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## News in Brief



## From the DG's Desk

Dear Readers,

Indian agricultural research and development has witnessed one of the larger patterns of innovations through the National Agricultural Innovation Project (NAIP) that has concluded this year. As we all know the project was implemented by the Indian Council of Agricultural Research with extramural funding support, jointly from the Government of India Plan funds and the World Bank.

The project objectively enabled the innovation capacity of national agricultural research system (NARS) by fostering pluralism in agricultural research and stronger bonds among non-conventional stakeholders. While the country's priority was to have sustainable transformation of Indian agriculture sector from primarily food self-sufficiency to more of a market orientation, poverty alleviation and income generation, do conglomerate to foster socio-economic development. In this endeavour, the NAIP acted as the catalyst to accelerate collaborative development and application of agricultural innovations involving the public, private and non-governmental research organizations and farmers. One of the major strides being, new capacities in Information and Communication Technology (ICT) to address the challenges of sharing, exchanging, and disseminating knowledge and technologies. Establishment of the state-of-the-art technology based Advanced Super-computing Hub for OMICS Knowledge in Agriculture (ASHOKA) at Indian Agricultural Statistical Research Institute, New Delhi is towards this direction—enabling Central Data Warehousing of genomic data and integrating data mining tools to provide on-line system of analysis and knowledge extraction to promote bioinformatics in biotechnological research for agriculture.

Notable strides in the infrastructural innovations to facilitate the agricultural research, education and extension have been: Establishment of online examination facility under the

Agricultural Scientists' Research Board in 23 locations; Rice Knowledge Portal Management Labs in 8 languages at 8 locations; e-learning portal having e-courses content for degrees in Agriculture, Fisheries Science, Dairy Science, Veterinary and Animal Husbandry, Horticultural Science, Home Science and Agricultural Engineering; *Agropedia* (knowledge management) portal; Statistical Analysis of Data Labs at 9 locations; 143 member Consortium for e-Resources in Agriculture (CeRA) in NARS providing 24 x 7 accesses to online library of 3,490 national and international research journals; Online e-Publishing System for Indian Research Journals in agricultural and allied sciences; Digital repositories of knowledge in agricultural science and technology - *e-granth*, *Krishikosh* and *Krishi-prabha*; Knowledge dissemination and market intelligence with e-advisory services at 10 centres across the country etc. In specific, the Integrated Information Dissemination System (IIDS) developed and validated as *Annapurna Krishi Prasar Seva* involving Krishi Vigyan Kendras (KVKs) in Andhra Pradesh is a viable and proven replicable model.

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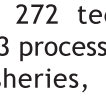
Business Planning and Development (BPD) units spearheaded the innovation management tasks of the NAIP consortia as well as the NARS institutions with two major successful events - the Agri-Investors' Meet and the Agri-Biz Idol Camps culminating into a nation-wide *Krishi Parivartan Yatra*. The latter brought farmers and agri-preneurs at one platform for partnerships in sound commercial ventures in agri-input technologies. BPD units provided support to 91 incubatees graduated for the start-ups in promoting agribusiness; commercialized 331 technologies, facilitated filing of 186 patent applications, mobilized fund (₹ 1,937 lakh) for incubates, and trained 3,743 entrepreneurs across the country.

With regard to value chain, R&D covered production to processing of 272 technologies, including 99 production and 173 processing technologies for crops, livestock and fisheries, along with their social, institutional and economic environments in which these processes operated. Activities in value chains in agro-forestry, forest products and biomass and post-harvest processing and packaging value chain in perishables —flowers, fruits, spices, ginger and cashew and composite geo-textiles of coconut fibre, jute and polyolefin developed are noteworthy.

The NAIP's special focus has been on the improvement of livelihood security of people living in 90 disadvantaged districts through technology-led innovation systems and building social capital. This created a better ownership of the package of activities by farmers and also a sustainable model of rural development. The activity generated 409 site-specific models for natural resource management; improved crop cultivation practices; promotion of horticulture, aquaculture, agro-forestry, backyard poultry and livestock-based farming systems etc. In all, over two lakh direct beneficiary farmers were covered.

While special thrust was given on strengthening basic science research under NAIP, that is now being taken up on programme mode under the Council, strategic research such as biosecurity, nano-technology, transgenics did get a focus. Overall, the NAIP has meaningfully realized a culture of innovation in the Council; built system-wide capacity for organizing and managing the ever-changing scenarios; contributed to the planning and development of business incubation for new innovations; escalated resource augmentation, and development of indigenous or naturalized protocols for attaining excellence in frontiers of biotechnology, nano-technology, sensors in agricultural applications etc.

I am sure the NAIP experiences will help the Council in planning our future R&D and also in manifesting integrated and inclusive agricultural research platform to enable enhanced productivity, soil-health and income generation to the farmers.



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*Wishes its reader*
*a wonderful, joyful, healthy, wealthy &*
*prosperous New Year 2015*

# WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, BRAINSTORMING SESSIONS

## XIII Meeting of ICAR Regional Committee V

Ludhiana, 15 November 2014. A two-day XXIII Meeting of the ICAR Regional Committee V was held at Punjab Agricultural University from 14 to 15 November 2014 under the Chairmanship of Dr S. Ayyappan (Secretary, DARE and DG, ICAR) who emphasized on moving from Green Revolution to Evergreen Revolution. The food basket states of Punjab and Haryana contribute more than 20% country's foodgrain production including 20% rice and 30% wheat. He said that focus should be on crop diversification, climate change, quality seed production of different crops and development of resource conservation technologies and innovative nutrient and water management practices. Dr Ayyappan expressed his concern on sub-surface drainage, bio-drainage, food quality and safety, development of salt-tolerant varieties and improvement in livestock and fishery sector, paddy-straw burning, groundwater issues, pesticide residue. He suggested that farmers should be provided with soil-health cards. He called upon the farm experts to give a new paradigm shift to all the Krishi Vigyan


Kendras through cyber extension and lay special thrust on more farm productivity and profitability.

Dr K. M. L. Pathak, (Nodal person, Regional Committee V) pointed out for meeting the food requirements of 2025 in view of the challenges of climate change and decreasing profits is going to be a tough task. He also highlighted the major breakthroughs made by NDRI in the field of cloning.

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## Commercialization of feed and fodder products

Jhansi, 6 November 2014. With the aim to call various stakeholders involved in technology adoption and dissemination and offered them a basket of technology available for commercialization a Consultative Group Meet on 'Commercialization of feed and fodder products for entrepreneurship development' was organized at Indian Grassland and Fodder Research Institute (IGFRI). A sizable number of different stakeholders from industries of feed and fodder products and farm machinery ; milk federations from Uttar Pradesh, Madhya Pradesh and Rajasthan; Banking sector from NABARD, Dewas (Madhya Pradesh) and Punjab National Bank, Jhansi (Uttar Pradesh); progressive farmers' group from Chitrakoot, Jhansi (Uttar Pradesh) and Dewas (Madhya Pradesh) got the knowledge of IGFRI products including feed pelleting, area specific mineral mixture and leaf meal technology.

The immediate benefits of this group meet were adoption of feed pellet production technology by two progressive dairy groups, *viz. Shyam Kripan Kamdhenu Dairy* and *Din Dayal Shodh Sansthan, Chitrakoot* for its commercialization in which IGFRI has to provide technical know-how and training for setting up the plant. The banking sector was convinced with the feed and fodder production technologies and announced it to include in NABARD — potential linked credit plan. Dr P.K. Ghosh (Director, IGFRI), agreed for providing training to bankers, entrepreneurs, small- and marginal-farmers related to feed and fodder production. The banks opened funding avenues for many programmes as discussed in this group meet.

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## Modernization of jaggery industry

Lucknow, 1 November 2014. The National Meet on 'Modernization of Jaggery Industry', and Workshop on 'Sugarcane and Jaggery' Carnival were inaugurated by Mr K. K. Gupta (Chief General Manager, NABARD) at Indian Institute of Sugarcane Research. He said that the cane sugar productivity in India is lower than other countries like Mauritius and others. Low-cost technology need to be evolved for

small- and marginal- farmers who are in majority. Strategy need to be chalked out for increasing investments to create advance research and development infrastructures in cane cultivation and jaggery production.

