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News in Brief

From the DG's Desk

Dear Readers!

India today has a labour force of about 482 million, of which nearly 263 million are agricultural labourers (55%). It is estimated that only 2.3 % of the workforce in India has undergone formal skill training as compared to 68% in the United Kingdom, 75% in Germany, 52% in United States of America, 80% in Japan and 96% in South Korea. Further, large sections of the educated workforce do have little update on job skills, making them largely unemployable. Besides, trained manpower also need regular skill up-gradation to exist and remain globally competitive.Therefore, the country must focus on identification of training requirements and scale-up skill training efforts to meet the demands of employers and to boost economic growth.

Demographically, India is one of the youngest nations in the world, with over 54% of the total population below 25 years of age and over 62% of the population in the working age group (15 to 59 years). The country's population pyramid is expected to bulge across the 15 to 59 year age group over the next decade. It is further estimated that the average age of the population in India by 2020 A.D. will be 29 years as against 40 years in the United States of America, 46 years in the Europe and 47 years in Japan (National Higher Education Mission, Ministry of Human Resource Development, 2013). In fact, during the next 20 years, the labour force in the industrialized world is expected to decline by 4%, while in India it is projected to increase by 32%. This poses a formidable challenge, but also provides a huge opportunity. To reap this demographic dividend which is expected to last for next 24 years, India needs to equip its workforce with employable skills and knowledge to contribute substantively in the economic growth of the country.

Nonetheless, the major mandate set is that apart from meeting our own demand, India's potential to provide skilled workforce to the ageing developed world needs to be realized. In this direction, the Indian Government has launched the 'Pt. Deen Dayal Upadhyay

Skill India' Mission. All the government programmes have been aligned to achieve the goals of this mission. To coordinate these activities, the Government has established a new 'Ministry of Skill Development and Entrepreneurship' in 2014 and the National Policy for Skill Development and Entrepreneurship has been enabled in 2015 to meet the growing challenges of skilling at scale with speed, standard and sustainability.

In realistic terms, agriculture and allied sectors in India employ about 119 million people as cultivators and 144 million as agricultural labour (*Census, 2011*). As an agricultural nation, it is time that we attract youth in agricultural sector right from farming, processing and value addition, marketing and banking by providing them livelihood avenues.Today agriculture is facing challenges like detraction from agriculture avocation. To address this, the Agriculture Skill Council of India (ASCI) is working towards building capacity in the agriculture Industry and bridge the gap between laboratories and farms. To this effect the contribution of the Indian Council of Agricultural Research is immense, as it directly links research results with the farm households through transfer of technology, front-line demonstration, farmer-scientist interaction and capacity building through Krishi Vigyan Kendras (KVKs).

Agri-skill development in the country among other initiatives is also being undertaken through various agricultural universities and other educational institutions for mid-management areas and through ICAR's 645 Krishi Vigyan Kendras (KVKs) for skilling farmers/farm-women/rural youth and grassroot level extension personnel in different aspects of agricultural production systems based on the principle of 'learning by doing and practising'. Moreover, the courses are flexible and customized as well to cope with the needs of the young farmers, progressive farmers and farm-women in a given area. The areas covered under need-based skill oriented vocational training programmes are—vegetable and fruit nursery management, protected cultivation of flowers and vegetables, repair/maintenance of farm machinery and implements (power drawn), goat farming, dairy management, poultry farming, fish farming, sericulture, mushroom culti-vation, beekeeping, preservation of fruits and vegetables, seed production, production of vermi-compost etc.

The Indian Council of Agricultural Research is also implementing a programme namely, 'Attracting and Retaining Youth in Agriculture' (ARYA) in 25 states through Krishi Vigyan Kendras, one district in each state. In each of the selected districts, 200 to 300 rural youth have been identified for their skill development in entrepreneurial activities and also help them in the establishment of related micro-enterprise units in the prospective areas of apiary, mushroom, seed processing, soil testing, poultry, dairy, carp-hatchery, protected cultivation, vermi-compost etc.In this process, the agricultural universities and ICAR research institutes act as Technology-cum-Incubation Partners for entrepreneurial training to the farmers and rural youth. It is envisioned that skilling in agriculture would not only enhance the efficiency of the person, but also optimize the resource inputs thus enhancing the energy and monetary efficiencies in the management of agricultural systems. And, the Council strives to train about 24 lakh farmers/rural youth in different areas of agriculture for enhancement of agricultural productivity vis-à-vis farmers' income by 2022. To enable this, it is time that we provide end-to-end approach on skilling and linking all the stakeholders of agricultural value chain for enabling the country to step up its assurance of food and nutritional security progressively.

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WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, SYMPOSIA

High Level Monitoring Committee Meeting of NICRA

New Delhi, 11 July 2016. The 9th High Level Monitoring Committee (HLMC) meeting of NICRA was held at Krishi Bhavan under the chairmanship of Dr T. Mohapatra (Secretary, DARE and DG, ICAR) who highlighted the significance of the project with reference to the frequent weather aberrations and extreme climatic events across the country during the past few years,and acknowledged the contributions from NICRA to meet these emerging challenges. The DG, ICAR informed that Contingency Planning and its implementation strategies being undertaken under NICRA in association with State Governments and Department of Agriculture and Co-operation serving to the needs of country's agriculture sector in managing these weather aberrations. The vulnerability atlas developed, infrastructure established and other achievements under Research and Technology Demonstration components of NICRA were appreciated. The DG, ICAR focused on functioning of climate resilient model villages and the need to expand these models across the country by linking with National Schemes.

Dr K. Alagasundaram (DDG, NRM and Agricultural Engineering) focused on the need for performance evaluation of different Institutes, and Krishi Vigyan Kendras through a technical committee and advised to revive and expand capacity building in farm mechanization by involving experts from CIAE, Bhopal,and CIPHET, Ludhiana.

Dr Ch.Srinivasa Rao (Director, CRIDA) explained the major achievements under different components of NICRA. This was followed by detailed deliberations on the outcomes of NICRA project and its impacts in bringing resilience to farmers in the country.

Appreciating the efforts, the committee suggested measures to improve various activities under NICRA, share the experiences with Union and State Governments for wide spread adoption and for scaling-up of site specific technologies across the country.

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24th Annual Group Meeting of AICRP on Medicinal and Aromatic Plants and Betelvine

Nauni, 28 September 2016. Dr T. Janakiram (ADG, Hort. Science) inaugurated 24th Annual Group Meeting of All India Coordinated Research Project on Medicinal and Aromatic Plants and Betelvine (AICRP-MAP&B), held at Dr Yashwant Singh Parmar University of Horticulture and Forestry'. He highlighted few important issues concerning the project, especially climate change, species erosion, species mapping, high-yielding varieties, seed standards, marketing and post-harvest technology of Medicinal and Aromatic Plants and Betelvine crops.

Dr P. L. Gautam (Vice chancellor, Career Point University, Hamirpur, Himachal Pradesh) emphasized need for documentation, protection of biodiversity and conservation of Medicinal and Aromatic Plants and Betelvine species.

Dr Jitendra Kumar (Director, DMAPRP) highlighted new initiatives launched such as region- wise customization of agro-technologies, estimation of agro-economics, development of nursery for quality planting materials (QPM) and facilitation centres for capacity building, development of primary processing facilities and work on development of high-yielding varieties of medicinal plants. During the 4-day deliberations, research

achievements and future technical programme of AICRP-MAP&B project were reviewed.

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Chief Scientists Meet

Bhubaneshwar, 22 August 2016.The Union Minister of Rural Development, Panchayati Raj, Drinking Water and Sanitation, Shri Narendra Singh Tomar, opened four-day Chief Scientists Meet of AICRP on Irrigation Water Management, jointly organized by the Indian Institute of Water Management, and Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, on 19 August 2016. Shri Tomar emphasized on the importance of water for efficient use in agriculture by growing more crop per drop of water and said that the water-table and quality is decreasing day-by-day and steps have to be taken to save water through use of micro-irrigation. He also emphasized that productivity, production and farm income need to be increased so as to retain the farmers in agriculture.

The Minister for Urban Development and Housing, Madhya Pradesh, Smt Maya Singh, stressed on more research on safer use of domestic and industrial sewage water in agriculture. Smt Singh also narrated benefits of roof-water harvesting for raising groundwater.

Shri Lakhan Singh Yadav (MLA) emphasized on development of area specific technologies and ground-water recharge by rainwater conservation through percolation tanks and check dams.

The scientists stressed on discussion—increasing water productivity and bringing Second Green Revolution so as to double the farm income by 2022; direct saving of irrigation water through laser assisted laser leveller, ridge furrow and broad bed furrow sowing methods; and increasing nutrient and water use efficiency through efficient fertigation methods.

Dr S.K. Ambast (Director, IIWM) emphasized on water resource planning, development and management for ensuring irrigation water at each farm. He informed that IIWM is playing role of knowledge hub for capacity building under PMKSY.

