFTs, Field-line Demonstrations, capacity building programmes, Technology Cafeteria and extension activities, which were then finalized with detailed discussion.

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CIFE Industry Day Meet

Mumbai, 28 February 2015. With the aim to offer networking opportunities and foster industrial perspective in students curriculum the Central

Institute of Fisheries Education organized 'CIFE Industry Day Meet' on a specific theme 'Attracting Fisheries Professional to Aquaculture Industry'. Dr W. S. Lakra (Director, CIFE) urged the industry to take active participation in research and development in collaboration with academic institutes like CIFE. Experts from the industry presented their requirements and expectations from academic institutes and the students. The event provided a common platform for the industry, academia and research community to come together to discuss the problems faced by the farmers and the industry and provide solutions in a partnership mode.

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National Meet on Distant hybridization in horticultural crop improvement

Bengaluru, 23 January 2015. A two-day National Meet on Distant hybridization in horticultural crop improvement was inaugurated on 22 January 2015 at IIHR, Bengaluru, Karnataka. It was presided over by Dr N.K. Krishna Kumar, (DDG, Hort. Sci.). Dr B.M.C. Reddy (Vice Chancellor, Dr YSR Horticultural University, Andhra Pradesh) stressed on the need of distant hybridization in horticultural crop for improvement of specific traits. There were five technical sessions: Genetic variability and distant hybridization, Distant hybridization in fruit crops, Distant hybridization in vegetable crops-I, Distant hybridization in vegetable crops-II, and Distant hybridization in ornamental, medicinal, spices and plantation crops.

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State level farmers meet in Tripura

Lembucherra, 1 March 2015. The Chief Minister of Tripura, Shri Manik Sarkar, released crop varieties (12 in rice, two in field pea, one mungbean, one in blackgram, one sesame, one *toria*, two bacterial wilt resistant brinjal, one ring spot virus tolerant papaya, one mutant clone of pineapple CV Queen, one Elephant foot yam, and one Greater yam) which were developed by ICAR Research Complex for NEH Region, Tripura Centre. The Chief Minister, Shri Sarkar, after visiting the technology stalls inaugurated a Plant Growth Chamber installed at the Research Centre of ICAR Research Complex for NEH Region under NICRA.

The Chief Minister emphasized that releasing 16 varieties of different crops in a year must be an unparallel example in the whole country, which clearly demonstrated how an effective collaboration between national organization (ICAR) and International organization (IRRI) with whole hearted support from state agencies can bring positive changes in the

agriculture sector for the ultimate benefit of farmers. The Chief Minister assured that state government will extend its all out support to any initiative taken by ICAR to enhance the productivity of agriculture sector in the state. The Deputy Speaker, Tripura Legislative Assembly, Shri Pabitra Kar, pointed out that with very limited number of scientists and staff the way ICAR - Tripura Centre is not only developing new and newer technologies but taking them to the doorsteps of the farmers in every corners of the state, is a glaring example in front of other government departments to discharge their duties and play their role in the development of a prosperous Tripura.

Dr S.V. Ngachan (Director, ICAR Research Complex for NEH Region) pointed out the suitability and important features of the crop varieties developed and released by the centre.

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National Entomologists' Meet

Ranchi, 7 February 2015. The National Entomologists' Meet was organized jointly by Society for Advancement of Natural Resins and Gums, Indian Institute of Natural Resins and Gums (IINRG) and Network Project on Conservation of Lac Insect genetic Resources from 5 to 7 February 2015 at IINRG, Ranchi.



The theme areas of the Meet comprehensively attempted to bring out thrust areas related to insects of agricultural importance with special focus on edible insects.

The discussions addressed both desirable and undesirable insect fauna: agricultural pests; commercial insects (lac, silk and honey); edible insects; pollinators and other service providers; soil insects; insects of value in medicine, fashion and ecotourism etc.

Recommendations

- **Establishment of an Institute of Agricultural Entomology Research:** To encompass hitherto unaddressed or under-addressed facets of basic and applied entomological research such as chemical ecology, biosystematics, edible insects, insect tourism, vector management etc.
- Strengthening the scientific manpower in Entomology in the ICAR institutes.

- Modification and finalization of Biosafety and Biosecurity policy in view of emerging scenario.
- Legislation and its execution to prevent illegal trading edible insects leading to depletion due to unmindful and unscrupulous practices.
- Development of national standards for phytosanitary measures.
- Strengthening national academic infrastructure for capacity building priority/emerging areas: edible insects, entomo-tourism, insect vector biology, insect parataxonomy etc.
- Establishment of IT-based network of agricultural entomologists for exchange of information, consultations etc.
- Constitution of task force for addressing invasive insect pests.
- Constitution of regional expert panels to address emerging insect pest outbreaks.
- Promotion and support mechanisms including capacity building programmes for establishment of insect biocontrol agents and biopesticides in villages.
- Establishment of biovillages to showcase biointensive pest management (BIPM) for boosting its adoption.
- In view of acute gap in biopesticide production, a major push for more biopesticide production units for reliable and enhanced production through incentivization and capacity building.
- Creation of national databases of awareness and promotion of edible insects; and molecular systematics for quick and reliable identification of potential invasive insect pests.
- **Edible and medicinal insects:** Identification of select edible insect species amenable to farming and its development including their nutritional value and farming techniques; and documentation of indigenous knowledge and practices.
- **Stress on fundamental science research in agricultural entomology:** Population genetics of agricultural pests with changing scenario; pesticide residue in food chain including biomagnifications; exhaustive investigations on soil arthropod diversity influenced by agrochemicals; strengthening taxonomic and biosystematics research in agricultural entomology.
- Promotion of multi-cropping to minimize vector-transmitted plant diseases.
- Mission mode programme for increasing crop yields conservation and fostering of crop-specific pollinators for enhancing crop productivity: habitat configuration based on chemical ecology and through promotion of crop specific *Apis* and non-*apis* pollinators especially in key crops.
- Identification of alternate more discriminatory term for entomophagy like insectarian.
- Development of crop, area and season-specific pest calendars for the country.