Dr N. Gopala Krishnan (ADG, ICAR) said that sugarcane researchers must develop cutting edge technology by applying biotechnological and molecular marker tools for managing sugarcane diseases and pest in more effective manner. Climate resilient variety and corresponding cultivation package is need of the hour.

Dr Bakshi Ram (Director, SBI) remarked that during last 7 to 8 decades about 600 cane varieties were developed out of which only 30 to 35 varieties are being adopted by the farmers and this situation is not at all desirable. There is need to change the adoption scenario by developing smart cane variety based on emerging demand for high tonnage, sugar and fibers. Dr S. Solomon (Director, IISR) said that this platform will provide networking opportunity to researchers, processors, entrepreneurs, growers and city folks for knowledge sharing in sugarcane and jaggery research, which will create awareness among large mass about benefits of jagggery production and health benefits of its consumption

Jaggery and khandsari industry has been one among the most important sugarcane-based cottage industries of India. With an annual production of approximately 6-8 MT, India accounts for almost 70 % of the world jaggery production and exports 2 to 3 lakh MT of jaggery. Besides being an important natural sweetener, jaggery is a source of energy and nutrition, thereby making it an important component of nutritional security package. Despite its tremendous scope, jaggery has remained in the background, with several challenges like low recovery, reduced shelf-life, lack of modern facilities etc. With the demand for jaggery steadily growing in the rural, urban and semi-urban areas, the jaggery and related industries need to be revived and modernized so that it become competitive, gearing up to the demands of globalization and trade liberalization in international market. Jaggery carnival is targeted to create awareness among kids, students, ladies, housewives about the health benefits of jaggery by showcasing the jaggery and related value-added products.

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## Fish farmer's meet

Muzaffarpur, 26 December 2014. Union Agriculture Minister, Shri Radha Mohan Singh, inaugurated Fish Farmer's Meet, jointly organized by Central Institute of Fisheries Education, Mumbai in coordination of National Fish Development Board, Hyderabad and Fisheries Resources Department, Government of Bihar, at campus of National Research Centre on Litchi. Shri Radha Mohan highlighted the vision of Government of India for overall development of agriculture in the country with special reference to resource rich state like Bihar and stressed that effective and timely implementation of the schemes and larger participation of farmers can bring the prosperity in the state. He made a strong mention of Fisheries development in the *mound*, *chaurs*, rivers and other waterbodies in Bihar in collaboration with National Fish Development Board and State Fisheries Department to bridge the huge gap of fish production. Various schemes of Government of India for development of fishermen communities like, *Machhuara Adarsh Gram*, *Machhuara Beema*, *Machhuara Prashikshan* and common centre for fisheries input supply was narrated by Union Minister. He released the fingerlings of 'Jayanti Rohu' at NRC on Litchi. Fish, pond, and appreciated the approach of litchi based IFS model being developed at the Centre.

The deliberations included about the benefit of fish farming and objective of organizing such mega-event to make the fisherman community aware about its benefits; about litchi bases fish-cum-duck farming; about various follow up schemes for fishery development in Bihar; and about the fisheries education in the state. A farmer-scientist interaction session was also organized at this occasion where the representative from of National Fish Development Board, Central Institute of Fisheries Education, Fish Resource Department, Regional Centre of Eastern Region, Patna etc. Union Agriculture Minister was quite hopeful for fulfilling the dream of Prime Minister of India for Blue Revolution *(Matasya Kranti)* from this part of the country.

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## Aquatic animal disease surveillance

Lucknow, 14 November 2014. An International Workshop on Aquatic Animal Disease Surveillance, organized by the National Bureau of Fish Genetic Resources in collaboration with the Asian Fisheries Society (Indian Branch) at NBFGR, was inaugurated by Dr Raja Sekhar Vundru (Joint Secretary, Fisheries, Department of Animal Husbandry, Dairying and

Fisheries, Ministry of Agriculture, Government of India, New Delhi). Dr Vundru emphasized on the necessity of aquatic animal disease surveillance and need to upgrade the skills of scientists and fisheries officers. The lead lecture was on 'Aquatic Animal Disease Surveillance' by Dr Kenton Morgan and Dr Eduardo Leano. This was followed by Panel discussions on 'Aquatic Animal Disease Surveillance in India' by several experts from the country under the Chairmanship of Dr J.K. Jena (Director, NBFGR).

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## Tackling food inflation in India: towards a sustained solution

New Delhi, 28 November 2014. The International Food and Policy Research Institute (IFPRI), Centre for Economic and Social Studies (CESS), and National Academy of Agricultural Research Management conducted a Workshop on 'Tackling Food Inflation in India: Towards a Sustained Solution'. The sessions were on Food Inflation and Food Security Act in India, Government Policy Perspective on the Issue of Food Prices, Marginalized Groups and Food Security, Agri-business and Food Prices: History and the Way Forward, and Key Issues for Research in Food and Nutrition Security in Telangana and Andhra Pradesh.

Dr R. Radhakrishna (Chairman, Centre for Economic and Social Studies) emphasized on the need to control inflation and mentioned the urgent implementation of technologies to improve the productivity of crops from lands.

Dr P.K. Joshi (Director, South Asia, IFPRI, New Delhi) said that affordability of food through Right-to-Food is an important pillar to ensure food security. Dr Devesh Roy (IFPRI, New Delhi) presented the IFPRI Food Security Portal which was launched in December 2014.

### Recommendations

The recommendations of the workshop are:

- Affordability of food and the food should reach the unreached.
- The markets for food supply should be inter-locked and failures should be identified and reasons rectified.
- Improve institutional innovation and use of e-commerce in agriculture.
- Improving incentives for investment in agriculture.
- Modify agricultural policy to improve nutritional security.
- Improve the mid-day meals scheme for delivery of food not only to the children but also the population needing nutritional security.
- Reduce urbanization of agricultural land in Telangana and to give incentives to improve cultivation of vegetables, cereals and pulses so that the price of food reduces.
- Reduce wastage of food as that leads to shortage of food.
- Tackle food inflation.
- Ensuring availability of fruits and vegetables at affordable prices.
- Study different models for food security after examining successful ones.
- Strengthening of value chain and involving the private sector into food security.
- Ensuring protein rich food at affordable prices.

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## A model library in the IT era

Kolkata, 26 November 2014. The National Institute of Research on Jute and Allied Fibre Technology conducted one day Library workshop on 'A Model Library in the Information Technology era' which was inaugurated by the Dr D. Nag (Director, NIRJAFT) who emphasized on importance of the Modern Library in the context of advanced knowledge of information technology. The technical session, chaired by Prof. Chaitali Dutta, (Jadavpur University, Kolkata), consisted on deliberation on modern library architecture, e-resources, preservation of old library documents, centralized information dissemination system, on-line remote access.

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## Open access to agricultural knowledge for inclusive growth and development

Hyderabad, 30 October 2014. A two-day workshop on 'Open Access to Agricultural Knowledge for inclusive Growth and Development', jointly organized by National Academy of Agricultural Research Management (NAARM) and the Global Forum on Agricultural Research, and FAO, Rome, was inaugurated at NAARM on 29 October 2014.

Dr Ajit Maru (Senior Knowledge Officer, FAO, Rome) delivered Opening Keynote Address stressing on aspects like India's potential for agricultural development and challenges; choices for agricultural information and knowledge services and sharing. He focused on global movement in open agricultural data, information, knowledge, and benefits that India can reap in this field.

Dr K.R. Murali Mohan (Advisor, Department of Science and Technology, New Delhi) elaborated on 'Big Data Initiative' taken up by Department of Science and Technology highlighting economic benefits and employment potential of this initiative across the sectors in India. The agricultural technocrats can make the difference in the country by adopting and practising the open knowledge through technology platform created by National Informatics Centre (NIC) i.e., data.gov.in, Dr Murali Mohan said.

Prof. M. Moni (Ex Director General, National Informatics Centre, New Delhi) stressed on inclusive growth with the power of open data knowledge management. Library science professionals should be in the forefront on achieving accessibility and sharing of data, he added. He also suggested establishing 'India ring' like 'China ring' with the help of Information Communication Technologies. The '*Training Manual on Digital Repository*' was released on the occasion.