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Group Meeting of All India Network Project on Soil Biodiversity-Biofertilizers

Bhubaneshwar, 21 August 2016. The two-day Group Meeting of the All India Network Project on 'Soil Biodiversity-Biofertilizers' was held on 20 August 2016 at the Orissa University of Agriculture and Technology. Dr D. L. N. Rao (Project Coordinator, Biofertilizers) stressed on the recent developments in biological nitrogen-fixation, soil biodiversity and biofertilizers in the project and dwelt on the national perspective and global developments.Dr Rao further highlighted the work on genetic diversity of *Rhizobia* of major legumes grown in India; soil meta-genomics for soil health assessment; liquid biofertilizers; microbially enriched compost, potassium (K) and zinc (Zn) solubilizing bacteria, microbial consortia for organic matter decomposition; plant growth promoting bacteria for disease control in crops and horticultural, and microbial packages demonstrations in tribal areas. Significant economic benefit with farmers earning ₹ 20 per rupee investment on biofertilizer based package was highlighted. Production of biofertilizers worth ₹ 382 lakh in the project centres was lauded.

Dr S.P. Adhikary (Vice Chancellor, Fakir Mohan University, Balasore) deliberated on Blue green algae (BGA) and *Azolla* inoculants and mass production and supply by farmers groups in Odisha.

Dr S. Pasupalak (Vice Chancellor, OUAT) emphasized the need for setting up of a biofertilizer production unit at Orissa University of Agriculture and Technology.

Dr A.K. Patra (Director, IISS) emphasized the exploitation of soil biodiversity for improving availability of nutrients in soil, especially micronutrients and also gave examples of alleviation of iron toxicity by microbial interventions. Dr Patra highlighted the developments at Indian Institute of Soil Science in the field of rapid soil testing and automation to meet the challenges of soil-health mission.

Dr S.K. Chaudhari (ADG, SWM), chief guest emphasized on the crucial importance of improving soil organic matter, applying microbially enriched compost, soil-health testing to include a physical and biological parameters and assured support for such programmes.

In the final session the *Plan of Work for 2017-20* was finalized with emphasis on:

- Climate change, Abiotic and Biotic Stresses, Conservation Agriculture
- Crop Diversification into Horticulture and Cash crops
- Biofertilizer technology, extension in dry lands, tribal areas, and North-Eastern Hills Region.

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11th Annual Group Meeting of Network Project on 'Organic Farming'

Bhopal, 19 August 2016. Prof. M. Premjit Singh (Vice Chancellor, Central Agricultural University, Imphal) inaugurated three-day 11th Annual Group Meeting of Network Project on 'Organic Farming' at Indian Institute of Soil Science on 17 August 2016. Prof. Singh highlighted the importance of organic farming in niche areas and crops along with important issues such as insect, disease and weed infestation under organic farming. Prof. Singh also urged to develop insect, disease-resistant varieties for organic farming and promote the organic farming using farming systems approach with inclusion of the livestock.

Dr S. Bhaskar (ADG, AAF & CC) highlighted the importance of the organic farming and said that organic farming is a climate resilient production system and it should be promoted particularly in rainfed and hill ecology. Dr Bhaskar stated that outcome of the group meeting will be highly useful for researchers, policy makers and organic growers.

Dr Ashok Kumar Patra (Director, IISS) informed that this Institute has developed composting techniques which are part of organic farming.

Dr A.S. Panwar (Director, IIFS) highlighted that presently 16 states are covered through Network Project on 'Organic Farming' and 666 practising organic farmers have been studied during the year for understanding the constraints of organic growers. He informed that best performing varieties under organic farming for 20 crops have been identified and Integrated Organic Farming System (IOFS) models developed at Meghalaya and Tamil Nadu, which promise to increase the income by 2- to 3-fold and meet inputs up to 85 to 90% within the farm.

Dr Balraj Singh (Vice Chancellor, Agriculture University, Jodhpur) informed that in India, organic farming is gaining momentum mainly due to soil, livestock and human health concerns and he appreciated the recommendations of the group meeting on technologies for up-scaling, policy, research and general issues.

Based on the deliberations, an experiment on weed management under organic farming was formulated, which will be implemented at Network Project on 'Organic Farming' and selected AICRP on Integrated Farming System centres.

Researchable issues on Integrated Organic Farming Systems identified

- Development and screening of crop(s)/varieties having better root biomass and identification of food-feed crops under organic farming is essential to meet the soil-livestock-human requirements.
- Locally available best practices of organic clusters/ farmers for nutrient, pest, disease and weed management should be documented and refined for integration in the Integrated Organic Farming Systems for reducing the external inputs.
- Eco-friendly conservation practices such as land configuration-based water conservation, residue retention and *in-situ* recycling needs to be given priority.
- Long-term ecological study sites needs to be established in all agro-climatic regions for assessing the long term impact of organic farming practices on soil, livestock, human, society and environment.
- Development of nutrient enriched/pest repellent composts and liquid products through blending of locally available green/green leaf/pest repellent/ medicinal herbs/indigenous earth worms.
- Organic farming is incomplete without livestock. Hence, research on efficient utilization of animal energy with improved equipment's, bio-gas etc. for meeting the energy requirement of household and farms are essential under Integrated Organic Farming Systems. Feed and fodder crops needs to be included in IOFS for sustainability with emphasis on initiation of farmer's participatory research on Integrated Organic Farming Systems.

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Canacona Tribal Farmers' Meet

Old Goa, 25 August 2016. Hon'ble Governor of Goa, Dr (Smt) Mridula Sinha, inaugurated 'Tribal Farmers' Meet' of Cancona zone,organized at Central Coastal Agricultural Research Institute (CCARI) under a project 'Technology intervention for higher productivity and production of important horticulture crops for improving livelihood security of tribal farmers in Goa'. The aim was to apprise farmers about the benefits of adopting improved production technologies on

plantation, spice and fruit crops. Hon'ble Governor of Goa, Dr Sinha emphasized the need for conserving and strengthening the local skills of the farming community and inculcate the ones with the modern farming practices for the ever charming prosperity of the rural folk. Such approaches would pave way for sustainable technology for the betterment of livelihood security of rural people. During the meet, planting material of improved varieties of cashew, mango, coconut, arecanut, nutmeg and black pepper were provided to the tribal farmers by Hon'ble Governor for marking the acceptance of the technology of using grafts and hybrids of the above crops by the tribal farmers, who otherwise were dependent only on using non-descript low yielding local planting material.

Dr Narendra Pratap Singh (Director,CCARI) focused on'Tribal Sub Plan' Programme, launched by the Institute five-year ago and the benefits accrued by the tribal farming community in Goa. Besides other scientists focused on a brief account of the impact of the technology interventions and trainings imparted to tribal farmers along with farm machineries (Brush cutters and Power Sprayers) and farm inputs (Fertilizers and Agro-chemicals).

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Agri-preneurship Development Meet

Izatnagar, 29 September 2016. Dr S A Patil (Member, Agricultural Vision Group, GoK) inaugurated an Agri-preneurship Development Meet organized by IVRI which was followed by an inspirational lecture on

'Entrepreneurship Development - Attracting Youth in Agriculture'. The meet and lecture emphasized the importance of utilizing successful agri- preneurs, their innovativeness and experiences in promoting modern agriculture and much importance to be given to reduce agricultural production costs by tapping potential institutional resources. A forum in this context comprising the institutions and successful entrepreneurs would be a basic knowledge base for future furtherance, Dr Patil added.

The presentation was attended by scientists and faculty members of various disciplines, 45 farm entrepreneurs and 150 post-graduate students across the disciplines.

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Workshop on Entrepreneurship Development Programme

Mannuthy, 26 August 2016. Dr P. Rajendran (Vice Chancellor, KAU) inaugurated a sensitization workshop on 'Entrepreneurship Development and Business Plan Competition for Students of South Indian Universities', jointly organized by the National Academy for Agricultural Research Management, Central Institute of Fisheries Technology,Veterinary and Animal Sciences University, and Kerala Agricultural University at Thrissur. He emphasized the need of convergence of technology and entrepreneurship to facilitate emergence of start-up ventures in the agriculture sector. Dr Rajendran said value addition, precision fertilizer usage, and food processing were the sectors that could generate more entrepreneurs in agriculture and allied sectors. Dr Rajendran added that the programme would change the mindset of students towards the entrepreneurial ecosystem and develop self confidence among students to become successful entrepreneurs.

The project on 'Developing bio-mosquito repellent from the turmeric leaf oils extracts by steam distillation' was presented.The Kerala Agricultural University students bagged National Innovation Awards for best entrepreneur. Cash awards of ₹ 10,000 and ₹ 5000 and certificates were given to the winning teams.

Students from College of Corporation Banking and Management, KAU won the first prize. A total of 130 students from six universities participated in the workshop. Of the 49 entries registered for the Business Plan Competition 18 teams were selected and awards were given to best two business plans.

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Interactive Workshop on Aquatic Animal Diseases in Asom

Guwahati, 20 September 2016. Dr B. K. Das (Director, CIFRI) inaugurated an Interactive Workshop on 'Aquatic Animal Diseases in Asom' under the National Surveillance Programme on Aquatic Animal Diseases at the Central Inland Fisheries Research Institute, North-Eastern Regional Centre, and emphasized on developing fisheries in the North-Eastern Region with assurance of technical support and co-operation from

the Institute. Dr Das outlined the activities carried out by the Institute in the state under National Surveillance Programme on Aquatic Animal Diseases.

Dr A.K. Sahu (DBT, Visiting Professor) emphasized the need of open water fisheries development in the north- eastern region.

Mr M.C. Jauhari (Principal Secretary Fisheries, Government of Asom) stated that at present the state is producing 2.94 lakh tonnes against a demand of 3.25 lakh tonnes, hereby reducing the gap to 42,000 tonnes. The Department has launched an ambitious scheme '*Ghare ghare pukhuri, ghare ghare machh*' for increasing area covered under pond aquaculture in 25,000 villages of the state. The Principal Secretary released the *Workshop Manual*, and urged the Institute to prepare publications in regional languages (Assamese, Bodo, Karbi and Bangla).