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Parliamentary Standing Committee on Agriculture visits CIFE



Mumbai, 29 January 2015. Parliamentary Standing Committee on Agriculture visited Central Institute of Fisheries Education with Shri Hukmdev Narayan Yadav (an MP) as Chairperson. The Members of the Parliament saw Laboratories, National Fisheries Library, Aquarium House, Sports and other infrastructure facilities and interacted with faculty and students. Dr W. S. Lakra (Director, CIFE) made a presentation on the achievements of the Institute. During the discussion with the Director and other representatives of the Institute, and the committee suggested to take up research on small indigenous fish and prawn species in a partnership mode with other research organizations, conservation of endangered fish species and more awareness programmes for farmers. They also suggested to provide new thrust to North- Eastern States and

Eastern part of India for Blue Revolution in Inland Fisheries.

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Review Meeting of KVKs

Rahuri, 9 February, 2015. A Review Meeting of Krishi Vigyan Kendras (KVKs) of western Maharashtra was organized at the Mahatma Phule Krishi Vidyapeeth in co-ordination with the Zonal Project Directorate, Zone-V, Hyderabad. Dr T.A. More (Vice-Chancellor, MPKV) emphasized to give more focus on the women force working in agricultural sector. He added that the role and contribution of women in agriculture is crucial hence, KVKs need to empower them with knowledge and skills. The entrepreneurial capabilities of rural youth need to be enhanced for the development of villages. The awareness on nano-technology, biotechnology and Genetically Modified crops also need to be expanded for their effective utilization in agriculture, Dr More said.

Dr K.D. Kokate (Director of Extension Education) called for accessibility of sustainable technologies for the livelihood security of farmers. Dr Kokate added that Krishi Vigyan Kendra (KVK) is an institutional innovation mechanism and should focus on farmer centric growth through appropriate technologies. Benchmark survey is needed for assessing the outcome and output of KVKs, Dr Kokate said. The Programme Co-ordinators of sixteen KVKs in the university jurisdiction presented their activities.

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International Linkages

Indo-French Workshop on Scientific Co-operation for Agricultural Research

New Delhi, 11 March 2015. Indian Council of Agricultural Research (ICAR) and Institute de la Recherche Agronomique (INRA) jointly organized a workshop on Scientific Cooperation for Agricultural Research from 9 to 11 March 2015 at NASC Complex. The workshop was supported by Centre Franco Indien pour la Promotion de la Recherche Avancée (CEFIPRA), India's first and France's only bilateral Science and Technology supporting organization with the objective of developing linkages between scientific communities of the two countries in the area of agricultural science and also to identify possible areas for collaboration. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurated the workshop and welcomed the participants. Dr Francois Houllier (Director General, INRA, France) highlighted the importance of the



workshop in the context of the ICAR-INRA MoU signed in 2003, to promote collaborative relations between the scientists of both the countries. Mr Francois

Richier (Ambassador of France in India) elaborated the role of knowledge and technology exchange in strengthening the Indo-French agricultural cooperation. Mr R. Rajagopal (Additional Secretary, DARE and Secretary, ICAR) mentioned the deep rooted Indo-French relationship and termed this workshop as a watershed event. During the first day of the workshop Indian and French scientists interacted for identifying the possible collaborative areas of research in the following thematic areas:

- Adaption of Agricultural and Forest to Climate Change
- Ecosystem services
- Sustainable Management of Crop health.

The other thematic areas were Genomic Selection, Study of Transition for Global food Security, Diet Impacts and Determinants: Interactions and Transitions, Food Processing and Packaging. Each session was headed by a French and an Indian scientific coordinator, and it included respective presentations on the current scientific progress in that



field, along with a brief overview of the ongoing projects and funding programmes available in their respective research institutes. The objective of each session was to foster discussion, with a mandate for identification of topics for joint proposals of research.

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Mutual benefit of AARDO member countries at CIAE

Bhopal, 10 February 2015. A two-week International Training programme for the nationals of African-Asian countries, sponsored by the African-Asian Rural Development Organization (AARDO) was inaugurated at Central Institute of Agricultural Engineering. Indo-foreign training programme funded by the Ministry of Rural Development, Government of India, under international collaborative programme on Equipment and technologies for Processing and Value-Addition to Agricultural Product at Small Scale/Rural Level, was organized from 10 to 24 February 2015. African-Asian nationals belonging to eight African-Asian countries namely Egypt, Ghana, Iraq, Jordan, Nigeria, Sri Lanka, Taiwan and Yemen attended the training programme. Speaking on the occasion, the Chief Guest, Dr Manoj Nardeosingh (Assistant Secretary General, AARDO) appreciated the role of Central Institute of Agricultural Engineering (CIAE) in promotion of mechanization in

these countries through conducting regular capacity building programmes. Dr K.K. Singh (Director, CIAE) stressed need for more such programmes on agricultural engineering technologies for the mutual benefit of AARDO member countries. The scientists of CIAE highlighted on feedback of last five programmes conducted by CIAE in the past and acknowledged support of AARDO and Government of India.

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International Consultation Meeting on Fish Genomics

Bhubaneswar, 23 January 2015. An International Consultation Meeting on Fish Genomics was organized at Central Institute of Fisheries and Aquaculture to discuss current status of fish genomics research and applications in India and abroad with a focus on developing a roadmap for future fish genomic research in India. The International consultation was led by the Dr Z. John Liu (Professor from Auburn University, AL, USA). Dr P. Jayasankar (Director, CIFA) made a presentation on 'Genetic Improvement: Journey for Black box Approaches to Genomics' where he highlighted the need of genomics in traditional breeding and achievement of Central Institute of Fisheries and Aquaculture (CIFA) under genomics work. Dr Jayasankar urged for future Indo-US collaboration in the fish genomic area for genetic improvement programme. Subsequently, the chief guest of the consultation Dr Z. John Liu explained the breakthrough of whole genome sequencing and annotation in catfish, and emphasized the need of genomics in aquaculture for mitigating global problem of food and climate





change scenario. Professor Liu also emphasized the need of team work, networking and collaboration across the researchers in the world for genomics.