Dr D. Rama Rao (Director, NAARM) elaborated on Open Access initiatives in ICAR and explained key features of the Open Access policy. The two-day (29-30 October 2014) deliberations were on development of strategies for not only access to data but also the improved content and turning them into solutions utilizing appropriate applications.

Dr Rameshwar Singh (Project Director, DKMA) provided technical support to this workshop.

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## V Global symposium on 'Gender in aquaculture and fisheries'

Lucknow, 15 November 2014. The three-day V Global Symposium on 'Gender in Aquaculture and Fisheries' was organized by the Asian Fisheries Society, Kuala Lumpur in collaboration with Asian Fisheries Society, Indian Branch, and National Bureau of Fish Genetic Resources at its premises from 13 to 15 November 2014, which was inaugurated by Dr Leena Nair (Chairman, Marine Product Export Development Authority, MPEDA), Kochi on 13 November 2014. Dr B. Meenakumari (DDG, Fisheries Science) presided over the function. Dr Meryl J. Williams, (Director, Asia Pacific-Fish Watch) and Dr Chersak Virapat (Director General, NACA) and Dr J. K. Jena (Director, NBFGR) were the Guests of Honour on the occasion. The technical programme initiated with two plenary talks by Dr Meryl J. Williams and Dr B. Meenakumari, which were followed with around 25 oral and 10 poster presentations from overseas and Indian delegates on various issues on gender basis in fisheries and aquaculture sector. Two best oral and poster presentations were awarded with a certificate and cash prize.

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## Creating and sustaining interest in agriculture among the youth

New Delhi, 25 October 2014. The Brainstorming Session was jointly chaired by Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) and Mr Rajiv C Lochan (Managing Director and CEO of M/s Kasturi & Sons who brings out '*The Hindu*' group of newspapers). Dr S. Ayyappan (Director General, ICAR) informed about the 'Attracting and Retaining Youth in Agriculture' (ARYA) scheme with a proposed allocation of ₹ 100 crore. Dr Ayyappan lauded the efforts *The Hindu* in serving the country in general and the agricultural community in particular through its 'Farmers Notebook' column. Dr Ayyappan appreciated *The Hindu*'s initiative of including a column on agriculture in its school edition. Mr Rajiv mentioned the role of *The Hindu* through its 'Farmers Notebook' column in encouraging farmers.

### Suggestions

Following key suggestions emerged out of the Brainstorming session.

- Linking agricultural production to proper markets so that the profitability is increased which in turn encourages youth to stay back and pursue agriculture as a profession.
- Agriculture as a subject and a tool for experiential learning must be introduced at middle and higher secondary levels in schools.
- Agriculture must be addressed holistically including horticultural science, dairy, fisheries and animal husbandry etc.
- Secondary agriculture must be duly emphasized to attract and retain youth in the sector.
- Regular interaction must be carried out with school children to engage their interest in agriculture and allied sectors through quiz programmes, farm visits and visit to Agricultural Research Institutes.

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## Towards responsible aquaculture and sustainable fisheries

Lucknow, 15 November 2014.Hon'ble Governor of Uttar Pradesh, Shri Ram Naik, inaugurated X$^{th}$ Indian Fisheries and Aquaculture Forum, organized under the aegis of Asian Fisheries Forum (Indian Branch) in collaboration with the National Bureau of Fish Genetic Resources, with the theme 'Towards Responsible Aquaculture and Sustainable Fisheries'. Hon'ble Governor of Uttar Pradesh emphasized on the importance of fisheries sector for ensuring nutritional security to the ever-growing populations of the country and expressed hope that the Forum would bring out recommendations for the welfare of fish farmers.

Dr S. Ayyappan (Secretary, DARE and DG, ICAR) stressed upon the need to address various aspects for sustaining the production and productivity of the sector and to meet the anticipated demand of fish by 2020.

Dr M Vijay Gupta (World Food Prize Laureate) delivered Keynote address on 'Responsible Aquaculture', and Dr Mohan Joseph Modayil (Former Member, ASRB) discussed 'Sustainable Fisheries'. Dr C. Virapat (Director General, NACA) and Dr Chris O' Brien (Regional Coordinator, BOBLME, Thailand) delivered lead lectures on global fisheries perspectives. Dr Meryl J. Williams (Ex Director General, World Fish Centre) delivered an evening plenary lecture. The Proceedings of this Forum were carried out in seven parallel sessions on different thematic areas, which included invited lectures by several experts and also oral presentations by the scientists and other researchers from India and overseas.

Besides international events several other programmes were also organized. An exhibition was also organized during this programme to showcase the recent advances in fisheries and aquaculture research and technology.

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## Emerging problems of potato

Shimla, 1 November 2014. A national seminar on 'Emerging Problems of Potato', jointly organized by Indian Potato Association and Central Potato Research Institute, was inaugurated by Her Excellency, the Governor of Himachal Pradesh, Smt Urmila Singh who lauded the efforts of the scientists for enhancing the potato production in the country through development of suitable potato varieties and production technologies. She released four publications. Dr N. Krishna Kumar (DDG, Horticultural Science) discussed the challenges in potato production such as climate change and changing virus

vector dynamics. Various Technical sessions were organized on Crop Improvement, Plant-Protection, Post-harvest technology, Biotechnology, Nano-technology etc. Dr Julian Parr, talked about the role of CIP in potato research and development in world in general and India, Dr S. K. Malhotra, briefed the gathering about the issues related to lack of quality planting material in the country.

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## Strategies for conservation, improvement and utilization of under-utilized fruits

Chettalli, 3 December 2014. The National Seminar on 'Strategies for Conservation, Improvement and Utilization of Under-utilized Fruits' was organized at Central Horticultural Experiment Station from 1 to 3 December 2014 in collaboration with Society for Promotion of Horticulture. The seminar aims to create a platform for exchange of ideas and thoughts among the scientific fraternity, entrepreneurs, farmers, growers, students etc. from the ICAR institutes, state agricultural universities, Krishi Vigyan Kendras and other government and non-government organizations from different parts of the country who have been associated with under-utilized fruits.

Dr T. Janaki Ram (Assistant Director General, Horticulture) emphasized on conservation and utilization of these less known fruits for food and nutritional security of the common people. He also expressed that a Centre of Excellence of Under-Utilized Fruits should be started to provide momentum to the research on these crops.

Dr T.M. Rao (Director, Indian Institute of Horticultural Research, Bengaluru) described the achievements of the Station for the past two years for the research and development of the under-utilized fruits particularly rambutan, mangosteen, avocado, passion fruit etc. Dr Rao emphasized for more work on production technologies of these fruits. Dr V.A. Parathasarthy, (National Co-coordinator for UNDP-TFT Project) opined on farm conservation of the indigenous under-utilized fruits and tree spices.

During 3 days seminar, six technical sessions on status, PGR, production, protection, utilization, marketing, value addition etc, were conducted. Scientists-Farmers-Entrepreneurs session was also organized.

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## Organic seed production approach for self-sufficiency in seed

Ranipool, 5 December 2014. The Scientific Advisory Committee Meeting 2014-15 of Krishi Vigyan Kendra (KVK) -East Sikkim, ICAR Sikkim Centre was organized at KVK-East Sikkim. Dr S.V. Ngachan (Director, ICAR Research Complex for NEH Region, Umiam) briefed the importance of Scientific Advisory Committee for the formulation of strategies and action plan of KVK, development of agriculture and allied sectors in East district of Sikkim. Dr Ngachan informed about the availability of several chow-chow (Squash) land races in Sikkim which are having anti-carcinogenic and may be used to make value-added products. He raised the issue of food and nutritional security in the whole North-Eastern States. To achieve self-sufficiency in nutritional security, people must have access to a


variety of nutritious foods which may be supported by new technologies for organic production. Further, Dr Ngachan stressed upon the training programmes should be organized in such a manner that the young generation especially youth may become a part in agricultural and allied activities and make it more profitable venture through agri-prenureship.