The technical session enlightened the farmers on topics: chemotherapy and aquaculture medicine, breeding of magur and larval rearing, prevailing fish diseases in Asom, and best management practices in aquaculture.

Shri Bimal Borah (MLA, Tingkhong Constituency, Asom) released the English and Assamese versions of leaflets on '*Nutritional Significance of Fish in Our Diet*'.

The deliberations were in the interest of fish farmers in the Asom region.

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23rd Zonal KVK workshop inaugurated

Khorda, 3 September 2016. The Minister of State (Independent Charge), Petroleum and Natural Gas, Shri Dharmendra Pradhan ji, inaugurated 23rd Zonal Workshop of Krishi Vigyan Kendras under ATARI, Jabalpur. He proposed to fund Agricultural Universities of three states to the tune of ₹ 2 crore each on a pilot-scale on conversion of crop residues and farm wastes into bio-gas bio-fuel. He also encouraged the farmers to use the space of 5,500 petrol pump across the country for knowledge dissemination. The innovative farmers were felicitated by Krishi Vigyan Kendras (KVKs), Khorda, Angul and Deograh. Shri Pradhan ji also inaugurated the exhibition laid out by KVKs on the occasion highlighting the success stories at the farmers fields, and launched the web portal on Management Information System of Krishi Vigyan Kendras.

Dr S. Pasupalak (Vice Chancellor,OUAT) pointed out the salient achievements of Krishi Vigyan Kendras made in Odisha, and expressed the challenges of the agriculture in the state.

Dr Anupam Mishra (Director, ATARI Zone VII) opined that Krishi Vigyan Kendras are the front-line extension institution working in the vicinity of the farming community and supporting their profitable farming.

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Review of Krishi Vigyan Kendras in Manipur

New Delhi, 30 September 2016. Dr A.K. Singh (DDG, Agriculture Extension) inaugurated the Food Processing Unit (established by the Krishi Vigyan Kendra, Senapati) and reviewed the progress of nine Krishi Vigyan Kendras in Manipur under ATARI, Zone III. Dr Singh reminded the PCs and SMSs about the emerging role and responsibilities of the KVKs in the changing scenario of Indian agriculture and about the flagship programmes like Soil-Health Card, National Demonstrations on Pulses and Oilseeds etc., besides other activities of the KVKs.

The Vice Chancellor, CAU, Imphal, Prof. M. Premjit Singh, highlighted the importance of double cropping and integrated farming systems in the North-Eastern Hills Region. Dr Bidyut C. Deka (Director, ATARI) narrated the theme and objectives of the review meeting.

The dignitaries overwhelmingly appreciated the efforts taken by Mr Kipgen in developing different state-of-art facilities and North-Eastern Himalayan Orchid Gene Bank in the KVK farm, the first of its kind in North-Eastern Region.

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Cluster Front-line demonstration of pulses and oilseeds

Hyderabad, 20 August 2016. A two-day Group Meeting of 34 Krishi Vigyan Kendras in Andhra Pradesh and Telangana was organized by ATARI, Hyderabad on 19 August 2016 to review the interim progress of cluster front-line demonstrations on Pulses and Oilseeds under NFSM and NMOOP. Dr Y.G.Prasad (Director, ATARI, Hyderabad) presented an overview of the progress of over 2,000 cluster front-line demonstrations during *kharif* 2015-16. At majority of

the locations timely planting of pulse crops was taken up for demonstration of improved cultivars along with technology package for enhancing productivity.

Dr Ch. Srinivasa Rao (Director,CRIDA) chaired the group meeting and emphasized the role of *in-situ* soil moisture conservation measures in sustaining productivity despite dry spells.

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Cluster Front-line Demonstration on Oilseeds under NMOOP 2016-17

Jorhat, 9 September 2016. Dr K. M. Bujarbaruah (Vice Chancellor, AAU) inaugurated a two-day training programme on 'Cluster Front-line Demonstration on Oilseed Crops', organized by Agriculture Technology Application Research Institute Zone III, Umiam Meghalaya. Dr Bujarbaruah (Vice Chancellor, AAU, Jorhat) expressed the need of increasing area of cultivation of oilseed crops for increasing production to reduce their import from foreign countries. Dr Bujarbaruah elucidated on the utilization of fallow land by cultivating oilseed crops during *rabi*.

Dr Bidyut C. Deka (Director, ATARI Zone-III, Umiam) stressed that the main aim of the programme was to have a broader idea and knowledge of the oilseed crops, the broad spectrum that exists in their study and research and the various technologies that may be implemented to increase area and production of oilseeds particularly in the North-Eastern Region.

Dr Dhiraj Singh (Director, DRMR) briefly talked the importance to bridge the gap in productivity and expansion of oilseed area under Cluster Front-line Demonstration.

Dr H. C. Bhattacharya (DEE, AAU, Jorhat) enlightened the participants on the need to achieve the proposed targets put forth by the council and how the Krishi Vigyan Kendras should work in coordination for achieving productive and efficient results.

Dr A. K. Gogoi (In-charge, CPCRI, Asom) urged the Krishi Vigyan Kendras to work tirelessly in their activities to motivate the farmers and suggested that awards may be given to the beneficiaries that perform well. Moreover, Dr Gogoi emphasized the need for more training programmes to be conducted to motivate the stakeholders and farmers in what he expressed as 'A rainbow cultivation of Oilseed Crops'.

During the training programmes, the participants were given training on seed production, improved technologies and pest management of different oilseed crops.

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Celebrations

3rd Foundation Day of Agriculture University, Jodhpur

Jodhpur, 14 September 2016. Dr T. Mohapatra (Secretary, DARE and DG, ICAR), Chief Guest, of 3rd Foundation Day of Agriculture University, Jodhpur, focused on the problems of farmers through innovative research and extension programmes for western Rajasthan where quality water availability is the major challenge. Dr Mohapatra assured Vice Chancellor, Agriculture University, Jodhpur, Dr Balraj Singh, that Council will give full support in establishing All India

International Linkages

FAO Expert Consultation on Marking of Fishing Gear, 2016

Cochin, 7 April 2016. Dr Leela Edwin, from CIFT, was invited to attend the Expert Consultation on Marking of Fishing Gear, organized by the Food and Agriculture Organisation (FAO), Rome between 4 and 7 April 2016. The consultation was opened by Mr Arni M. Mathiesen (ADG, Fisheries and Aquaculture Department, FAO, Rome). During the Expert Consultation guidelines were developed to assist countries in implementing FAO Code of Conduct for Responsible Fisheries by developing and applying a system for the marking of fishing gear.

Dr Leela Edwin (Second from left) with other participants of the meeting

The programme was for providing a practical means of locating and identifying the ownership of fishing gear, enabling administrators, owners and users of fishing gear with a reference and a means of providing information and guidance to the appropriate marking technologies; and for providing a basis for the preparation of recommendations and regulations designed to minimize the abandonment-and-discarding of fishing gear for the management of fishery resources in the long run. The Expert Consultation was attended by 18 experts in their personal capacity and four resource persons from different countries. Dr Leela Edwin presented inputs on fishing gear and marking in India.

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SAARC Training Programme on Climate Change

Bhopal, 23 August 2016. With the objective of sharing of ideas, commonalities and solutions among the researchers of the South Asian Association for Regional Cooperation (SAARC) countries, sponsored by the SAARC Agricultural Centre (SAC), Dhaka, and the Indian Council of Agricultural Research took initiatives for Regional Training Programme on various important issues at the Indian Institute of Soil Science. The eight days programme concluded on 23 August 2016 in which Dr Nawab Ali (Ex -Deputy Director General, Agricultural Engineering) the Chief Guest, focused on 'The Climate change impact on Agriculture and the Society'.

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Co-ordinated Research Project centres on important crops of this area as well as for infrastructure development like hostels for students etc.

Shri Gajendra Singh Shekhawat (MP, Lok Sabha) emphasized the need of judicious use of groundwater, and lauded strongly the development of techniques for rainwater harvesting by recalling example of Israel. Shri Shekhawat also emphasized the need of post-harvest management of crops especially horticultural crops with more emphasis on value addition.

Shri Ram Narayan Dudi (MP, Rajya Sabha) focused on the use of the rich biodiversity of Marwar Region for development of new varieties with proper conservation of the rich biodiversity of this region. Shri Dudi quoted an example of Mathania chilli, and called scientists for its revival in the area through development of the varities or improved production technology.

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DG, ICAR emphasized need to develop technologies at DMAPR

Anand, 3 September 2016. Dr T. Mohapatra emphasized the need to develop technologies for doubling the income of the medicinal and aromatic plants cultivating farmers in the country at Anand. Dr Trilochan Mohapatra (Secretary, DARE and Director General, ICAR) laid foundation stone for the residential quarters at the Directorate of Medicinal and Aromatic

Plants Research (DMAPR). The DG (ICAR) also emphasized to complete the value chain of important medicinal and aromatic plants to ensure more income to the farmers.

Dr N.C. Patel (Vice Chancellor, AAU) said that there is a need for partnerships in the development and promotion of medicinal and aromatic plants. Dr Patel also appraised the recent achievements of All India Co-ordinated Research Project on Medicinal, Aromatic and Betelvine Centre located at Anand Agricultural University, Anand.