Dr T. Mohapatra, (Director, CRRRI), explained about Plant genomics and breakthrough in the rice genomic field and achievements. Dr Mohapatra emphasized on the need of research pertaining to functional analysis of genes/allele mining and driven research from genomics to phenomics. Dr Mohapatra also elucidated

the study of genetic variation at nucleotide and amino acid level in the crops including rice. Further, scientists stressed upon the need for collaborative projects for utilization of ASHOKA facility of ICAR for sequence data analysis with the focus on the need of development of SNP chips in the aquaculture species for genomic selection with respect to production traits. The deliberations were on Fish genomic resources in India; Genomics in cold water fishes in India; ESTs for Functional Genomics in rohu; the success story of Selective Breeding programme of Indian Major Carps rohu name as Jayanti; Carps spermatogonial stem cell research: gene regulation and manipulation etc. The consultation meet raised many issues related to developing a roadmap for application of genomics in genetic improvement programmes. Marker assisted breeding, whole genome sequencing, phenomics, development of phenotypic and ontology databases and Genomic selection in aquaculture were identified as the critical areas in which ICAR and other organizations like Auburn University, USA should have collaborative and network programmes.

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MoA/MoU

CRRRI signs MoA with private seed company

Cuttack, 14 January 2015. The Central Rice Research Institute has developed three rice hybrids namely Rajalaxmi (CRHR 5), Ajay (CRHR 7) and CR Dhan 701 (CRHR-32) of which Ajay and Rajalaxmi are for cultivation in irrigated ecology, whereas CR Dhan 701 is for shallow lowland ecosystem. The maturity duration of these hybrids are 130, 135 and 142 days,



respectively. These hybrids are becoming popular and private seed companies are coming forward to take up production and marketing of hybrid seeds under MoA on non-exclusive basis. The Central Rice Research Institute signed a Memorandum of Agreement (MoA) with Bioseed Research India, Hyderabad for the support of the hybrid in coming years in the country. By now CRRRI has signed 26 MoUs with private seed companies under Public-Private Partnership mode for the benefit of farmers.

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ICAR signs MoU for advancing animal production, health and welfare research and training

New Delhi, 17 February 2015. A Memorandum of Understanding was co-signed by Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) and Prof. James Smith (Vice-Principal International of the University of Edinburgh, Edinburgh, United Kingdom) to cementing a long and fruitful relationship to benefit Indian animal production research and veterinary education over the coming years. Alongside discussions about future research collaborations, these knowledge exchange activities are planned to extend beyond discovering how the use of new technologies can help and improve animal resistance to disease, enhance sustainable animal productivity, and improve animal welfare, to consider how through the international partnership, Indian veterinary and animal science training can be strengthened to provide the well-qualified and skilled-researchers and veterinarians needed to serve the changing needs of the animals and people within India. Sustainability is the key to success, and at the workshop held at the ICAR headquarters on the 16 and 17 February 2015, Professor Smith said, "We are looking forward to working closely with our Indian colleagues to collaborate in key strategic research and education areas, to advance livestock production, health and welfare".

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CRIDA signs MoUs for transfers of non-exclusive licenses to entrepreneurs

Hyderabad, 6 March 2015. The Central Research Institute of Dryland Agriculture (CRIDA) has successfully commercialized farm machinery technology to 5 major firms from Maharashtra after signing MoUs with them. The institute had showcased designs of 15 farm implements, viz. CRIDA ridger planter/BBF planter (Tractor drawn), CRIDA Precision planter-cum-Herbicide applicator, CRIDA 9- row planter, CRIDA 6- row planter, CRIDA 3/4 row planter (Bullock drawn), CRIDA 2 row

planter (Bullock drawn), CRIDA plough planter and drill plough, CRIDA Manual weeder, CRIDA Bullock drawn weeder, CRIDA Orchard Sprayer, CRIDA Castor sheller, CRIDA Groundnut stripper, CRIDA mini dhal, CRIDA herbal dryer and CRIDA vegetable preservator to the firms for non-exclusive licensing. These technologies were transferred through Memoranda of agreements which included one time contracting fee and periodic royalty payment on sale proceeds. Dr Ch. Srinivasa Rao (Director, CRIDA) urged the firms to adhere to the quality of the implements so that the farmers can reap the benefits of the research outputs of the institute.

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Capacity Building

RAU to be converted as R-CAU

Patna, 25 January 2015. The Union Agriculture Minister Shri Radha Mohan, has taken the initiative to expedite the implementation of the proposal of the establishment of full-fledged Central Agricultural University at Pusa, Bihar. He held a meeting with the DARE, ICAR and Chief Minister of Bihar to formally sign the Memorandum of Understanding. This academic initiative provides an opportunity to produce agricultural professionals to serve Bihar as well as the rest of the country.

Agricultural productivity in Bihar was highest in the country till independence. In order to boost the cause of agricultural education in Bihar, there has been a long standing demand to establish a full-fledged Central Agricultural University in Bihar. For this purpose, it was thought appropriate to convert the existing Rajendra Agricultural University (RAU), Pusa into a Central Agricultural University (CAU). Initially the proposal for this was initiated by the Government of Bihar in 2009 and the in-principle approval was accorded by the Planning Commission on this proposal of CAU in Bihar. It was suggested that the existing RAU, Pusa will be converted into a CAU with the name Rajendra Central Agricultural University (R-CAU), Pusa. The 5 colleges, 7 research institutes/stations and 11 Krishi Vigyan Kendras are proposed with the R-CAU. The proposed R-Central Agricultural University and the BAU, Sabour are proposed to have the jurisdiction over whole of Bihar. A total of ₹ 400 crore was proposed

for this R-CAU during XII Plan.