Dr R.K. Avasthe (Joint Director, ICAR Sikkim Centre) stressed upon the conservation of indigenous agricultural crop diversity available in Sikkim.

Shri P.T. Bhuita (Director, Horticulture, Government of Sikkim) stressed upon the ICAR to provide suitable technology for minimizing the production cost especially for vegetables. The scientist strongly advocated upon organic seed production to meet the seed requirement of the north-eastern states. They opined that close linkage should be established with the departments like SIMFED, ATMA, NHB, DDK to reach the farmers doorsteps.

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## Third Interface meet of the ICAR Institutes-SAUs-State Departments for 2014-15

Cuttack, 22 October 2014. The Third Interface Meet of the ICAR Institutes-State Agricultural Universities - State Departments for 2014-15 for Odisha, organized at Central Rice Research Institute, from 21 to 22 October 2014, was chaired by Prof. Manoranjan Kar (Vice-Chancellor, Orissa University of Agriculture and Technology, Bhubaneshwar). Prof. Kar emphasized on crop diversification, low-cost technologies and integrated farming system for economic and livelihood security of 82 % small- and marginal-farmers of Odisha. He appealed for a focus on production of quality seed and planting materials of different crops for improving seed replacement rate, a robust Contingent Plan for this calamity-prone coastal state and climate resilient agricultural practices.

Sri Rajesh Verma (Principal Secretary, Agriculture and Cooperation, Government of Odisha) emphasized on strengthening and institutionalizing the linkages among all stakeholders and organizations at grassroot levels. The Krishi Vigyan Kendras (KVKs) of all districts can be the central platforms at district level and all other stakeholders should work hand-in-hand with KVKs to demonstrate and disseminate agricultural technologies and information. Dr T. Mohapatra (Director, CRRI) urged upon on developing and demonstrating a 'Customized Integrated Farming System' model by suitably integrating all models developed by the ICAR institutes of Odisha and OUAT involving all stakeholders including state development departments and farmers, which should be sustainable, profitable, replicable and resilient to climate change. He also emphasized on establishing workable value chains and proposed a Self-Sustaining Seed System model for rice seed production. There was lively discussion involving all concerned particularly young entrepreneurs and farmers. Major concerns and issues of farming communities those emerged during the two days deliberations and interactions included timely supply of good quality seeds and planting materials including fish seeds and chicklings, simplification of financing schemes etc.

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## Soil Biodiversity-Biofertilizers

Junagadh, 8 December 2014. A three-day Group Meeting of the All India Network Project (AINP) on Soil Biodiversity-Biofertilizers was held at the Directorate of Groundnut Research from 6 to 8 December 2014 and was steered by Dr D.L.N. Rao (Project Coordinator AINP-SBBF).

Dr A.K. Patra (Director, IISS) mentioned about the importance of the network project on biofertilizers and the beneficial role of biofertilizers in sustainable farming. Dr A.K. Sharma (Director, NBAIM) emphasized

on the need for giving more importance to the identification of very efficient microbial inoculants for various crops, submission of the identified and well characterized microbial cultures to the microbial repository at NBAIM, Mau, and development of efficient inoculants for various crop plants. Ten technical bulletins on biofertilizers (including one in Hindi and two in Marathi) were released on the occasion.

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## Group meet for spring/summer and rice fallow cultivation

Old Goa, 22 November 2014. A group meet for spring/summer and rice fallow cultivation on moongbean and urdbean of All India Co-ordinated Research Project on MULLaRP was held at Central Coastal Agricultural Research Institute. Dr B. B. Singh (ADG, Oilseeds and Pulses) released new variety of cowpea, 'Goa Cowpea-3' which was developed at this Institute, and addressed the gathering of scientists involved in the above all India research programme and deliberated the various issues on pulses research in the country.

Dr Narendra Pratap Singh (Director, ICAR RC for Goa) delivered the introductory remarks and emphasized the need and scope for pulse research in the coastal region.

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## Translational research extension for small-farm development

Umaim, 11 November 2014. With a theme entitled 'Translational Research Extension for Small-Farm Development' seventh National Extension Education Congress (jointly organized by Society of Extension Education, Agra; ICAR Research Complex for NEH Region, Umiam in collaboration with Central Agricultural University, Imphal; Assam Agricultural University, Jorhat and Zonal Project Directorate, Zone III, Umiam) was inaugurated by Deputy Chief Minister of Meghalaya, Shri Rowell Lyngdoh, at ICAR Research Complex for NEH Region on 8 November 2014. Shri Lyngdoh urged the extension scientists to move from 'Transfer of Technology Mode' to 'Technology Application Mode', and farmer's participatory approach should now form a part of training of extension practitioners. "Furthermore, need-based, problem-solving, skill-based vocational training for self-employment for farmers, farm-women and rural youth should be included in extension education", said Shri Lyngdoh.

Dr Mangala Rai (Ex-Advisor Agriculture to former Chief Minister, Bihar, Shri Nitish Kumar) said that for sustainable economic development of the small farmers, production, processing, marketing and access should be seen as parts of the same chain. The dream of '*Swatchch Bharat*' can be realized through a clean and efficient agriculture. Refering to the loss of grains in godowns Dr Mangala Rai said that if economic and ecological access increases, the food loss would reduce to a great extent.

Dr S. V. Ngachan (Director, ICAR Research Complex for NEH Region) said that looking at the significance of the thematic areas like small farm holders and their farming complexities and priorities, technology dissemination approaches, integration of public-private support systems, farmer to farmer knowledge sharing mechanism within the context of present agricultural development in the country, the Seventh National Extension Education Congress was appropriate and befitting one. On the occasion fish fingerlings, soil testing kits vegetable seeds etc. were also distributed to the farmers by Deputy Chief Minister.

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## International Linkages

# India–UK collaboration on genomics-assisted development of tomato for enhancing drought resistance

Varanasi. An International Collaborative Research Project on 'Genomics-assisted development of *Solanum chilense* introgression lines for enhancing the drought resistance in tomatoes' has been awarded to the Indian Institute of Vegetable Research (IIVR) under India-United Kingdom collaboration. Dr H. C. Prasanna (Senior Scientist, IIVR) will lead the Indian side, and Dr Andrew Thompson (Reader in Molecular Plant Science, Environmental Science and Technology Department School of Energy, Environment and Agrifood, Cranfield University, Cranfield, Bedfordshire MK43 0AL, United Kingdom) will be the lead Principal Investigator from United Kingdom. It is a part of £10 million research collaboration on future-proof crops which include seven projects jointly funded by the Biotechnology and Biological Sciences Research Council, U.K. and Department of Biotechnology, India. The project will develop the genomic resources for drought tolerant wild relatives of tomato; *Solanum chilense* and *Solanum sitiens* by performing deep sequencing and *de novo* genome assembly. The genetic resources in the form of introgression line (IL) and inbred backcross line (IBL) populations will also be developed to capture the *Solanum chilense* genome for exploitation in tomato breeding programmes. Further, these genetic and genomic resources will be used to discover novel alleles for key target traits (water use efficiency, wilting resistance and root traits) to improve sustainable water use in tomato production.

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## MoU/Work Plan

### Goat milk-based soap technologies commercialized

Makhdoom, 29 November 2014. The Memorandum of Agreement (MoA) was signed between CIRG (Makhdoom) and SBVG Life Sciences Ltd. (Pune) by Dr S K Agrawal (Director, CIRG), Dr V K Gupta (Incharge, ITMU) and Shri Madhusudan Nair (CEO, SBVG Life Sciences, Ltd. Pune). Dr P.K. Rout and Dr Ashok Kumar are inventors of the technology. The technologies of AJAS- Beauty Soap, AJAS- Green soap and AJAS-Antiseptic soap, developed by the Central Institute of Research on Goats, were transferred for commercialization to M/S B.V.G Life Sciences Ltd, Pune in a function at this Institute.

Dr V.K. Gupta (In charge, ITMU) informed that these technologies are eco-friendly safe moisturizer soap formulations using goat milk, antiseptic herbs and fatty acids. Goat milk soaps have many distinctive advantages over conventional soaps. The pH of soap is almost equivalent to the pH of human skin and do not contain additives like alcohol, petroleum jelly and preservatives, thus reduces the risk of skin irritation and allergic reactions. The evaluation of above soaps on the basis of various parameters has been highly encouraging and useful to human beings.