Dr T. Janakiram (ADG, Horticultural Science) said that medicinal and aromatic plants play key role in livelihood security of tribal farmers besides health security. Dr Janakiram said that there is need for establishment of referral labs for ensuring the quality of raw drugs in the country.

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Himalayan Day at IISWC

Dehradun, 9 September 2016. Dr A. Senthil Kumar (Director, Indian Institute of Remote Sensing), Chief Guest, inaugurated 7th Himalayan Day at the Institute of Soil and Water Conservation, and described the role of the Himalayas as creator, viz. biggest water resource of the world; storehouse of global biodiversity; and mentioned that many medicinal plants useful for human health are found on the Himalayas and the role of protective as the Himalayas is considered as 3rd pole of the world. Dr Kumar also emphasized on the integration of geospatial technologies in remote areas of the Himalayas and focused on the recent achievements of Indian Space Research Organization.

Dr P. K. Mishra (Director, IISWC) reassured that the Institute of Soil and Water Conservation strives for the sustainable management of the Himalayas, and urged to use the resources available responsibly for their own benefit and for the next upcoming generations.

The deliberations were on the importance of the Himalayan Day, Effect of Climate Change on Agriculture in Indian Himalayan Region, Global warming, Greenhouse effect, IPCC assessment reports, how a common man can help in environmental sustainability etc.

The scientists of the Institute of Soil and Water Conservation focused on the different services provided by the Himalayas, and emphasized on the conservation of the fragile Himalayan ecosystem. There was oath ceremony on 'Conserve Soil and Water' - 'Save Himalayas Save Life'. The English transcript of the oath, taken in Hindi transcribes, "We would respect and show our gratitude to the Himalayas. We would not harm environmental condition of the Himalayas and will not allow anybody to do so. We would rationally use the natural resources available in the Himalayas. We would try our level best in all conditions at all levels to conserve and improve the environment of the Himalayas. We would always be active for the same".

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Kisan Mela and Agriculture Innovations Day at CAZRI

Jodhpur, 21 September 2016. Shri G.S.Shekhawat (Member of Parliament), Chief Guest on the occasion of *Kisan Mela* and Agriculture Innovation Day organized by the Central Arid Zone Research Institute,stressed upon adoption of new technologies developed by the Institute and elsewhere to improve agricultural productivity, enhance income and to bring resilience in agriculture in the backdrop of climate change so that effects of adverse weather, so common in western Rajasthan, can be minimized. Shri Shekhawat highlighted that ICAR has done a commendable job of providing food security to a billion Plus people and has transformed India from a net importer to exporter of foodgrains. Shri Shekhawat also launched CAZRI Krishi App.

Dr O.P. Yadav (Director, CAZRI) highlighted the activities undertaken by the Institute and briefed about demonstration of various technologies at the Institute farm including new varieties of mungbean, mothbean, clusterbean, *til* and pearl millet;water-harvesting and its recycling for fodder production; models of several farming systems, solar gadgets for agricultural operations, improved management of livestock etc.for the benefit of farming community. Dr Yadav categorically mentioned that promotion of water efficient crops and modern methods irrigation are must to sustain the agricultural growth in the region.

Farmers producing best crops of pearl millet, mungbean, mothbean, clusterbean, *til*, bottle gourd and round gourd were also awarded. Ten farmers were adjudged as *CAZRI Kisan Mitra* in recognition of their significant contribution in adoption and up-scaling of agricultural technologies to different farmers in the region. A *Kisan Goshthi* was organized in which farmers interacted with scientists. Registration of 1,000 farmers was also done at 'M-Kisan portal'.

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Groundnut Field Day at Bikaner

Bikaner, 28 September 2016.Dr Radhakrishnan (Director, DGR) inaugurated a Groundnut Field Day in collaboration with Arid Research Centre of CSWRI at Bikaner for groundnut farmers in and around Bikaner. Dr Radhakrishnan pointed out that new high-yielding varieties suitable for this location will be developed and cautioned that with the large-scale cultivation of new varieties new disease and pests and other associated problems are likely to crop up and needs further research for management of those problems. During the deliberations it was felt that availability of quality seeds is the major issues for Bikaner and needs coordinated efforts to supply the quality seeds for enhancing the yield further from its current level of

average yield of 2.5 to 3 tonnes/ha. It was also felt that the initiative of Directorate of Groundnut Research taking up seed production of 'Girnar 2' groundnut at Bikaner will boost up the supply of quality seeds in this part of the country.

The dignitaries emphasized the need for suitable varieties that have traits of short duration, moisture-deficit stress tolerance and high yield. They also emphasised the need for breeding varieties suitable for soil and climatic conditions of Bikaner.

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Field day on high-yielding variety, 'RCM-1-3' maize

Ri-Bhoi, 8 September 2016.To showcase the success of performance of maize var. 'RCM-1-3' in farmers' field the Krishi Vigyan Kendra, Ri-Bhoi, organized a field day on high-yielding variety 'RCM-1-3' maize (*Zea mays* Linn.) at Umeit village. The performance of maize variety as the cob length and cob size was very good than that of local variety of maize. The grain yield is expected to be higher when compared with local variety of maize.

The Project Co-ordinator, KVK Ri-Bhoi briefed the farmers about the advantages of mulching, cropping system, growing of legumes and helped the farmers to identify the weeds like *Eupatorium* sp., *Ambrosia* spp. etc., which are available in their fields and which can act as mulch in their field to conserve soil and moisture, control weeds, supply nutrients and act as insect repellent. There was also a group discussion among the Programme Coordinator and farmers.

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'Promotion of Pulses in Garo Hills' under Tribal Sub-Plan at KVK, Tura

Garo Hills, 1. August 2016. The United Nations General Assembly (UNGA) designated 2016 as the International Year of Pulses (IYP 2016), with the aim of enhancing public awareness of the nutritional and food security benefits of pulses and their contribution to sustainable food production and the livelihoods of millions of smallholder farmers. The ICAR Research Complex for NEH Region, Umiam has taken up an initiative to create awareness among farmers. In this connection, Krishi Vigyan Kendra, ICAR Research Complex for NEH Region organized an awareness programme on 'Promotion of pulses in Garo Hills' at Community Hall, Mandal.

Shri D. D. Sangma (Addition Deputy Commissioner, North Garo Hills) was the chief guest of the programme. Staff of KVK and officers from various

line department including 131 farmers from different villages of North Garo Hills participated in the programme. Dr Tanmay Samajdar (Programme Coordinator, KVK) briefed about the importance of pulse cultivation in Garo Hills. Dr Samajdar emphasized on cultivation of green gram in pre-*kharif* duration and black gram & lentil in *rabi*. The chief guest was grateful to KVK for organizing such kind of programme in the district and assured all kind help and support in future. Dr Samajdar also requested the KVK to organize such awareness programmes in other parts of the district.

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Parthenium Awareness Week

Directorate of Weed Research

Jabalpur, 22 August 2016. The Directorate of Weed Research organized a country-wide 7-day programme '*Parthenium* Awareness Week' from 16 to 22 August 2016 by involving State Agricultural Universities (SAUs), Krishi Vigyan Kendra (KVKs), State Agricultural Departments, institutes of ICAR, AICRP centres of Weed Management etc. This programme was highly successful in creating awareness and educating the people about the ill effects of *Parthenium* and the techniques of its management.

The *Parthenium hysterophorus* (Family: Asteraceae), locally called *gajar ghas* or congress grass, is an alien weed which entered into India along with wheat imported from the United States of America in the early 1950s. Since then it has spread alarmingly and invaded about 35 million ha of land throughout the country. The weed is responsible for causing many diseases like skin allergy, hay fever, breathing problems in human beings and animals besides reducing agricultural productivity and causing loss of biodiversity.

At DWR, Jabalpur, the *Parthenium* Awareness programmes was organized in villages like Gujarsani of Mandla District, Simariya of Narsinghpur district, Banda in Katni and Deori Nagan of Seoni districts at different days of the week. A training-cum-awareness programme was conducted at the Directorate on 20 August 2016. Dr Swati Godbole (Mayor of Jabalpur Municipality) and Sardar Harnek Singh, (a man responsible for making first *Parthenium* free village in Punjab) graced the occasion as Chief Guest and Guest of Honour, respectively. Many farmers, city people, NGOs from adjoining districts participated in the programme.

In north-eastern region of the country, programmes were organized by Assam Agricultural University, Jorhat; Central Agricultural University, Pasighat; Bidhan Chandra Krishi Vishwavidhyalya, Mohanpur; Orissa University of Agricultural and Technology, Bhubaneshwar; Rajendra Agricultural University, Pusa; and Birsa Agricultural University, Ranchi in collaboration with Krishi Vigyan Kedras, schools and colleges in the region.

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National Institute of Biotic and Stress Management

Raipur, 16 August, 2016. On the onset of inauguration of *Parthenium* Awareness Week Dr P. Kaushal (Joint Director, Research) chaired the session and focused on *pros and cons* of National Institute of Biotic and Stress Management (NIBSM) to have *Parthenium* free campus in next 2-3 years.

Dr V.K. Choudhary (Co-ordinator of *Parthenium* awareness week) deliberated about *Parthenium* and its invading to the cultivated area and yield reduction to various crops. The staff of NIBSM uprooted the *Parthenium* in the campus of the Institute.