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Capacity development in agro-meteorology at CRIDA

Raipur, 12 February 2015. On the recommendation of the XIII Biennial Workshop of All India Coordinated Research Project on 'Agro-meteorology', held in November 2014 at Raipur, knowledge updating was made mainly in the topics of crop growth simulation modelling and crop-weather relationship at Central Research Institute for Dryland Agriculture. The capacity building programme for the scientists of All India Coordinated Research Project on Agro-meteorology was held from 3 to 12 February 2015 in which 30 Agro-meteorological/Agronomists



New ICAR-DKMA Publications

- *Medicinal Plants in India*
- *Wild Relatives of Cultivated Plants in India*
- *Mathematical Modelling of Agricultural Drainage, Groundwater and Seepages*
- *Energy in Production Agriculture*
- *Biological Control and Plant Diseases of Tuber Crops and their Management*
- *Guidelines of Crop Variety Testing under AICRP*

participated from 21 network centres of the project.

In Decision Support System for Agrotechnology Transfer (DSSAT) crop simulation modelling exercise, scientists from eight centres trained on CERES rice modelling and of three centres worked on groundnut modelling. In this exercise participants learnt input data management, crop cultivar coefficient development, calibration of models for respective locations and climate change impact assessment using RCP scenarios.

The second batch of scientists worked on crop weather relationship in soybean, sunflower, chickpea, mustard, maize, greengram, cotton, wheat, rice and sorghum. In this exercise, participants learnt to arrange crop and weather data in formats, identification of critical weather parameters and critical growth stages, development of simple response functions etc. Besides, participants were imparted skills in using advanced statistical packages like SPSS and SAS.

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Camel milk at sale

Bikaner, 24 January 2015. The National Research Centre on Camel took initiative in reaching out to the general public to create awareness about functional health food benefits of camel milk by starting camel milk promotion point in the Bikaner city at 'Senior Citizen Walkway'. Under the camel milk sale activity the NRC on Camel made camel milk available for the residents of Bikaner for one month. It was found that camel milk is a solution of human health problems like diabetes type I, autism, hypertension, milk allergy to children, non-alcoholic liver disorders, T.B., asthma etc. Another important purpose of this initiative is to project camel milk sale as an economic activity for the camel herders who are presently not using this commodity to gain commercial benefits. The response and need generated by this activity is expected to promote the camel herders to unite and form self-help groups who can decide taking up camel dairy as a vocation. The Centre established regular demand-supply chain. The NRCC helped the camel milk producers to understand the concept of clean milk production, and provided training on pasteurisation and storage of camel milk to ensure availability of clean camel milk to the customers.

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Awareness on PPV&FRA Act 2001

Ranipool. The Government of India enacted 'The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act 2001 adopting *sui generis* system. Indian legislation is not only in conformity with International Union for the Protection of New Varieties of Plants, 1978, but also have sufficient provisions to protect the interests of public/private sector breeding

institutions and the farmers. The legislation recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity and specific socio-economic interests of all the stakeholders including farmers. In order to create awareness about PPV&FR Act, 2001 the Krishi Vigyan Kendra (East Sikkim, Ranipool) organized one day awareness programme for the farmers of nearby villages on 27 February 2015. Shri C.K. Dorjee (Director, Press Information Bureau) highlighted the importance of this programme and motivated the farmers to learn the role of indigenous local landraces in food security of the region. Shri Dorjee said that Press Information Bureau (PIB) is also popularizing such kind of programmes by Public Information Campaigns.



Dr R.K. Avasthe (Joint Director, ICAR Research Complex for NEH Region, Sikkim Centre) briefed that Sikkim is blessed with plenty of local germplasm like 55 land races of rice, 26 land races of maize, 2 land races of buckwheat, 2 land races of sorghum, 34 of local beans, 2 Amaranthus etc., which can be utilized for the development of climate resilient varieties. Dr Avasthe cautioned farmers to protect their indigenous germplasm for their own benefits.

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R&D of ICAR Research Complex for NEH Region shines

Umiam, 7 February 2015. The Union Minister of State, Ministry of Micro-, Small-, Medium-Enterprises, Shri Giriraj Singh, visited ICAR Research Complex for NEH Region where he was apprised enterprising technologies evolved by the ICAR, which may promote entrepreneurial opportunities in developing micro-, small-, medium-, level of industries in NEH region. The Union Minister was highly impressed with technology demonstrations like Integrated Farming System (IFS), Agro-processing Unit, Animal Production Farm, Meat Processing Unit etc. In the agro-processing centre of the institute, the displayed products were jam, canned and dehydrated products of pineapple, turmeric and ginger powder, orange squash and candy from orange peel, candy from ginger, *amla*, carrot, chow chow etc.



Shri Singh enquired about some relevant technologies of north-eastern hills region like nutritional aspects of piggery, profitability of fish farming and improved production technology of bamboo etc. He stressed upon developing commodity based model village and advised to link agriculture to market for livelihood security of the farming community. Shri Singh also suggested to adopt some model demonstrations on QPM cultivation integrated with piggery, integrating moringa (drumstick) production with mushroom and dairy production for its high nutritional value; and advised to give importance to local vegetable germplasm like Chow-chow (Piskot) for its anti-carcinogenic properties. The Union Minister also distributed improved seeds of potato, french bean and pea; and silpauline for rain-water harvesting through *Jalkund* to the assembled farmers under Tribal Sub-Plan project.

Dr S.V. Ngachan (Director, ICAR Research Complex for NEH Region) highlighted about hill farming system research through developing secondary agriculture, agri-preneurial technology and women friendly agriculture.

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Seaweed cultivation and utilization

Mumbai, Shri M.B. Gaikwad (Commissioner Fisheries, Government of Maharashtra) inaugurated a meeting on Prospects of seaweed cultivation and utilization in India and stressed on the farmers necessity and how this concept on seaweed cultivation would help



Maharashtra coastal fisher community. Dr A.S. Ninawe (Advisor, DBT) emphasized on bio-prospecting of seaweeds. Dr W.S. Lakra (Director, CIFE) highlighted overall importance of seaweeds in national economy and rural livelihood. The experts (17) from academia, industries, research institutes participated and presented their thoughts and suggestions on seaweed cultivation utilization. The programme was conducted in two sessions: cultivation, and utilization. Deliberations were made on different arenas for cultivation, products other than phyco-colloids such as food, aqua-feed and nutraceuticals. The industries also showed their interest in trying out different seaweed species from Maharashtra coast.