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### Commercialization of technologies of strip based tests for rapid detection of common adulterants in milk

National Dairy Research Institute (NDRI), Karnal and Rajasthan Electronics and Instruments Limited (REIL), Jaipur signed five memoranda of understanding for licensing thetechnology of strip-based tests for rapid detection of common adulterants in milk. The MoUs were signed by Dr. A.K. Srivastava (Director, NDRI) and Shri R.K.Gupta (Addl. General Manager, REIL) by the sidelines of the 233rd Governing Body Meeting of Indian Council of Agricultural Research. The technologies have been commercialized on non-exclusive basis. The strips are for detection of common adulterants such as Neutralizers, Urea, Glucose, Hydrogen peroxide, Maltodextrin in milk and

each strip is specific for individual adulterant. The colour of the strip changes in presence of adulterants in milk and results are available in 10 sec to 5 min depending on the nature of adulterant. The sensitivity of the developed strip based testis better than the existing wet chemistry-based methods.

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A Memorandum of Understanding for co-operation in agricultural research and education was signed between ICAR, India, and Ohio University, USA as through exchange of letter in October 2014.

## Collaborative Work Plans on Agroforestry

Jhansi, 5 December 2014. Two simultaneous International training programmes were conducted under Indian Council of Agricultural Research, New Delhi and World Agroforestry Centre, Nairobi, Kenya Collaborative Work Plan from 1 to 5 December 2014. This training progarmme on Agroforestry was formulated involving researchers from SAARC countries, ICAR Institutes and State Agricultural Universities of India.

Dr Javed Rizvi (Regional Director, ICRAF) assured full support on behalf of the World Agroforestry Centre, ICRAF for agroforestry research and development in the region. He assured full support on behalf of the World Agroforesty Centre, ICRAF for agroforestry research and development in the region. Dr S K Dhyani (Director, CAFRI) called for establishing a South Asian Network on Agro-forestry for strengthening partnership in the region.

Dr A.K. Singh (Vice Chancellor, Rajmata Vijayaraje


Scindia Krishi Vishwavidyalya, Gwalior) opined that such programmes help in capacity building of the researchers as well as provide opportunity for collaboration between the institutions and nations.

The training programme on Research Methods in Agroforestry, commenced on 1 December 2014 at Central Agroforestry Research Institute (CAFRI), evolved around interactive sessions between the resource persons and the participants enabling them to understand the general principles of experimental design of agroforestry including participatory trials with farmers. During the training a field visit to the experimental farm of CAFRI was also conducted.

This programme was attended by 30 participants from Bangladesh, Nepal and Sri Lanka in addition to the scientists working under the All India Coordinated Research Project on Agroforestry at 15 State Agricultural Universities in India and local participants from CAFRI and Indian Grassland and Fodder Research Institute, Jhansi.

The other International Training Progamme on 'Use of Geo-informatics in mapping Agroforestry' organized at World Agroforestry Centre, Nairobi, Kenya also on 5 December 2014. Dr Torr from ICRAF was the course Director for the training.

Eight Indian scientists from Central Agroforestry Research Institute, Jhansi; ICAR Research Complex for North-Eastern Hills Region, Barapani; Central Soil Water Conservation Research and Training Instuitute, Dehra Dun; Kerala Agricultural University, Thrissur; Orrisa University of Agriculture and Technology, Bhubaneshwar; University of Agricultural and Horticultural Sciences, Shimoga; and Borlaug Institute for South Asia, Ludhiana participated.

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# Success stories

## Organic farming system in cluster approach in Meghalaya

Mysin. Hon'ble Prime Minister of India, Shri Narendra Modi, recently described the north-east region as India's capital of organic agriculture. Mynsain, a village in Ri-Bhoi district of Meghalaya was adopted in 2012-13 for disseminating organic production technologies developed by the ICAR Research Complex for NEH Region, Umiam from 2004 to 2012 under Network Project on 'Organic Farming-Tribal

Ginger + colocasia farmers' field

Sub-Plan' with financial assistance from Indian Institute of Farming Systems Research, Modipuram.

The farmers were given training in various aspects of organic farming along with conservation of natural resources and residue recycling. Successful cultivation of pea, *toria* and lentil were followed in rice fallow under no-till. Three new ponds were constructed and seven existed ponds were renovated in farmers' field for irrigation and composite fish culture. Small rainwater harvesting structures (17) called *jalkunds* having 30,000 liters capacity each were developed for growing french bean, cabbage, brocolli, tomato, lettuce, cucurbits and for rearing of pig and poultry specially during dry season. A community vermicomposting unit (size 6 m × 8 m × 2.6 m) consisting of eight tanks (size 2 m × 1.5 m × 0.75 m) was constructed in the village to produce vermincompost by recycling farm biomass. Raised and sunken beds with 1:1 dimension were developed in 10,509 $m^2$ area after rice harvest in lowland for cultivation of tomato (var. Avinash, Rocky), french bean (var. Naga local), potato (var. Kufri megha), carrot (var. New Kuroda), lettuce etc. Guava seedlings (600) of improved varieties were planted in farmers' field covering an area of about 4,500 $m^2$. Multipurpose trees along with fodder were also grown for rehabilitation of degraded land and supply of fodder to cattle in lean period. Farmers were provided with improved breeds of pig (75% Hampshire and 25% mixed local) and poultry (Vanaraja) for higher productivity, nutritional security and income. Mostly the farmers were doing mixed cropping of ginger-colocasia-chilli for higher income. Five farmers have already started practising organic farming in integrated farming system (IFS) mode in Mynsain village. They integrated crops (rice, maize), vegetables (tomato, french bean, potato, lettuce, carrot), livestock (dairy/ piggery), water harvesting (*jalkund*) etc. in IFS mode. An adopted farmer of the village narrated that the integrated organic farming system has given very good returns with low external inputs.

Owing to adoption of improved organic production technology, the yield of rice, maize, french bean, ginger, tomato, carrot and chilly enhanced by about 15, 22, 40, 33, 45, 37 and 27%, respectively. Villagers are currently selling their produce in local market and along the highway side as uncertified organic produce with 10-15% higher market price as compared to conventional produce.

Interaction with the farmers revealed that on an average income of farmers increased by ₹ 10,000/ annum due to adoption of organic farming practises.

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## Wheat and greengram cultivation under conservation agriculture

Jabalpur. The Directorate of Weed Science Research introduced seeder machine to demonstrate the conservation agricultural technology among farming community for sowing of wheat and greengram for the first time under OFR programme during 2012-2014. Four farmers in 2012-13, and 10 farmers in 2013-14 were selected in Panagar block of Jabalpur, and sowing of wheat and greegram was done on 1 acre in each farmers' field. Sowing was done without any tillage operation (ploughing) for land preparation and removing/burning the standing crop stubbles of the previous crop.

### Wheat

Demonstration fields showed good emergence and establishment of crop. Weed population in conservation agriculture trials was less compared to farmers practice. Use of ready-mix combination of clodinafop + metsulfuron @ 400 g/ha at 25 days of growth controlled the weed flora effectively as compared to conventional tillage with 2,4-D as a weed control measure. Conservation agriculture

technology gave higher grain yield (4.5 tonne/ha) and B:C ratio (3.98) over the farmers' practice 4 tonne / ha and (2.67).

### Greengram

Conservation agriculture technology was demonstrated on greengram during summer following wheat harvest. Sowing with happy seeder in the residues of wheat resulted in very good emergence and establishment. Weed population in conservation agriculture was less compared to conventional agriculture. Conservation agriculture along with improved weed management (imazethapyr @ 100 g/ ha at 15-20 days after sowing) was very effective, economical and gave a seed yield of 1.4 tonne/ha, with higher B:C ratio of 3.32 when compared with 0.70 tonne/ha with B:C ratio of 1.32 under farmers practice.

Conservation agriculture technologies saved time and cost of land preparation, and favoured early sowing which helped to utilize residual soil moisture. Unlike conventional zero-till seed drill, Seeder facilitated sowing in the previous crop residue, which served as mulch and thus helped in managing weed menace and improved soil-health.