Dr K.C. Sharma and Dr V.K. Choudhary visited Middle school, Baronda on 17 August 2016 and explained about *Parthenium*, its mode of entry to India and spread within. They also educated students about ill effect and potential usage like composting of *Parthenium*, and distributed with leaflets on integrated *Parthenium* management. The students were inspired to disseminate awareness about integrated *Parthenium* management to villagers, parents, friends, neighbours and also to the relatives to minimize the *Parthenium* population in integrated way.

1. Day 3, 18th August 2016: Villagers of Sonbhatta, Raipur District were explained about the ill effect of *Parthenium* and suggested to eradicate this weed from their village. Though the density of *Parthenium* was low in this village, the villagers were stressed upon that they need to eradicate *Parthenium* before commencement of flower, if at all noticed. They were also explained about *Cassia tora* and wild marigold for natural suppression of *Parthenium*. They were also shown the video and distributed folders regarding integrated management of *Parthenium*.

2. Day 4, 19th August 2016: On 19th August, villagers of Tarighat, Patan Block of Durg District were briefed about *pros and cons* of *Parthenium* and its eradication. The team requested villagers to share their experiences about *Parthenium*, and by sharing their individual experience created awareness among themselves. Group of scientists explained on *Parthenium* entry and distribution to India and its encroachment in the cultivated areas. They were also educated on crop loss, health hazards, threat to biodiversity, and reducing the milk production in cattle and buffalo, deteriorating the quality of milk caused by *Parthenium*. They were also shown video on *Parthenium* and distributed leaflets on integrated *Parthenium* management for further spread of information.

On the same day students of class 9th and 10th along with teachers of High school of Tarighat,Patan Block, Durg District were explained about history, entry to India, and distribution of *Parthenium*. They were also educated with different vedios on *Parthenium* and leaflets on integrated management of *Parthenium*. Apart from these,students were encouraged to disseminate these information to parents, friends, neighbours and relatives so that information will reach to far away villages also.

3. Day 5, 20th August 2016: Villagers of Tor, Raipur District were explained about the ill effects of *Parthenium*. This village is severely infested with *Parthenium*. Villagers informed to staff of NIBSM that this notorious weed, *Parthenium* has distributed from railway track to whole village and now has started invading the crop area. Scientists distributed the integrated *Parthenium* management leaflets. Villagers were demonstrated with methods of manual uprooting of *Parthenium* before flowering, use of competitive plants, and chemical management in community basis. Farmers were also educated to use *Parthenium* for compost preparation with precautions in the severely infested area.

To create more awareness in this severely infested village by *Parthenium*, students of class 8th along with teachers at Middle School of Tor were explained about the ill effects of *Parthenium*, its entry and invasion to India. They were also advised to do adopt mass campaigns programme in the village for *Parthenium* eradication with the help of staff of NIBSM.

4. Day 6, 21 August 2016: *Parthenium* eradication carried out near residence and colony of staff of NIBSM.

5. Day 7, 22 August 2016: Special lecture delivered on *Parthenium* and its management by Dr Anil Dixit (Principal Scientist) to the staff of NIBSM. On 22 August, '*Parthenium* Awareness Week' concluded with experience sharing on, activities carried out during the week, and taking an oath by all staff of NIBSM to achieve *Parthenium* free campus within 2-3 years.

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CIFA observes National Fish Farmers' Day

Kausalyaganga,10 July 2016. The Central Institute of Freshwater Aquaculture (CIFA) observed the 16th National Fish Farmers' Day and commemorated in remembrance of scientists, Dr K H Alikunhi and Dr H.L. Chaudhury, who had invented induced breeding technology on this day way back in 1957.

Dr P. Jayasankar (Director, CIFA) said the invention is hailed as a landmark achievement paving way for hatchery production of fish seed. Dr Jayasankar urged all the stakeholders engaged in agricultural development to come together and work in an integrated way to ensure that farmers' income is doubled by 2022.

Prof Surendranath Pasupalak (Vice Chancellor, Orissa University of Agriculture and Technology) indicated that cage culture of fish in reservoirs in Odisha need to be strengthened. Dr A. K. Nayak (Director,NRRI) raised the need for integrated farming systems.

Around 80 fish farmers from Odisha were present at the event. Thirteen fish farmers and entrepreneurs from different parts of India were felicitated for their contributions to the development of freshwater aquaculture. The awardees also shared their experience in fish farming with the audience. A scientist-farmer interaction session was organized on the day aiming at providing solution to the problems faced by the farmers in pisciculture.

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Awareness camp on 'Soil-Health Management' at NRCP

Solapur, 5 July 2016. The National Research Centre on Pomegranate, organized an awareness camp on 'Soil-Health Management' at the Centre in collaboration with ATMA, Solapur. Shri K. V. Deshmukh (Agriculture Commissionerate, Pune) emphasized the need for carry forward the mission of soil-health management and its utility for enhancing the productivity of pomegranate in Malshiras *taluka*. Dr Deshmukh advocated the pomegranate growers to form Farmers Producer Company to make remarkable change in pomegranate production. Dr R. K. Pal (Director,NRC on Pomegranate) emphasized the need of impact analysis of soil-health card with study on before and after scenario on crop production and productivity. Dr Pal also invited the young and educated pomegranate growers to undergo training at NRC on Pomegranate, Solapur, on basic soil analysis and continue the activity of issue of soil-health cards to large number of beneficiaries. Dr Pal also explained the possibility of establishment of pomegranate base agro-industry for development of food, pharmaceutical and cosmetic products through Farmers Producer Company.

About 26 progressive pomegranate farmers from Dahigaon village and 10 staff-members working under ATMA and district agricultural department actively participated in the said programme. In general the soil of this *taluka* was found to have high pH that often leads to mal-absorption of applied fertilizers and nutrients.

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'FOCARS-104' inaugurated at NAARM

Hyderabad, 15 July 2016. 'The Government of India has planned several steps for the sustainable development of agriculture that will improve agriculture and increase farmers' welfare,' said Shri Radha Mohan Singh, Union Minister of Agriculture and Farmers' Welfare, during his address to the trainees of the ICAR 104th Foundation Course for Agricultural Research Service (FOCARS-104) at the National Academy of Agricultural Research Management. Shri Radha Mohan Singh focused on the initiatives of the Government of India to improve soil fertility through the 'Soil-Health Card' scheme, support to organic farming through the '*Paramparagat Krishi Vikas Yojana*,' improved access to irrigation through the '*Pradhan Mantri Gram Sinchai Yojana*,' enhanced water efficiency through the 'Per Drop, More Crop,' and the creation of an unified national agriculture market to boost the income of farmers. Shri Radha Mohan Singh also elaborated on the '*Pradhan Mantri Fasal Bima Yojana*,' that covers risk to farmers from climatic vagaries. 'Use of Information and Communication Technologies' plays a greater role not only in knowledge dissemination but also in economic gains. Our farmers now have access to web-based 'Farmers Portal,' mobile-based 'M-Kisan' SMS portals, 'Kissan Call Center' and 'DD Kisan Channel,' said the Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh. He mentioned about the setting up the 'National Agriculture Market,' where 'Common e- Market Platforms' would be set up in 585 regulated markets in the country. These digital platforms would enable farmers to sell their produce through e-marketing. Shri Radha Mohan Singh asked the trainees and scientists to contribute by popularizing the technologies in the field so that the farmers are benefitted.

Shri Radha Mohan Singh also held a meeting at NAARM with officials from the Departments of the Telangana, scientists from the institutes of the ICAR in Hyderabad, and Directors and Professors from the State Agricultural Universities in Hyderabad. The discussions deliberated on the support for farmers in the State from the Government of India and the implementation of the policies for farmers' welfare.

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Unique Social Service by the National Research Centre for Orchids

Pakyong, 30 July 2016. '*Swachh Bharat* Mission' or '*Swachh Bharat Abhiyan*' is a campaign run by the Government of India as a massive mass movement to initiate the theme of cleanliness all through the India. This campaign was launched in seeking the way to create a Clean India target by 2019.

The aim of the mission is to cover all the rural and urban areas of the country to present India as an ideal country before the world. Keeping in view of '*Swachh Bharat* Mission', the staff of the NRC for Orchids cleaned the campus of 'Himalayan Children Home of Hope' an orphan home situated at Ranka-Lingdum.

This programme was fruitfull with the active participation of the staff members of NRC for Orchids and Shri Rohit Rai, who is the man behind this 'Himalayan Children Home of Hope'.

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88th Foundation Day of
Indian Council of Agricultural Research
was celebrated on
16 July 2016 at New Delhi

Dr T. Mohapatra (Secretary, DARE and DG,ICAR) welcomes President of ICAR and Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh on the 88 ICAR Foundation Day.

The Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh inaugurates 88 ICAR Foundation Day on 16 July 2016 in Vigyan Bhavan, New Delhi.

The Union Agriculture and Farmers Welfare Minister, Shri Radha Mohan Singh, lauded efforts of scientists and farmers for making Indian agriculture ready to face and win over challenges and also climatic adversities at the 88 ICAR Foundation Day.

Dr T. Mohapatra (Secretary, DARE and DG,ICAR) stressed on the need to popularize integrated farming models across India for enhancing income of farmers and also urged scientists to accelerate lab-to-land programme and commercialization of technologies.