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Retrospection-2014

Rahuri, 29 January 2015. Retrospection-2014, a programme to review the university's education, research and extension activities was organized at the Mahatma Phule Krishi Vidyapeeth. Shri Popatrao Pawar (Executive Chairman), *Aadarsh Gaon Yojana* and Ex-Sarpanch, inaugurated the photographic exhibition and advised to give a serious thought on judicious use of water. Effective soil and water conservation



techniques need to be implemented for enabling the recharge of groundwater. Pollution of groundwater is a matter of concern, he said. Shri Pawar focused on rural and agricultural development of the model village. Besides he put forth the social problems of the society and appealed to the agriculture graduates to come forward for fostering the socio-economic development. Dr T.A. More (Vice-Chancellor, MPKV) expressed his concern on various natural hazards like biotic and abiotic stress, climate change, hailstorms etc. The university has prioritized the research areas for combating these concerns, Dr More informed. An Integrated Farming System model developed by the university will bring sustainable income to the farmers. Dr More added that the university has started new Government Agriculture Colleges at Nandurbar and Karad, and efforts are on to give maximum facilities for the students. Dr K.D. Kokate (Director of Extension Education) presented the last year's extension education activities of the University. The University publication *Krishi Darshani*, 2015 was released on this occasion.

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XXX Convocation of MPKV



Rahuri, 29 February 2015. The XXX Convocation of Mahatma Phule Krishi Vidyapeeth, was organized in the central campus, Rahuri. Hon'ble Governor of Maharashtra Mr Vidyasagar Rao presided over the function. Dr Raghunath Mashelkar (National Research Professor and President of Global Research Alliance) delivered convocation address and said, "We must move to learning by using collective intelligence". The challenge for the Indian Agriculture Innovation System will be also to get 'more from less for more'. Indian demand for foodgrains would increase from 192 million

tonne in 2000 to 342 million tonne in 2030. This is possible by using the power of new technology, such as information and communication technology, nanotechnology, space technology, modern biotechnology etc. Dr Mashelkar added that we must build a robust Indian Agricultural Innovation System based on our great strengths. We must build our own Indian Agriculture Innovation Index. With this we will achieve the dream of moving rapidly from 'green revolution' to the much needed 'evergreen revolution' and 'nutritional revolution'. We will then achieve our dream of 'food for all'.

HE Governor of Maharashtra, Mr Vidyasagar Rao conferred the degrees and medals to the students. Dr T.A. More (Vice-Chancellor) said that 18 foreign students have taken admissions for Ph.D. and PG degrees through the Indo-Africa and Indo-Afghanistan educational programme. The university has so far released 237 crop varieties, 120 agricultural implements, tools and 1,250 technology recommendations for the farmers. The co-ordination of farmers and scientists is effectively done through the Farmers-Scientists Forum.

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Celebrations/Awareness

XV Foundation Day of ICAR Research Complex for Eastern Region

Patna, 22 February 2015. The Union Minister of Agriculture, Shri Radha Mohan Singh, focused on 'Mera Gaon, Mera Gaurav', and stressed upon the implementation of lab-to-land programme in large-scale for taking technologies to the villages on XV Foundation Day at the ICAR Research Complex for Eastern Region. The Union Minister of Agriculture desired that extension bulletin and leaflets published by the ICAR institutes should be



made available to the district level agricultural offices of the State Government for its effective extension.

Dr H.S.Gupta (Director General, Borlaug Institute for South Asia) delivered the



Foundation Day Lecture on 'Making a Vibrant Research Organization' and stressed on the research on input use efficiency in agriculture for making it more profitable.

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VIII Foundation Day of NRC on Meat

Hyderabad, 22 February 2015. Dr D. Rama Rao (Director, NAARM) lauded the role of NRC on Meat in providing training and technical support, extension and awareness programmes among veterinarians, meat processors, butchers and consumers on VIII Foundation Day of National Research Centre on Meat. He suggested the Centre to take up the work to ensure clean meat production and efficient utilization of slaughterhouse byproducts. Dr Rao also focused on the importance of livestock sector for ensuring nutritional security and specifically the role of NRC on Meat in promoting value addition and entrepreneurship development and released the *NRC on Meat's Newsletter*.

On this occasion, two Memoranda of Understandings were signed with entrepreneurs trained at NRC on Meat for test marketing and utilization of meat processing facilities at National Research Centre on Meat. Mr Gulzar Ahmed (Managing Director) and



Mr Obedullah Qureshi signed the agreement with NRC on Meat on behalf of their firms. Dr Rama Rao elaborated the importance of signing MoU with entrepreneurs and said that NAARM would take up further up scaling of technology and expansion of business opportunities for entrepreneurs.

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World Water Day

Karnal, 21 March 2015. The Central Soil Salinity Research Institute celebrated a World Water Day with a view to aware the farmers about the importance of water and its sustainable use. Shri S.K. Jain (Regional Director, Central Ground Water Board, Chandigarh) informed the farmers about the aquifer mapping which will provide important information on availability of water and its quality up to 1,000 m depth in a particular area. Dr D.K. Sharma (Director, CSSRI) highlighted that under limited available resources and increasing cost of cultivation, the Institute has developed a multi-enterprise agriculture model which could help in multiple use of water. Dr Sharma also said that about 50% of irrigation water can be saved by adopting DSR with sprinkler irrigation in rice and added that the proper use of wasteland and water can make a remarkable contribution to the production of foodgrains to sustain the livelihood.



Dr S.K. Kamra (Head, Division of Irrigation and Drainage Engineering) informed that 40% water is of good quality and 60% is brackish in Haryana. Therefore make efficient use of good quality and brackish water by adopting management practices. Dr Kamra also explained about the groundwater recharge technology which can help in increasing the availability of ground-water in future.

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National Science Day

- Bengaluru, 28 February 2015. The 'National Science Day' was observed at IIHR to commemorate the invention of 'Raman Effect' by the Great Indian Physicist Sir C.V. Raman, and on this day school students were sensitized about innovations of IIHR



developed horticultural science. The students were briefed about the programme and activities as well as innovations of IIHR. More than 500 students visited the Institute and got benefitted.