After the successful introduction of this technology, about 400 farmers have started growing wheat under conservation agriculture and stopped burning the residues of previous crop this season (2014-15).The technology adoption by farmers is very encouraging and the performance of this technology has become a household discussion amongst the farmers of this locality. The OFR trials in wheat and greengram conducted by the Directorate under conservation agriculture have made significant impact on farmers of Jabalpur region.

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## Aquaculture in inland saline groundwaters benefits farmers' field

Rohtak, 13 November 2014. The Central Institute of Fisheries Education, Rohtak Centre has taken up aquaculture of *Penaeus monodon* and *Litopenaeus vannamei* using inland saline groundwaters at farmers' field for the first time in the country. This Centre initiated *Penaeus monodon* culture during 2009 in high saline area of Baniyani farm where the production ranged from 400 to 1,600 kg/ha/120 days. Later *P. monodon* and *Litopenaeus vannamei* were started in low saline area of Lahli farm (2.0-5.0 ppt) and high saline unit of Baniyani (12-15 ppt) during 2012. In low saline waters, a production of 2,700 kg/ha/130 days and in high saline waters, a record production of 13.5 tonne/ha/120 days was obtained for *P. monodon* and *L. vannamei* respectively during 2013. These technologies were transferred to farmers' fields. Consequently, *L. vannamei* farming was successfully taken up by two farmer groups at Baniyani and Meham villages in Rohtak district of Haryana during 2014.

Dr S. Ayyapan (Secretary, DARE and DG, ICAR) inaugurated the first *Litopenaeus vannamei* harvest from the farmers' field on 13 November 2014 at Baniyani, Rohtak where farmers from the region interacted and discussed their concerns related to marketing and possible subsidies through government schemes. The production of *Litopenaeus vannamei* in farmers' ponds is expected to be 8.0 to 10.0 tonne/ ha in 120-130 days with a net profit of ₹ 8 to 10 lakh/ha/crop. This agricultural activity can provide such high returns in a short duration and that too using degraded lands unfit for other agricultural activity. The technology has immense potential for its further propagation in Haryana, Punjab and Uttar Pradesh enhancing fish productions for inland states towards Blue Revolution.

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## New fish and crustaceans species found in Goa

Goa, 19 September 2014. This is the first intensive effort in this century for cataloguing the freshwater rivers of Goa to explore the fish biodiversity. Nine sampling locations covering the two major river systems in Goa, Mandovi and Zuari, were sampled and found 40 species of freshwater fish and 7 species of crustacean. The latest round of sampling yielded 15 additional species of fish, along with 6 species of crustaceans, bringing the total number of fish species to 55 and crustacean to 13.

The major species obtained during the survey are *Pethia setnai*, *Haludaria pradhani*, *Rasbora* cf,. *dandia*, *Aspidoparia morar*, *Devario malabaricus*, *D. aequipinnatus*, *Garra mullaya*, *Aplocheilus lineatus*, *Dawkinsia filamentosa*, *Mystus malabaricus*, *Schistura altipedunculatus*, *Carinotetraodon travancoricus*, *Channa gachua*, *Puntius mahecola*, *Puntius vittatus*, *Systomus sarana* ssp. *subnasutus*, *X. cancila*, *Aplocheilus kirchmayeri* and *Pseudo-sphromenus cupanus*. The Crustaceans observed during the survey

are *Macrobrachium canarae*, *M. malcolmsonii*, *M.* cf. *gracilirostre*, *Caridina* cf. *babaulti*, *C.* cf. *gracilirostris*, *C.* cf. *hodgarti* and *Parathelphusa* sp.

The significant results/ success was obtained after research work of ICAR Research Centre for Goa.

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## Tribal farmers of Uttarakhand visit Gujarat

Dehra Dun, 3 December 2014. The Central Soil and Water Conservation Research and Training Institute selected a remote tribal village, viz. Attal situated in Tuni block of Dehra Dun district for implementing Tribal Sub-Plan. After interaction with the farmers, water resource development was taken up in Attal village. A HDPE pipe-line of 6.0 km length was laid in a very difficult hilly terrain to harvest the water from a perennial source where sufficient discharge was available (15 lps). This pipe-line was connected to a non-functional water-tank for water storage. Now 300 $m^3$ water is available to the farmers in 24 hr. By now 125 farmers have been associated with this intervention of participatory water resource development in Attal village and farmers are cultivating vegetables under assured irrigated conditions developed in the village. Farmers of this village are regularly being given different trainings on various aspects of soil and water conservation and watershed management. Under these initiatives Dr P.K. Mishra (Director, CSWR&TI) inaugurated an exposure visit of 20 farmers from Attal to Gujarat as a capacity building and skill development activity. They visited Gambhira Cooperative Farming Society, Anand Agricultural University, AMUL Dairy, and Vasad Research Centre of CSWCRT&I. Thus farmers will learn about cooperative farming and new agricultural techniques for making hill agriculture of Uttarakhand more remunerative.

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# Celebrations

## *Swacch Bharat* Mission

Patna, 2 October 2014. The '*Swachch Bharat* Week', from 25 September to 2 October 2014, was initiated with the cleanliness drive undertaken at ICAR Research Complex for Eastern Region.

After taking the '*Swachchta* Oath', all the employees cleaned the roads, corridors, garden and public roads outside the premises of the institute on 2 October 2014. The programme was also organized in two research centres at Research Centre Plandu, Ranchi, Jharkhand, and Research Centre on *Makhana*, Darbhanga; and Krishi Vigyan Kendra, Buxar.

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## *Swachch Bharat Abhiyaan*

Bhopal, 2 October 2014. The *Swachch Bharat Abhiyaan* (National Sanitation Campaign) was organized at Central Institute of Agricultural Engineering. All vintage points, in particular and other areas in general were inspected by a team of officers for improving cleanliness and sanitation, including the various buildings, guest-houses, laboratories and pathways. Immediate measures were taken to remove the trash wherever found during the course of inspection by the team.

The Krishi Vigyan Kendra (KVK) of the Institute organized awareness programme in villages to the farmers, farm-women and rural youth about the *Swatchh Bharat Abhiyan*. The KVK also involved in imparting training on management of agricultural crop residues by adopting certain villages in and around Bhopal, including imparting training on proper maintenance of the livestock, management of animal/poultry waste through installation of biogas plant, vermin-compost, NADEP etc. Efforts are also being made to encourage preparation of bio-pesticide from cow urine.

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## 39th Foundation Day of Sikkim Centre of ICAR-RC

Gangtok, 21 October 2014.The ICAR Research Complex, Sikkim Centre celebrated its 39th Foundation Day to commemorate the recent achievements and created awareness among the farmers regarding the development of need-based and location specific modern farming technologies. It was inaugurated by Shri K.C. Pradhan (Ex- Advisor to the Government of Sikkim) who emphasized that food security of the region is an important issue and ICAR has to play key role in attaining it. Shri Pradhan

suggested that ICAR should take up 'Lab- to- Land' programme on large-scale for fast horizontal spread of its technologies and farmers have to be competitive in fruit production by adopting better scientific techniques.

Shri P.T. Bhutia (Secretary, FSADD, Government of Sikkim) advised the farmers to adopt Integrated Farming System to address the issue of climate change and said that State Agriculture Department is planning to intervene in extensive way for high altitude potato cultivation in North Sikkim as a pilot project. Dr R. K. Avasthe (Joint Director ICAR Sikkim Centre) assured that ICAR will extend full help and cooperation to the farmers and officials of the State Agriculture Department to improve agriculture in the State.

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## 53rd Foundation Day of IGFRI and Farmers' Day

Jhansi, 2 November 2014. Dr Panjab Singh (Ex-Secretary, DARE and DG, ICAR) highlighted the importance of genetic amelioration and associated technology, farm mechanization and post-harvest technology, nutritional evaluation of forage resources, capacity building, GHG from livestock, enhancement of forage productivity, improvement of grasslands/ pasture/ grazing lands and human resource development during Foundation Day Lecture at IGFRI.