The Union Agriculture and Farmers Welfare Minister, Shri Radha Mohan Singh, and Union Minister of State for Agriculture and Farmers Welfare and Parliamentary Affairs, , Shri S.S. Ahluwalia; Union Minister of State for Agriculture & Farmers Welfare and Panchayati Raj, Shri Parshottam Rupala,; and Union Minister of State for Agriculture & Farmers Welfare , Shri Sudarshan Bhagat are giving away awards.

Agri-business Incubator Facility inaugurated at NRC on Meat

Hyderabad, 31 August 2016. Dr Habibar Rahman (DDG, Animal Science) and Dr Joykrushna Jena (DDG, Fisheries Science) inaugurated 'Agri-Business Incubator facility' at National Research Centre on Meat. Three incubatees viz, 'J14' Guwahati', 'Farm Fresh Pork Products', Vijayawada and 'Pro-Chicken' Hyderabad were also present. The DDG (AS) highlighted the significance of meat sector for sustainable animal production and importance of disease control especially Foot-and-Mouth Disease, and Brucellosis for enhancing safety and quality. Plantation was also carried out during this occasion.

Dr J. K. Jena (DDG, Fisheries) stressed about the need for collaboration with few Fisheries Institutes, viz. Central Institute of Fisheries Technolgy, Cochin, and Central Inland Fisheries Research Institute, Barrackpore in the area of processing and value addition, chemical residue analysis, proteomics and DNA barcoding and other relevant topics.

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Promotion of Lac Integrated Farming System for sustainable livelihood organized at IINRG

Ranchi, 28 July 2016. A field day-cum-practical field demonstrations for the promotion of Lac Integrated Farming System for sustainable livelihood was organized at the Indian Institute of Natural Resins and Gums, Namkum. Vegetable seeds and literature on lac integrated farming system and lac cultivation on different hosts were distributed among innovative farmers. The programme was followed by field visit to farmers who are cultivating lac. Visit was also made to the fields of farmers who came forward for the adoption of the technology.

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ICAR Institutes covered under RFD are ISO certified

New Delhi. Performance Monitoring and Evaluation System (PMES) of Government of India was implemented for various Ministries/Departments in September, 2009 and subsequently, the Responsibility Centres i.e. Subordinate Organizations of the Ministries/Departments were also covered. All the 97 Responsibility Sub-Centres (Institutes) of the Department of Agricultural Research and Education (DARE) and Indian Council of Agricultural Research (ICAR), under Results-Framework Document system of Government of India, are now ISO 9001: 2008 certified. This assures delivery of high quality services by the organization.

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'Chetana Mass 2016' in CIFT

Kochi, 3 September 2016. As a part of Official language (Hindi) Implementation programme, Central Institute of Fisheries Technology celebrated '*Chetana Mass* 2016' from 10 August to 3 September 2016. Different competitions were conducted among the staff during the celebrations.

'*Rajbhasha Prathibha Puraskar*' to Smt Asha Gopalan

The valedictory function was held on 19 September 2016. Shri Deepak Kumar Gulati (Zonal Director, Fishery Survey of India, Cochin Base) emphasized on the importance of Official Language. Later Shri Gulati distributed prizes to the winners of various competitions.

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Hindi Fortnight at NIANP

Bengaluru, 14 September 2016. Dr Raghvendra Bhatta (Director, NIANP) inaugurated Hindi fortnight and stressed upon the need to carryout routine official work in Hindi and to make all efforts to meet the targets set under the Annual Programme. Dr Bhatta requested scientist to bring out farmer oriented technologies and also to publish them in Hindi or regional languages for their popularization. Dr S Senani (I/C *Raj Bhasha*) informed the house about various competitions to be organized from 14 to 30 September 2016.

The fortnight was concluded with a valedictory function on 30 September 2016 where Dr Sunil Panwar (IFS, Secretary, Karnataka Information Services) distributed prizes to the winners and addressed the gathering. Dr Panwar stressed upon the need to popularize and adapt

simple and easy version of *Raj Bhasha* rather than more sanskritaized version of Hindi.

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'Hindi Week' at IISWC

Dehra Dun, 14 September 2016. Dr P.K. Mishra (Director,IISWC) inaugurated 'Hindi Week' at Indian institute of Soil and Water Conservation. 'Hindi Week' celebration progressed through various competitions including comprehension of Hindi and English words, essay writing, translation etc. Two special programmes were organized for non-Hindi speaking staff.

Smt Kusum Mirchandani (Manager, *Rajbhasha* ONGC, Dehra Dun) focused on importance of Hindi, Official language Policy and its implementation. Smt Mirchandani also narrated origin, development and

constitutional provision of Hindi in India; and highlighted the use and potential of Hindi software, Unicode in official and day-to-day working.

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Success Stories

Succeeding in mushroom cultivation: A case study from non-traditional area

Solan. The increasing demand for the mushrooms in recent years mostly from the urban population has driven many agri-preneurs to take up mushroom cultivation as an agri-business. At Directorate of Mushroom Research, Solan, 547 farmers and entrepreneurs enrolled for paid training, while this number was 106 at Indian Institute of Horticultural Research, Bengaluru from 2012 to 2014. During the same period, more than 2,100 trainees attended a short training on mushroom cultivation technology at Biocentre of State Department of Horticulture located in Bengaluru. However, records showed that very few out of the trained lot adopted and succeed in mushroom cultivation. The rate of success is still less among those adopting the cultivation of oyster mushroom (*Pleurotus* sp.)—a tropical mushroom variety. In this background the success of Mr Kumar Kempaiah assumes special significance and merits attention.

Besides ensuring success in production and productivity, Mr Kumar paid enough attention on marketing of the fresh mushroom produced in his farm. The critical decision he made to succeed in production was to set up a unit with viable level of production. Mr Kumar made sure that at least 25 to 30 kg fresh oyster mushroom is harvested to ensure scale of economy of production to cover the cost of labour, raw materials, spawn, packaging, marketing etc. When Mr Kumar was ready with bountiful of harvest each day, the market middlemen showed least interest to purchase his oyster mushrooms, alleging the lack of demand for it among the consumers. The market middle men told him that mushroom means only white button mushroom. However, Mr Kumar was never

willing to give up. Having already made his mind to adopt oyster mushroom cultivation technology, now he focused his attention on the systematic packaging of mushrooms and establishing marketing linkages involving retail stores in Bengaluru city. In a month's time Mr Kumar streamlined his supply chain and started getting fresh demand from several other stores from the city.

Sensing the surge in the demand for his mushrooms, after about a year, Mr Kumar thought of enhancing the production capacity of his mushroom unit to realize higher returns. However, Mr Kumar encountered a new problem this time. Mr Kumar had no surplus land and the exorbitant real estate prices would contribute to the rise in cost of mushroom per unit quantity. But, his zeal and new found confidence in the mushroom cultivation and its successful marketing would not let him rest. He decided to go to the sub-urban areas around Bengaluru city to find the land required at an affordable rent. His new mushroom farm was established at Huskur village near Electronic city, Bengaluru.

With the new set up, though Mr Kumar was able to raise the production of fresh mushrooms, he noticed a marginal reduction in his profit per kg of mushrooms. He found that with increased quantity of straw, the moisture content in the pasteurized straw was little higher than desired. Slightly higher level of moisture was delaying the spawn run and eventually taking more time to complete the cropping cycle. Mr Kumar, a shrewd mushroom entrepreneur by now, overcame this problem with his innovation to use a centrifugal drum for removing excess moisture from the straw during spawning (Details withheld at the request of the entrepreneur). Once again, success followed him for his keen personal involvement in the operations associated with mushroom cultivation.

With this measure, Mr Kumar almost doubled his daily production of fresh oyster mushroom to 50 to 60 kg per day. He had no difficulty to expand his market base and sell all his mushrooms among the established linkages. Many retailers would still plead Mr Kumar Kempaiah to venture into button mushroom cultivation. However, he believes that cultivating a temperate mushroom in a tropical climate by setting an environment controlled unit will defy the logic of economic success as well as adversely impact the environment. Further, the nutritional profile of all these mushrooms are almost similar.

Then, averse to further expansion? No! Mr Kumar is already setting up another mushroom unit near Krishnagiri (Tamil Nadu) targeting to diversify the mushroom production by producing two more tropical mushroom varieties, *viz*. milky mushroom and Macrocybe. He has perfected the art of choosing a mushroom variety according to the environmental conditions of the locality and positioning himself to take care of strategic marketing to reach the consumer with least number of market middlemen and less time delay.

Keen involvement, dedication, better understanding of the enterprises and shrewd judgements have bought success to Mr Kumar Kempaiah. A mechanical engineer by qualification has led his way to become a successful mushroompreneur.

(Courtsey, Mahantesh Shirur, Scientist, Directorate of Mushroom Research, Solan-173 213, Himachal Pradesh)

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Dragon fruit a potential high value: crop for diversification in Bay Islands

Port Blair, 9 August 2016. Five different collections of dragon fruit (*Hylocereus undatus*) were collected and established at the experimental farm of Central Island Agricultural Research Institute. Since the island is in high rainfall zone, soil erosion is the common problem and hence scientists have made concrete square structures as base for maintaining the media that supports the growth of the vine.