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- Umiam, 28 February 2015. The National Science Day was commemorated by the ICAR Research Complex for NEH Region with the theme 'Science for Nation Building' in collaboration with NERIE, NCERT, Shillong. The programme was organized to sensitize the school students regarding the importance of science not only in agriculture development but also in our day-to-day life. Dr S. V. Ngachan (Director, ICAR Research Complex for NEH Region, Meghalaya) highlighted the role of science in transforming society by citing various examples of scientific occurrences. Dr Ngachan expressed that due to the application of science our country has achieved the foodgrain sufficiency with a production of 267 million tonne adding about 7 million tonne over the last year production feeding to a population of more than 1.2 billion.

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Farm Innovators Day

- Mansa Devi, 28 February 2015. With the aim to have an open interaction with farmers and scientists and also to honour deserving hard working farmers who contributed to the development of agriculture through adoption and dissemination of modern agricultural technologies the Indian Institute of Soil and Water Conservation, Research Centre organized Farm Innovators Day at Mansa Devi Research Farm, Haryana. At the outset, a brief introduction on implication of Farm Innovators Day celebration was given by the Coordinator, Dr Ram Prasad. Different technologies developed by the centre for increasing crop production from degraded lands were discussed with



the farmers. Chief guest, Sh H.S. Lohan (Ex-Director of Agriculture, Haryana), addressed the gathering and emphasized the need for adoption of innovative agricultural technologies and also enlightened the farmers in different ways of overcoming field level constraints faced by farmers. A detail feedback was taken from the farmers regarding their needs to develop a more improved production system. The major problems of the region highlighted by the farmers were water scarcity, lack of guidance for application of manures and fertilizers, insect problem in ginger, tomato, mango and *aonla*, availability of quality seeds, problems of livestock management. The proposal of farmers with respect to establishment of more numbers of dams, self-help group, renovation of ponds, field leveling and laying of pipelines were evaluated. Field visit was conducted to show the technologies developed to the farmers and tested at the research farm.

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- Vasad, 28 February 2015. The Farm Innovators Day was celebrated at Indian Institute of Soil and Water Conservation, Research Centre. The programme aimed at motivating farmers to adopt modern and appropriate soil and water conservation technologies under ravines and watershed programmes. Five farmers were honoured with 'Innovator Award' to recognize their special contribution in their corresponding fields. Dr D.C. Joshi (Dean, Faculty of Food Processing, Anand Agricultural University) said that farmers are the true researchers in Agriculture. Dr Joshi emphasized the importance of primary level processing to increase the overall income and profitability of the cultivation. Shri Ramesh Patel (Team Leader, FES, Anand) informed about the importance of *Samajik Vanikaran Yojana* to the farmers.

Farmers from Kaprupur, Nana Rampura and Mota Rampura villages in Kheda District, Rajeeपुरa, Mandavapura and Ankavadi in Anand district, Navagaon, Navad and Revaliya villages in Panchmahal Districts participated in this event.

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- Cuttack, 27 January 2015. The Central Rice Research Institute observed 'Farm Innovators Day' and 'BGREI Scientists-Farmers Interaction Meet'. Shri Ranglal Jamuda (Special Secretary, DAC, Ministry of Agriculture, Government of India) inaugurated the event and emphasized on 'Seed, Soil and Water' for sustaining agricultural production in the state and stressed the need for addressing problem soils and micronutrients deficiency. Shri Jamuda advised the scientists to develop improved varieties suitable for various abiotic and biotic stress situations like, flood, submergence, drought, salinity and alkalinity that afflict Indian soils. The Special Secretary (DAC, MoA, Government of India) appealed the farming communities to take advantages of the varieties and technologies developed by CRRI and felicitated 32 innovative rice farmers.

Dr P.K. Meherda (Commissioner-cum-Director, Department of Agriculture and Food Production, Government of Odisha) said that progress in agriculture sector was impossible without seeds of improved varieties, technologies, farm machineries and efforts of our farmers. Dr T. Mohapatra (Director, CRRI) highlighted the significant achievements of the institute specially the recently released rice varieties and their suitability for diverse ecologies and summarized the suggestions for taking further actions. Three extension bulletins on '*CRRI rice varieties for diverse ecologies*', '*Rice nematodes and their management*', and '*Agro-climatic characterization for crop planning in water stress prone area of Ganjam*' were released. An exhibition displaying CRRI technologies and implements was also organized on the occasion.

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International Women's Day

- Bengaluru, 10 March 2015. The International Women Day was celebrated at Indian Institute of Horticultural Research (IIHR), Hessaraghatta. Dr Girija Ganeshan (Chairman, Women Cell at IIHR) reminded the need for continued vigilance and action to ensure women's equality in the fields of business, politics, health, education and justice. Smt Vijayakumari (ADJ, Bengaluru) stressed on equal rights to women in economical, social and political areas. She emphasized on the role of woman to protect her children from sexual abuse. Smt. B.G. Rama (ADJ, Bengaluru) insisted that everyone should give importance to human values and also stressed on misuse of human rights. Dr T. Manjunatha Rao (Director, IIHR) emphasized more on women education that inturn benefits family and society as well. The woman achievers of IIHR were felicitated and the programme ended with cultural activity.

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- Bhopal, 7 March 2015. On the occasion of celebration of 'International Women's Day' special



programme was organized at Central Institute of Agricultural Engineering for members of Women Cell of the Institute. Programme was started with a quiz on general knowledge. Dr K.K. Singh (Director, CIAE) expressed his views and highlighted the role of women in agriculture as well as other important service sectors. Smt Veena Sablok Pathak (Freelancer Journalist), Bhopal delivered a talk on 'Situation of women and rights in Indian Society'.
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Field Day-cum-Sangosthi at DWSR

Jabalpur, 18 March 2015. The Directorate of Weed Science Research organized Farmers' Field Day-cum-Sangosthi at Bharda village of Panager locality. Dr A.R. Sharma (Director, DWSR) focused on newer techniques coming up in crop cultivation, conservation agricultural technique, sowing by seeder machine and improved crop production practices being adopted in other localities in Madhya Pradesh. Farmers were informed about the importance of good seed varieties, proper seed rate, fertilizer usage and timely irrigation etc. The ill-effect of crop residue burning and the advantage of left-over residues in enhancing soil fertility were also highlighted. The advantages of



conservation agriculture and sowing by happy seeder machine were illustrated by scientists from Directorate of Weed Science Research to farmers by citing the nearby field trial. The adopted farmers who had used the seeder and followed conservation agriculture technology also shared their experiences to the participating farming community. The importance of different aspects of weed management in crop production were briefed to farming community. The outcome of the IWM technologies both in conventional agriculture and conservation agriculture practices were also discussed.