Dr S.K. Datta (DDG, Crop Science) expressed his happiness on the progarmme of organizing Farmers' Day on 2 November 2014 where farmers would get an opportunity to see the technology demonstration and directly interact with the concerned scientists. Tree plantation was done at IGFRI campus. The scientist focused in the field of technology up-scaling, forage improve-ment and varieties developed, livestock development and the new initiatives of the institute both at national and international level. An interaction meeting was organized. More than 200 farmers of Bundelkhand region participated in exhibition and *Krishak-Vaigyanik Gosthi*.

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## 61st Foundation Day of Research Centre, CSWR&TI

Udhagamandalam, 20 October 2014.The Central Soil and Water Conservation Research and Training Institute, Research Centre, celebrated its 61st Foundation Day. Dr O.P.S. Khola (Head, RC, CSWRTI) said that the mandate and objectives of the centre are open ended and all the staff should work hard to meet out the changing needs and expectations.

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## National Sheep and Wool *Mela*

Avikanagar, 12 November 2014. The National Sheep and Wool *Mela*, organized by Central Sheep and Wool Research Institute, was inaugurated by Agriculture Minister, Government of Rajasthan, Shri Prabhu Lal Saini who praised the different techniques including strains of sheep developed by the Institute and asked the sheep rearers to adopt these techniques in view of their benefits. Shri Saini emphasized that farmers should adopt mixed-farming model like sheep, goat and other livestock rearing simultaneously with the crop farming so that their economic and social status could be uplifted. At this occasion Sh. Jaswant Singh Vishnoi (Chairman, Central Wool Development Board) stated that Wool Development Board is always ready to tackle the different problems faced by the sheep rears.

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## Vigilance Awareness Week

• Bengaluru, 1 November 2014. The National Institute of Animal Nutrition and Physiology (NIANP) observed Vigilance Awareness Week from 27 October to 1 November 2014. All the staff members took oath on 27 October forenoon for ensuring the NIANP as corruption free and dedicating themselves for building India as a corruption free country.

Mrs Zahanzeb Akhter (Commissioner of Income Tax, Bengaluru) delivered a Guest lecture on 'Combating Corruption - Technology as an Enabler' on 1 November 2014. She emphasized the role of electronic media,


electronic social media and information technology for making India a corruption free country and also informed about the efforts made by the developed countries for combating corruption and provided clues that can be implemented in our country for the same.

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• Pune, 1 November 2014. The National Research Centre for Grapes observed Vigilance Awareness Week from 27 October to 1 November 2014. All the staff members took pledge on 27 October 2014. Mr Dilip V. Kadam (Additional D.C.P./S.P. SP, Anti Corruption Bureau) delivered a lecture on 'Combating corruption - technology as an enabler' on 1 November 2014. The staff members interacted enthusiastically with the officials of Anti-Corruption Bureau.

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## Women in Agriculture Day

Cuttack, 3 December 2014. Smt. Snehangini Chhuria, Minister of State (Independent charge) for the Handloom, Textile and Handicrafts, SC/ST Development and Women and Child Development (Mission Shakti), Government of Odisha] inaugurated 'Women in Agriculture Day' organized by the KVK (a unit of CRRI) at Central Rice Research Institute, on the theme 'Harnessing the potential of women in agriculture through group approach'. She released an extension leaflet in Oriya, *Baigyanika Upayare Sasya Sanrakhyna*. She emphasized on the role of self-help groups (SHGs) in promoting women empowerment in social and economic spheres and encouraged women groups not to be cowed down by negative attitude of the society and courageously work together to stand on their own and be self-reliant socially and economically.


Dr Neelam Grewal (Director, DRWA) suggested that bank loan, marketing, transport facilities and training should be made available to the women SHG groups. An interactive session was held on the theme wherein the farm-women shared their experiences, needs, problems, traditional skills and success.

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## National Day for Women in Agriculture

Khordha, 5 December 2014. With the aim to empower women to defeat hunger and to emphasize on the role of women in agricultural development, the National Day for Women in Agriculture, sponsored by the Tribal Sub-Plan programme of Central Institute of Fisheries and Aquaculture (CIFA), was organized by the Krishi Vigyan Kendra, CIFA. Ex-Minister,


Government of Odisha, Smt Surama Padhi, inaugurated the Tribal Women Farmers Meet in the sideline of the National Day for Women in Agriculture

Dr P. Jayasankar (Director, CIFA, Kausalyaganga) highlighted the role of CIFA in last 25 years for socio-economic development and empowerment of women particularly for the tribal women in different districts through aquaculture practices. Dr B.C. Mohapatra (Chairman, Tribal Sub-Plan) mentioned about the role of CIFA and KVK, Khordha since their inception for dissemination of aquaculture technology to the tribal communities of India.

More than 200 tribal farm-women from Tangi, Begunia and Bhubaneshwar Block participated in the programme.

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## Agricultural Education Day

Vasad, 15 October 2014. The Agricultural Education Day was inaugurated by Dr R. S. Kurothe (Head, Research Centre, Vasad) at Research Centre of Central Soil and Water Conservation Research and Training Institute. Dr Kurothe emphasized on Indian agricultural overview and educated the children regarding importance of soil and water conservation in our life.

Dr G. L. Bagdi (Principal Scientist, Agricultural Extension) delivered a lecture on different agricultural, engineering and forestry soil and water conservation technologies developed and refined at Research Centre, Vasad for ravine reclamation and their productive utilization in Gujarat. The scientists explained role of soil and water conservation in agriculture.

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## World Soil Day

Bhopal, 5 December 2014. The Indian Institute of Soil Science (IISS) and Indian Society of Soil Science celebrated World Soil Day to highlight the importance of soil as a critical component of the natural system and as a vital contributor to the human common wealth through its contribution to food, water and energy security and as a mitigator of biodiversity loss and climate change. Dr G. A. Kinhal (Director,Indian Institute of Forest Management), Chief Guest, emphasized the importance of soils for sustaining forest ecosystem and urged the people to protect the soils with a slogan 'Plant a tree whenever you are free'.

Dr P. J Sudhakar (Additional Director General, PIB, Ministry of Information and Broadcasting) informed the participants about soil as the 'soul of infinite life'. He said that every human being is born out of soil and hence it is the duty of all to protect our soils.

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## Awareness rally on fisheries at CIFE

Mumbai, 29 November 2014. With the aim to create general awareness among the public, about fisheries education, research and its importance, Central Institute of Fisheries Education (CIFE) organized a rally on 'Fisheries' as part of the National Academy of Agricultural Sciences Silver Jubilee celebrations.

Dr W. S. Lakra (Director CIFE) led the rally that took place from CIFE, new campus to Versova and back. Members of CIFE participated in the rally.

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## Camel awareness campaign

Doonagagarh, 11 November 2014. Awareness campaign for Camel Husbandry was organized at Doongargarh District Bikaner, involving about 130 students of XI to XII standard. The activity organized through this campaign included an exhibition to depict on-going activities and various techniques developed by the institute through exhibits.

Dr N. V. Patil (Director, NRC Camel) introduced applied outcomes of the technologies developed at the institute to promote camel as a milch animal, and to create awareness and generate intrest among the students in camel rearing.

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# Capacity Building

## Refresher Course on Fisheries and Aquaculture Development

Mumbai, 29 November 2014. With the aim to launch a Blue Revolution in inland states, particularly in North-Eastern Hills (NEH) Region to end the dependence on other states for fish, the Central Institute of Fisheries Education (CIFE) organized a six-day refresher course on 'Fisheries and Aquaculture Development' for Officers of the North-Eastern Hills States, from 24 to 29 November 2014 at CIFE.

Dr W. S. Lakra (Director, CIFE) said that this initiative on capacity building for the officials will provide them new insights to enforce productivity and conserve resources. Participants from six north-eastern hills states attended the training.

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## XII Convocation of CIFE

Mumbai, 7 November 2014. The XII Convocation of Central Institute of Fisheries Education, was held at new campus of CIFE. Union Minister of Agriculture, Shri Radha Mohan Singh, urged the students to develop entrepreneurial skills and become job providers rather than job seekers, and highlighted the role of fish in human nutrition and called for a 'Blue Revolution' to increase the production to meet the challenges of providing quality nutrition to the growing population and to fight malnutrition.