Alternatively our scientists initiated cost effective structures using iron poles and used tyres as base structure. The structures are made at a spacing of 3 m ×3 m. The media consisted of the soil enriched with organic inputs like farmyard manure, coir compost and vermin-compost along with biofertilizers. The rooted cuttings of dragon fruit accessions were planted in June, 2015 @ 4 cuttings around each concrete pillar. The growth of dragon fruit vines was so fast that an average growth rate of 8.2 cm per week was observed. The reported rainfall requirement of dragon fruit is 1,145 to 2,540 mm/year. Since the rainfall is distributed for eight months in the Island, irrigation is not required but in the dry season, the growing media is kept moist by irrigation through drip system on alternate days. Weed control is an important operation in dragon fruit cultivation and the use of

weed mat efficiently reduced the weeds growth and also aids in soil moisture conservation. In about 8 months after planting the dragon fruit forms a thick dense mass of vines on top of the trellis which lies drooping to the ground.

The flowering was initiated in the red fleshed and white fleshed dragon fruits in March 2016 (nine months after planting). Dragon fruits become ready for harvesting in 25 to 35 days after flowering. The maturity index of the fruit is colour breaking stage

from bright green to red. Exact time of harvesting is 3 to 4 days after colour change for local market. But in case of long distance transport/export, the fruits are to be harvested when the colour break is noticed. The fruits are harvested at our Institute from June. The dragon fruit plantation is maintained at Central Island Agricultural Research Institute with only organic agricultural practices. The initial establishment cost is little high in the dragon fruit especially for the construction of trellis but once the plants are established, the fruits can be harvested continuously up to 20 years. After establishment of the crop, only minimum expenses are required for maintenance of the dragon fruit plantation. This dragon fruit is packed with excellent health benefits and has good demand in local as well as international markets. In the Islands too, the fruits have good demand and imported fruits are marketed presently @ ₹ 200 to 250/kg. Dragon fruit cultivation in the islands could be a viable option for farmers and entrepreneurs of medium to large-scale plantations. It is a fast return potential fruit crop with production in the second year of planting.

The on farm demonstration of dragon fruit at Central Island Agricultural Research Institute has drawn the interest of farmers and entrepreneurs and a field day was conducted to popularize the dragon fruit cultivation among the Island farmers on 9 August 2016. A total of 52 farmers from different villages of South Andaman attended the field day. The visiting farmers relished the dragon fruits organically produced at the Institute and learnt the growth and development of the crop. The farmers were highly fascinated by the new fruit crop and showed lots of enthusiasm for learning the technical know-how of this fruit crop.

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Personnel

Appointments

Name, Designation and Address	Date of appointment
Dr K. Nirmal Babu Director, IISR, Calicut	01 July 2016
Dr Desh Beer Singh Director, CITH Srinagar	07 July 2016
Dr (Mrs.) C.R. Ballal Director, NBAIR, Bengaluru	18 July 2016
Dr (Mrs.) S. Uma Director, NRC on Banana, Trichy	19 July 2016
Dr Basant Kumar Das Director, CIFRI, Barrackpore	30 July 2016
Dr W.S. Dhillon ADG (Hort. Sci.-II), ICAR Hqrs.	1 August 2016
Dr Himanshu Pathak Director, NRRI, Cuttack	1 August 2016
Dr A.V. Reddy Director, IIOR, Hyderabad	3 August 2016
Dr G.P. Singh Director, IIWBR, Karnal	4 August 2016
Dr A.D. Pathak Director, IISR, Lucknow	4 August 2016
Dr Randhir Singh, ADG (Agril. Extn.) ICAR HQs, New Delhi	11 August 2016
Dr Kuldeep Singh Director, NBPGR, New Delhi	11 August 2016
Dr Kuldeep Kumar Lal Director, NBFGR, Lucknow	27 August 2016
Dr N.P. Singh Director, NIASM, Baramati	12 September 2016
Dr Gopal Krishna Director, CIFE, Mumbai	28 September 2016
Dr Parimal Roy Director, NIVEDI, Bengaluru	30 September 2016

Superannuation

Name, Designation and Address	Date of superannuation
Dr. D. Rama Rao Director, NAARM Hyderabad RMP Position was relieved from his position consequent upon completion of his tenure	30 September 2016
Dr. S. Rajendra Prasad, Director, IISR, Mau (University employee) (completion of tenure)	19 August 2016

Dr Mohapatra inaugurates the ISTA member seed testing laboratory and seed processing plant in IISS

Mau, 13 August 2016. Dr T. Mohapatra (Secretary, DARE and Director General, ICAR) inaugurated and dedicated the ISTA Member Seed Testing Laboratory, and Seed Processing Plant of Indian Institute of Soil Science to the farming community of the region. Dr

Mohapatra elaborated upon the importance of seed processing facility for the farmers of the region and hoped that it would further bolster the quality seed production initiative in the region. Dr Mohapatra also focused on the various schemes and programmes being implemented by the Government of India and ICAR in particular for farmers welfare.

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Optimizing fertility in livestock of hill ecosystem applying modern approaches

Dirang (West Kameng), 22 August 2016. Dr D. Das (former Dean, Faculty of Veterinary Sciences, AAU, Khanapara) and Jt Director (Acad.), Indian Veterinary Research Institute, Izatnagar, inaugurated a ten-day short course, sponsored by Education Division, ICAR , on 'Optimizing Fertility in Livestock of Hill Ecosystem Applying Modern Approaches' at National Research Centre on Yak. Dr Das emphasized the requirements of advanced molecular approaches for assisting the basic breeding strategies to optimize fertility of livestock sustaining under harsh geo-climatic hill ecosystem.

Dr S.N. Baruah (Registrar, College of Veterinary Sciences, AAU, Khanapara) urged on increasing the

dwindling population of yak with the support of suitable assisted reproductive techniques like estrous synchronization and fixed time artificial insemination. Dr Baruah appreciated the activities like 'Annual Yak *Mela*' for the awareness and motivation of yak rearers.

Dr S.M. Deb (Director, NRC on Yak) highlighted the issues, challenges and concerns of yak husbandry and the lead role played by NRC on Yak to address these problems. Dr Deb appraised the institute's contribution in developing various technologies for improvement of yak fertility and productivity.

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First processed and bottled sunflower oil launched at IIOR

Bankura, The Minister of State for Panchayat and Rural Development and PHE, Mr Shyamal Santra, launched first processed and bottled sunflower oil in Kothulpur, West Bengal, and stressed on the need to increase the income of the small-and marginal-farmers. Mr Santra also stressed the need for crop diversification in the district emphasizing the need for increasing the area under oilseeds and pulses. The Minister of State for Panchayat and Rural Development and PHE appreciated the efforts of State Agricultural Technologists Service Association, West Bengal for its proactive role in technology transfer to farmers.

The scientists of Indian Institute of Oilseeds Research (IIOR) assured the gathering that the Institute will facilitate in meeting the seed requirement of sunflower and sesame of the district, if the seed indent is placed well in advance. The scientists informed that the district has tremendous potential for sunflower and sesame under rice-fallows; and highlighted the efforts of IIOR in popularizing the sunflower hybrid DRSH-1 with National Mission of Oilseeds and Oilpalm (NMOOP) support. The area under sunflower in the district increased to 1,400 ha from 100 ha due to the combined efforts of IIOR, agricultural department of West Bengal and AICRP, Nimpth centre. The importance of soil testing, application of lime along with N:P:K, boron and sulphur for increasing the yield of sunflower in the district.

On the occasion, the Minister facilitated the members of 12 farmer producer's organizations of Kothulpur and Bishnupur blocks of Bankura district which has taken the initiative to process the sunflower seed to processed oil. Scientists of Indian Institute of Oilseeds Research interacted with the farmers and answered their queries regarding management of head borer, irrigation management and control of bird menace.

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Camel milk production societies

Bikaner, 23 July 2016. Shri Otaram Dewasi, Minister of *Gaupalan* and *Devasthan*, Government of Rajasthan visited National Research Centre on Camel. Shri Otaram urged the camel herders to take initiative to form Camel Milk Production Societies so that milk collection, its processing into products and marketing could be taken up in a project mode for which Shri Otaram assured the support. Shri Otaram lauded the efforts of the Centre to have developed complete feed blocks/pellets out of locally available conventional and un-conventional feeds to support the milk production and growth performance of camels.

Dr N.V. Patil (Director, National Research Centre on Camel) briefed about significant technologies developed by the Centre for the benefit of camel herders to make camel rearing a profitable business.

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Low cost water harvesting structure: *Jalkund*

Ranipool, 28 July 2016. The KVK undertook the vision of Hon'ble Prime Minister of India, Shri Narendra Modi for efficient utilization of water under *Pradhan Mantri Krishi Sinchai Yogana* (PMKSY). A training-cum-demonstration programme on low-cost water harvesting structure *Jalkund* and efficient utilization in high value crops was organized by Krishi Vigyan Kendra, East Sikkim, ICAR Ranipool at Thanka, Martam with a view to harvest the water during rainy season in low-cost water harvesting structure (*Jalkund*) and their efficient utilization for *rabi* crops. Total of 36 nos. of progressive farmers of Thanka village, East Sikkim participated in the programme. Eleven Silpaulin plastic (250 gsm) for *Jalkund* varying capacity of 30,000 litre of water was distributed to the farmers.

Dr R.K. Avasthe (Joint Director, NOFRI) stressed on the importance of water harvesting structure *Jalkund* in this changing climate scenario. Dr Avasthe encouraged the farmers to use stored water economically for various farm activities, which is the most acceptable and profitable particularly to those facing crisis due to water scarcity. This economically viable and easily adoptable technology needs to be popularized in large sectors to overcome water stress during *rabi*. Dr Avasthe motivated the farmers to develop agri-prenurial ability towards the organic seed production to uplift their livelihood as well as self-sufficiency in seed since there is a huge demand of organic seeds in the state.