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Field Day at IIHR

Bengaluru, 24 January 2015. Dr G. Kalloo (former DDG, Horticultural Science) inaugurated Field Day on Vegetable varieties/ F_1 hybrids and improved production technology to farmers from Coorg. To enhance scope of vegetable production Farmers-scientists interaction was also held.

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Grape Field Day

Pune, 8 February 2015. The National Research Centre for Grapes organized a 'Grape Field Day' and showed the potential of hybrid 'Medika' as a potential juice variety with pharmaceutical properties due to its high content of resveratrol and polyphenols. It is a teinturien variety with attractive deep red-colour juice with 21°-22° Brix sugar and highly rated organoleptic properties. This variety was developed at the Centre by crossing Pusa Navrang with Flame Seedless grapes.



The commercial viability of ready-to-serve (RTS) drink made from 'Medika' was shown to the growers. The other promising hybrids and selections developed by the Centre viz. Manjri Naveen, Kishmish Rozavis White, and A 18/3 were also showcased at their physiological maturity in the varietal demonstration block. Introduced grape varieties like Autumn Royal and Fantasy Seedless were also showcased. Grape growers from Maharashtra (662) participated at this occasion.

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National Farmers' Fair-cum-Vegetable showcasing

Varanasi, 31 January 2015. Under *Sansad Adarsh Gram Yojana*, launched by Hon'ble Prime Minister of India, Smt Durgawati Devi (*Gram Pradhan* of Jayapur, Uttar Pradesh) adopted a village. She presided over the inaugural function, National Farmers' Fair-cum-Vegetable showcasing (jointly organized by IIVR and Association for Promotion of Innovations in Vegetables) at Indian Institute of Vegetable Research on 30 January 2015. She highlighted the contribution

of Indian Institute of Vegetable Research in the development of vegetable cultivation in this region which has led to improved productivity and income generation for the farmers.

Dr N. K. Krishna Kumar (Deputy Director General, Horticultural Science) highlighted that horticulture fetches higher income, thus more and more farmers are shifting to this sector from conventional cultivation. The DDG (Hort. Sci.) emphasized that more focus should be on development of new varieties of vegetables suitable for diverse and changing climatic conditions. More than five thousand farmers from different states participated in the fair.

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Agricultural implements to farmers and SHG under Tribal Sub-Plan 2014-15

Koraput, 20 January 2015. A programme was organized by the Indian Institute of Soil and Water Conservation (IISWC), Research Centre, Sunabeda under Tribal Sub-

Plan at village Challanput, *Gram Panchayat* Rajput, Block Semiliguda.

Mrs Malati Majhi (Chairman, Zilla Parisad, Koraput) expressed her concern about the poor economic conditions of the women farmers of the district. She briefed about the different developmental schemes implemented by the State Government for the improvement of agriculture production and called the farming community to take benefit of different programmes and schemes of Government. She appreciated farm-women working in tribal district for the natural resource conservation and distributed agricultural implements like Paddy thresher, winnower, marker, potato digger, transplanter, *khurpi*, spade, sickle etc. to the farmers and the SHGs on this occasion.

During the event, about farmers from four adopted villages i.e. Challanput, Patraput, Podagad and Mukhibidei under TSP, were attended. Besides, members of Self-Help Groups from the four villages were also participated in the function.

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Visits

Union Minister for Agriculture visits Yelahanka Farm of IIHR

Bengaluru, 9 January 2015. Shri Radha Mohan Singh, Union Minister for Agriculture, visited Yelahanka Farm of IIHR, and an exhibition of horticultural-crops and technologies of IIHR in which seed and planting material were displayed. The Union Minister for Agriculture showed keen interest in the technologies and enquired about the extent of coverage of these technologies in the farmers' field and their adoption. Shri Radha Mohan stressed the need for reaching the unreached in extensive and professional manner. Shri D.V. Sadananda Gowda, Union Minister for Law and Justice, mentioned about the effective linkage between the IIHR and Karnataka Government, which has helped in the spread of technology and emphasized

on better marketing facilities for the horticultural produce.

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DG, ICAR visits ZPD, Kanpur

Kanpur, 23 February 2015. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) visited the Zonal Project Directorate, Zone-IV where he highlighted the status zonal of XII Plan EFC and the new initiatives taken by this Zonal Project Directorate to invigorate the performance of KVKs. DG, ICAR expressed that the Krishi Vigyan Kendras (KVKs) in the district must target for yield enhancement to the extent of 25 to 30% using varietal and other interventions. The immediate yield impact need to be segregated for the effect of other institutions and schemes operating in the district. The frontier areas of technological options like protected cultivation, integrated farming system and information and communication technologies may be harnessed and the extension researches must be strengthened. The DG, ICAR also urged the KVKs to validate the farming models so that farmers working under rainfed conditions may comfortably earn the net profit of ₹ 2.0 lakh/ha and those operating under irrigated system could generate ₹ 3.0 lakh/ha as net profit. The incidence and damage by the vertebrate pest may also be documented and the local repellents and other indigenous preparations to deter such wild animals may be assessed and popularized. Dr Ayyappan stressed for developing the district specific crop plan,





collection of indigenous germplasm and planting materials, forming Farmer Producer Organization as well as Women Organizations and making frequent field visits then the office stay.