Union Agriculture Minister highlighted the initiatives taken by the central government to develop the fisheries sector in line with the view of Prime Minister of India. He also awarded gold medals to 28 students for academic excellence.

Dr W.S.Lakra (Vice-Chancellor, CIFE) conferred 139 students with M.F.Sc. degree and 19 students with Ph. D. degree in various disciplines of fisheries.

## New Sports Complex for CIFE inaugurates

The Indoor Sports and Gymnasium Complex at CIFE new campus was inaugurated by Shri Radha Mohan Singh. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) lauded the efforts of Union Minister of Agriculture for his involvement at grass-root level for the development of all the sectors of agriculture.

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## Agro-Tech 2014

Chandigarh, 25 November 2014. Research Centre, Chandigarh actively participated in AgroTech-2014, organized by Confederation of Indian Industries (CII) from 22 to 25 November 2014 at Chandigarh. The major research activities pertaining to watershed management and water harvesting along with scientific technologies developed by the centre were exhibited through digital posters at the venue.

Farmers, orchardists and various agro-entrepreneurs showed keen interest in *aonla*, *bael*, and other hardy plant species.

The demonstrations were also made to emphasize on the effect of soil erosion and excessive use of fertilizers and other agrochemicals e.g. pesticides/ herbicides, on gradual decline soil-health and factor productivity, which has become a grave cause of concern. The organic farming technologies combined with modern scientific tools and technologies can help in sustainable crop production while maintaining the soil-health and long-term fertility. The vermi-composting using earthworm species like *Eisenia foetida* and *Lumbricus rubellus* (the red worm) were demonstrated to all the visitors and role of biofertilizers in boosting productivity using natural mechanisms were also highlighted. The pamphlets containing relevant materials were distributed and technologies were thoroughly discussed with the interested visitors.

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## IARI-Post Offices Linkages Extension Model

New Delhi. With the aim to send the seeds of improved varieties through postal services to the identified village postmasters who in turn distribute the seed to the selected farmers of the villages under his area for cultivation. The Indian Agricultural Research Institute has developed innovative alternate extension model named as IARI-Post Office Linkage Extension Model in Sitapur district (Uttar Pradesh) during *rabi* 2009 for dissemination of IARI improved varieties of wheat, mustard, paddy, pearl millet and vegetables. Under this model, village level postmasters and farmers were trained in improved farm practices with the help of local *Krishi Vigyan Kendras* (KVKs) in the field of crop management technologies, integrated nutrient management, integrated disease and pest management and PHT of the related crops .

These postmasters/farmers laid out demonstrations of improved IARI varieties on their farms, which became the place of learning for other farmers and the seed produced from such demonstration farms were further made available to other farmers. Thus, the coverage

of improved varieties substantially increased through 'farmer-to-farmer' seed sharing. The model has been found effective and successful means for making improved agricultural technologies available in the rural areas in relatively lesser time and cost. Knowledge gain (23 to 36%) of farmers and branch post masters was recorded. Majority of the farmers (73%) were satisfied with this new extension model in delivering agro-technology and information services.

The model was more effective not only in dissemination of low volume seeds (B:C ratio 1: 4.07) but also high volume seeds (B:C ratio 1: 1.92). Data on diffusion effect of the model showed 24,384 ha and 75,000 ha coverage of improved varieties of wheat and paddy, respectively through 'farmer-to-farmer' seed sharing. Findings of the above study indicate the scope for developing post offices as the means of agricultural technology transfer in India. The major implication of the study affirms the potential of such experimentation for strengthening public-public linkage for farm technology dissemination, which can later be institutionalized as the effective model of front-line transfer of technology by the large number of research institutions.

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## National Surveillance Programme on Aquatic Animal Diseases

Kochi, 8 October 2014. Dr A. Gopalakrishnan (Director, CMFRI, Kochi) inaugurated one day National Surveillance Programme on 'Aquatic Animal Diseases' at National Bureau of Fish Genetic Resource, Kochi Unit for ornamental fish farmers and state fishery personnel. He reiterated the importance of disease surveillance in the event of trans-boundary movement of ornamental fishes and emphasised importance of farmers, government officials and researchers joining together for successful completion of disease surveillance programme.

Dr Basheer made a presentation with an overview of the NSPAAD project and explained the objectives to the farmers. A session was on sharing the experience about the ornamental 'Fish culture among the participants followed by group discussion on 'Fish disease and its treatment'.

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## Visits

- Dr Mohan Kumar (Assistant Director General, Agronomy, Agroforestry and Climate Change) visited Kathmandu, Nepal from 14 to 15 October 2014, as a member of the Indian delegation for participating in the V Joint Agricultural Working Group Meeting.
- A delegation visited Kenya, Rwanda and Tanzania to initiate the projects under Indo-Africa Forum Summit from 12 to 18 November 2014.

## Trainings

- A regional level training on 'Scientific Production Technologies of Maize for eastern states' was organized on 17 October 2014 at Regional Maize Research and Seed Production Centre at Begusarai for tribal farmers under Tribal Sub-Plan Scheme of Government of India.

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- A Model Training Programme on 'Value addition through product diversification on jute and allied fibres' was organized by the National Institute of Research on Jute and Allied Fibre Technology, Kolkata from 10 to 17 November 2014 for the scientists, lecturers, and officers of different Government organizations.

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- A four-day training programme on 'Application of ICTs in Modified Extension Reforms Scheme' was organized by National Institute of Agricultural Extension Management, Hyderabad in collaboration with Central Soil and Water Conservation Research and Training Institute, Dehra Dun from 10 to 13 November 2014.
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- The Central Institute of Fisheries Technology, Cochin conducted a collaborative International training course on 'Fish Processing, Quality control, and HACCP' from 20 to 26 October 2014. This training course was sponsored by SAARC Agriculture Centre (SAC), Dhaka, Bangladesh and 12 participants from different SAARC countries *viz*. Bangladesh, Bhutan, Sri Lanka, Maldives and India attended the training.
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- A training programme on 'Basic Epidemiology' was organized by National Institute of Veterinary Epidemiology and Disease Informatics in collaboration with Indian arm of Centres for Disease Control and Prevention, USA from 1 to 5 December 2014 at Bengaluru.
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- A Model Training Course on 'Production, Processing and Certification of Quality Bovine Semen', was organized at Central Institute for Research on Cattle, Meerut Cantt from 18 to 25 November 2014.
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# Personnel

## Appointments

| Name | Designation & address | Date of appointment |
|---|---|---|
| Dr K. Alagusundaram | DDG (Agricultural Engineering) ICAR Hqrs. | 20 October 2014 |
| Dr Bakshi Ram | Director Sugarcance Breeding Institute Coimbatore | 28 October 2014 (AN) |
| Shri R. Rajagopal | Additional Secretary (DARE) and Secretary (ICAR) | 8 November 2014 |
| Dr U.C. Sud | Director IASRI, New Delhi | 19 November 2014 |
| Dr Ashok Kumar Singh | DDG (Agricukltural Extension) ICAR Hqrs. | 26 November 2014 (AN) |

## Superannuation

| Name | Designation & Address | Date of retirement |
|---|---|---|
| Dr Ashwani Kumar | Director Directorate of Water Management Research, Bhubaneshwar | 31 October 2014 |
| Dr J.C. Bhat | Director VPKAS, Almora | 31 October 2014 |
| Dr R.P. Medhi | Director NRC on Orchids, Pakyong, Gangtok | 31 October 2014 |
| Shri Arvind R. Kaushal | Addl. Secretary (DARE) and Secretary (ICAR) | 31 October 2014 (Date of relieving) |
| Dr S.K. Srivastava | Director Directorate of Soybean Research, Indore | 30 November 2014 (Date of relieving) |
| Dr Y.V. Singh | Zonal Project Director, Zonal Project Directorate, Zone-VI, Jodhpur | 31 December 2014 |
| Dr S. Soloman | Director IISR, Lucknow | 31 December 2014 |
| Dr Chandan Rajkhowa | Director NRC on Mithun, Jharnapani | 31 December 2014 |




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