Dr Raghavendra Singh [Programme Coordinator (*I/c*) and Sr Scientist (Agronomy), NOFRI] detailed the organic package and practices in maize based cropping system for black gram and buckwheat. Dr Singh emphasized on the importance of inclusion of leguminous crops in cropping system. With a view to increase cropping intensity and especially for soil fertility improvement Dr Singh urged the farming community to adopt zero till technology for *rabi* and pre-*rabi* crops.

Dr R. Gopi (Scientist (Plant Pathology), NOFRI) made them aware about different diseases which largely affect the crops especially vegetables under changing climatic conditions. Dr Gopi urged the farmers to practice crop rotation and use organic inputs for managing the diseases in vegetables and other crops for increasing productivity.

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NAARM awards Postgraduate Diploma in Management

Hyderabad, 3 Sep 2016. Dr D. Rama Rao (Director, NAARM) spoke on the Postgraduate Diploma in Management in Agriculture, and Postgraduate Diploma in Technology Management in Agriculture Courses at National Academy of Agricultural Research Management (NAARM) and its importance in the industry. The 16 students of the Postgraduate Diploma in Management in Agriculture and 28 students of the Postgraduate Diploma in Technology Management in Agriculture who completed their course at NAARM were awarded their Diploma.

"There are immense opportunities in the food industry. However, the quality of food has to improve and the production should increase to feed the increasing population. This in turn would contribute to Indian economy and also lead to increase in food exports," said Shri Suresh Chitturi (Vice-Chairman and Managing Director of Srinivasa Hatcheries Ltd).

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Minister of State for Agriculture & Farmers' Welfare, visits NIRJAFT

Kolkata, 9 July 2016. The Minister of State for Agriculture & Farmers' Welfare, Shri Sudarshan Bhagat, visited NIRJAFT. The Minister expressed his satisfaction regarding the progress made by NIRJAFT in recent years and also visited the institute.

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Hon'ble Governor of Jharkhand visits Indian Institute of Natural Resins and Gums

Ranchi, 9 September 2016. Hon'ble Governor of Jharkhand, Smt Droupadi Murmu, visited Surface Coating Lab and observed various lac-based coating technologies and the Institute's museum at Indian Institute of Natural Resins and Gums. Hon'ble Governor of Jharkhand also chaired the valedictory function of the Model Training Course, sponsored by Directorate of Extension, Union Ministry of Agriculture and Farmers' Welfare, held between 2 and 9 September 2016.

Smt Murmu also released a training manual, *Natural Resins and Gums: Agribusiness Modules for Skill and Entrepreneurship Development*. Hon'ble Governor of Jharkhand, Smt Droupadi Murmu, emphasized to strengthen marketing facilities for natural resins and

gums including lac. Hon'ble Governor of Jharkhand also planted a sapling of *kusum (Schleichera oleosa*) at Institute Research Farm, Indian Institute of Natural Resin and Gum, Ranchi.

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Secretary (DARE) and DG (ICAR) visits

• Vivekananda Parvatiya Krishi Anusandhan Sansthan

Almora, 4 July 2016. Dr Trilochan Mohapatra (Secretary, DARE and DG, ICAR) visited VPKAS. Dr Mohapatra visited the fields of different divisions at the Hawalbag farm of the Institute. The DG, ICAR

inaugurated a large-scale mushroom composting facility and interacted with the staff in a meeting. Dr Mohapatra also asked the scientists to focus on quality publications and visited the laboratories at the Hawalbag campus and interacted with the scientists.

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• Indian Institute of Seed Science

Mau, 13 August 2016. Dr T. Mohapatra (Secreatary, DARE and DG, ICAR) visited the quality seed production and experimental plots and the various laboratories of the Indian Institute of Seed Science

(IISS). Dr Mohapatra exhorted the scientists to come out with holistic research programmes having high impact on farming community. On the occasion, to commemorate the 'International Year of Pulses 2016', a technical bulletin on *Pulses : Quality Seed Production and Technologies Development*, prepared by IISS, Mau was also released by the DG, ICAR.

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- **Directorate of Groundnut Research**

Juangadh, 4 September 2016. Dr T. Mohapatra (Secretary, DARE and DG, ICAR) visited museum, the experimental farmers' groundnut fields, labs of Biotechnology, Microbiology and Physiology, and the Directorate of Groundnut Research farm, Juangadh at Directorate of Groundnut Research.The Director General called for a concerted effort of all the staff in bringing the organization to a newer heights. He emphasized a greater focus on utilization of wild species, varietal development, quality improvement, and management of biotic and abiotic stresses in the research programmes.

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Financial Advisor, ICAR visits CIFT

Kochi, 23 September 2016. Shri S.K. Singh (Additional Secretary DARE and Financial Advisor, ICAR) described the codal formalities to be followed for tendering, purchasing etc. with respect to some intricate issues and urged the staff to maintain transparency in the procurement procedures at Central Institute of Fisheries Technology. Shri S.K. Singh visited the laboratories. Dr C.N. Ravishankar (Director, CIFT)

outlined the contributions of institute in harvesting, post-harvesting aspects in fishery sector development in the country in general and highlighted its commendable achievements in the field of quality assurance, food safety and fish-preneurship development through Business Incubation Centre.

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Award

CIFT gets Seventh time 'Rajarshi Tandon *Rajbhasha Puraskar* for 2014-15'

Cochin, 16 July 2016. On the ICAR Foundation Day, the Union Minister of State for Agriculture, Farmers' Welfare and Panchayati Raj, Shri Purushottam Rupala, and Union Minister of State for Agriculture and Farmers' Welfare, Shri Sudarshan Bhagat, gave 'Rajarshi Tandon Rajbhasha Puraskar' for best Official Language

Implementation among the ICAR Institutions 'C' for the year 2014-15 to Dr C.N. Ravishankar (Director,CIFT) and his team Dr Santhosh Alex and Dr P. Shankar from CIFT. Seventh time the Central Institute of Fisheries Technology, has received this award.

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Trainings

- Dehra Dun, 30 July 2016. A 5-day training course for senior level Agriculture Officers on Integrated Watershed Management was organized by the Indian Institute of Soil & Water Conservation from 26 to 30 July 2016 and it was sponsored by Institute of Management of Agricultural Extension (IMAGE), Siripur, Bhubaneshwar and funded by Directorate of Agriculture and Food Production, Bhubaneshwar, Odisha. Nineteen officers from 11 districts of Odhisa participated in the programme.

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- Jharnapani, 22 July 2016. Three-day 'Training programme on Promotion of Pig Breeding through Artificial Insemination and Scientific Management Techniques in Nagaland' for rural educated unemployed youths was organized from 20 to 22 July 2016 by ICAR Nagaland Centre in collaboration with KVK, Dimapur at ICAR Nagaland Centre, Jharnapani.

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- Ranchi, 9 September 2016. Dr H. Sinha (Professor, Rural Management and Head of the Department of Research and Planning Xavier Institute of Social Service) inaugurated an eight-day Model Training Course on 'Natural Resins and Gums: Agri-business Modules for Skill and Entrepreneurship Development'— sponsored by Directorate of Extension, Ministry of Agriculture & Farmers' Welfare, Government of India.

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- Bhopal, 25 August 2016. A 10-day training programme for technical personnel of ICAR Institutes was organized at Central Institute of Agricultural Engineering from 16 to 25 August 2016 on 'Selection, Adjustment, Operation and Maintenance of Agricultural Implements for Field and Horticultural Crops'. The training also focused on demonstration, group discussions and hands-on activities for the participants.

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- Kolkata, 30 August 2016. A six-day training programme on 'Manufacture of jute Handicrafts' was started at Krishi Vigyan Kendra, Bhadrak, Odisha under Agri-Business Incubation (ABI) Project, National Institute of Research on Jute and Fibre Technology in which 15 trainees from Bhadrak district, Odisha associated with agro-based craft works participated.

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- Jodhpur, 23 August 2016. Dr N. S. Rathore (DDG (Education) inaugurated a sponsored 21-day Summer School on 'Livelihood and Climate Change Mitigation and Adaptation through Agroforestry', organized by the Central Arid Zone Research Institute. Dr L.N. Harsh (former Vice-Chancellor, Agriculture University, Jodhpur) delivered a key note address.

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- Ralap, 9 September 2016. The National Organic Farming Research Institute (NOFRI) organized training on 'Technological Empowerment through Training and Input Support System' in which progressive farmers of Ralap (50) and Dundung Thasa GPU (42), East Sikkim representing different Self Help Groups (SHGs) participated at Ralap under Tribal Sub-Plan (TSP).

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- Dehra Dun, 20 September 2016. Dr P.K. Mishra (Director, IISWC) inaugurated a 10-day- training programme on 'Application of Remote Sensing and GIS in Natural Resource Management'. Dr Mishra said that Google Earth, Web GIS and Desktop GIS, etc. may be used by the officers for effective application of available information for making climate smart agriculture.

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- Lembucherra , 9 September 2016. A 3-day Hands on Training on 'Soil and Water Analysis for youths of North - East India' was organized by Department of Aquatic Health and Environment, College of Fisheries, Central Agricultural University (Imphal) Tripura for youth of North-Eastern States.

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