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Ethiopian delegation visits KVK, CRIDA

Hyderabad, 20 February 2015. A 19-member delegation from Bureau of Agriculture, Ethiopia along with two faculty members of BASIX Academy for Livelihood and Micro-enterprises Promotion, Hyderabad visited Krishi Vigyan Kendra, CRIDA and Hayathnagar Research Farm as part of their six-day study programme. Dr M.



Prabhkar (Programme Co-ordinator, KVK) briefed the delegation about the role of CRIDA in Dryland Agriculture and the various extension activities by KVK in Ranga Reddy District. Field visit was organized to the KVK-model watershed, wherein they were explained about the watershed concept, rainwater harvesting structures and water conservation measures. Live demonstrations of drip irrigation, micro-sprinklers, vegetable cultivation on raised beds, plastic mulching and on-farm low cost vermi-composting technique was

well appreciated by the visitors. The Ethiopian delegation showed keen interest in the fodder cafeteria where 18 species of fodder were on display, and the different livestock units, viz., sheep, goat, Deoni cattle breed maintained at the farm. The delegation interacted with KVK staff on the extension methods and linkages with State Agriculture extension and Private industry in dissemination of technologies.

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Bangladesh delegation visits NBAIM

Mau Nath Bhanjan, 28 February 2015. A three-member delegation led by Dr Jahangir Alam (Chief Scientific Officer, National Institute of Biotechnology, Dhaka, Bangladesh) visited National Agriculturally Important Microbial Culture Collection (NAIMCC) and other laboratories of National Bureau of Agriculturally Important Micro-organism (NBAIM), Mau to understand structure and function of NAIMCC, in order to set up a similar 'Microbial Gene Bank' in Bangladesh.



The delegation consisted of Dr Jahangir Alam (Chief Scientific Officer and Head, Animal Biotechnology Division, National Institute of Biotechnology, Dhaka, Bangladesh), Md. Abdul Momin (Ministry of Science & Technology, Bangladesh) and Ms Rakiba Puna (Architect, Bangladesh Atomic Energy Commission, Bangladesh).

Dr Arun K. Sharma (Director, NBAIM) briefed about research achievements and activities of NBAIM including microbial holdings in National Agriculturally Important Microbial Culture Collection.

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Trainings

- Mumbai, 21 January 2015. The Central Institute of Research on Cotton Technology organized a specialized training programme on 'Advances in Microscopy' from 19 to 21 January 2015.

e mail: circot@vsnl.com

- Tadong, 12 February 2015. The ICAR Research

Complex for NEH Region, Sikkim Centre organized three days 'Training-cum-Awareness Programme on 'Organic Vegetable Production' for the Team of Prodigal Home NGO, Nagaland between 10 and 12 February 2015.

e mail: jdsikkim.icar@gmail.com

- Veraval, 12 February 2015. Under Tribal Sub-Plan a four-day Training-cum-demonstration programme on 'Production of Improved Quality Dried Fish using Solar Dryer' was inaugurated on 9 February 2015 at Veraval Research Centre of Central Institute of Fisheries Technology.

e mail: cift@ciftmail.org

- Veraval, 19 February 2015. A seven-day training programme on 'Biochemical Techniques for Fish Quality Analysis' was started at Veraval Research of Central Institute of Fisheries Technology on 13 February 2015.

e mail: cift@ciftmail.org

- Tadong, 27 February 2015. The ICAR Research Complex for NEH Region, Sikkim Centre successfully concluded five-day Training-cum-Awareness Programme on 'Organic Crop Production', organized for Senior Officials of State Horticulture Mission, Government of Kerala.

e mail: jdsikkim.icar@gmail.com

- Hyderabad, 29 January 2015. A three-day entrepreneurial training programme on 'Development of value-added meat products' was started at National Research Centre on Meat on 27 January 2015.

e mail: nrcmeat_director@yahoo.co.in

- Avikanagar, 10 February 2015. A training programme on Demonstration of oestrus synchronization and artificial insemination in sheep was organized at the Central Sheep and Wool Research Institute from 4 to 10 February 2015. The programme was sponsored by Central Wool Development Board, Ministry of Textiles, Government of India. Participants from Andhra Pradesh, Uttarakhand, Jammu and Kashmir, and Rajasthan have joined the training programme.

e mail: cswriavikanagar@yahoo.com

- Dehra Dun, 7 February 2015. The Valedictory function of 111th batch of 4-month regular training 'Certificate Course on 'Soil and Water Conservation and Watershed Management' was organized at Indian Institute of Soil and Water Conservation Training programme from 8 October 2014 to 7 February 2015 at Institute's Hqrs.

e mail: directorsoilcons@gmail.com

Personnel

Appointments

Name	Designation and address	Date of appointment
Dr S.K. Ambast	Director, IIWM, Bhubaneswar	22 January 2015

Appointments Contd.

Dr D.R. Singh	Director, NRC for Orchid, Sikkim	31 January 2015
Dr J.S. Sandhu	DDG (Crop Science), ICAR Hqrs.	2 February 2015 (AN)
Dr P.S. Pandey	ADG (EP&HS), ICAR Hqrs.	5 February 2015
Dr M.B. Chetti	ADG (HRD), ICAR Hqrs.	9 February 2015
Dr I.S. Solanki	ADG (F&FC), ICAR Hqrs.	4 March 2015 (AN)

Superannuations

Name	Designation and Address	Date of superannuation
Dr S.K. Datta	DDG (Crop Science), relieved from ICAR Hqrs	30 January 2015
Dr B. Gangwar	Project Director, Project Directorate of Farming System Research, Modipuram	31 January 2015
Dr M.M. Roy	Director, CAZRI, Jodhpur, relieved	20 February 2015
Dr Neelam Grewal	Director, DRWA, Bhubaneswar repatriated to her parent Department	24 February 2015
Dr A.K. Gogoi,	ZPD, Zone-III, Umiam, Barapani, relieved on completion of tenure	4 March 2015
Dr Manjit Singh	Director, Directorate of Mushroom Research, Solan, superannuated	31 March 2015
Dr S. Arul Raj	Director, Directorate of Oilpalm Resarch, Pedavegi	31 March 2015

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