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News in Brief

From the DG's Desk

Dear Readers,

Mechanization of agricultural operations from land preparation to harvesting becomes inevitable due to increasing labour costs and non-availability of agricultural workers. Mechanization not only reduces drudgery, but also helps in enhanced production and productivity of agricultural commodities through timeliness of operations, effective management of inputs, improved quality of work and reduction in post-harvest losses. India has 192 million ha of gross cropped area owned by more than 166.5 million farm-holders with an average land holding size of 1.16 ha. The small- and marginal-farmers hold about 44% of the total cultivable lands and so their roles in national agricultural production are very important and indispensable. The medium- and large-farm holders can only afford to use machinery for agriculture, either on ownership or on custom-hire basis. The economic status of small- and marginal-farmers is generally poor and hence do not go in for any high end and expensive mechanization options. They, instead, resort to traditional equipments and methods of crop cultivation. For increasing our production levels to meet the future food demands and for inclusive growth of farming community in the country, mechanization of small-and marginal-farmers need also be encouraged.

Mechanization using traditional machines like the tractors, power tillers, ploughs of various kinds, conventional seed drills, plant-protection equipments etc. is already being done and the levels of mechanization will continue to increase. A new class of machines is now coming up which can be called as 'smart machines'. The major deviations of 'smart machines' from traditional machines are: the 'smart machines' operate with greater precision, less efforts, developed to perform specific operations and mostly remote operated. The untiring efforts of scientists of ICAR and State Agricultural Universities have resulted in development of several successful machines and equipments which can be grouped as 'smart machines'. Coconut tree climbing robot, seeding machines, precision dusters, and precision land

levelers are examples of such 'smart machines'.

Advantages of 'smart machines' are: reduction in the human drudgery such as climbing on tall trees, spraying near the canopy of tall and bushy trees, precision levelling and planting; timeliness of operations; saving in inputs like chemicals and seeds and reducing the overall cost of cultivation. Three different types of coconut tree climbers have been developed in Kerala. A rope operated arecanut harvester has also been developed and successfully adopted across the country. The arecanut harvester and the coconut tree climbers are simple and economically affordable for small-and marginal-farmers too. Manually operated coconut tree climbers are increasingly becoming popular. Remote-operated coconut tree climbers are being developed. Precision dusters and electrostatic sprayers are another type of 'smart machines'. These machines help in applying the plant-protection chemicals precisely on the target and in reducing the quantity of required chemicals considerably. Non-destructive quality evaluation of fruits and vegetables are important both at harvesting and in processing plants. A hand held electronics based equipment has been developed for maturity determination of mangoes. By proper input of relevant information this unit can also be used for determining maturity stages of several other fruits.

A new class of machines is now coming up which can be called as 'smart machines'. The major deviations of 'smart machines' from traditional machines are: the 'smart machines' operate with greater precision, less efforts, developed to perform specific operations and mostly remote operated.

Smart packaging systems are increasingly becoming popular. A smart packaging system will monitor the condition of the packaged foods in micro-environment during transportation and distribution and give information on the safety of the product for consumption. Such information is useful in recalling unsafe products and to avoid food-borne illnesses. The temperature and relative humidity are important environment factors that determine the shelf-life of a product. A RFID-based temperature and relative humidity sensor helps in determining the shelf-life of produce stored or distributed in a particular environment. In some instances these smart packages have simple sensors that display colours ranging from green to red indicating that the food is safe or unsafe for consumption, respectively. When such smart displays are used the consumer need not painfully read the best-before-portions of the packaging. Non-destructive internal quality evaluation using soft X-rays, colour and size grading using digital image processing systems, maturity determination using acoustic resonances are some of the areas in which research and development focuses are on.

In order to improve upon the assessment of spinning potential of quality cotton, portable ginning and miniature spinning machines have been developed by the Council and are useful for cotton breeders, seed companies, traders and farmers. Precision levellers are yet another class of 'smart machines' that precisely level the soil surface-based on laser-beam-based measurements. Precisely levelling lands help in increasing the cultivable area by 2 to 3% because the requirement of bunds and channels is minimized. The irrigation water requirement is also reduced. Pneumatic seed drills are also being developed and in some places are used for small and light weight seeds and expensive seeds. These machines pick up seeds from the hopper using pneumatic power and precisely drill the required number of seeds. The availability and use of 'smart machines' in the country is very limited. The costs of such 'smart machines' are prohibitive, particularly for small- and marginal- farmers. Research efforts must be made towards developing 'smart machines', gadgets and technologies that are affordable even to small-and marginal-farmers. Popularizing such 'smart machines' will make the farming and post-harvest handling easy and safe. The requirement of raw materials like seeds, plant-production and -protection, chemicals and irrigation water will be reduced making the cost of farming lesser and making the farmers earn more money per unit of land.

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Global warming: heat's on

As global warming becomes a real threat, it is time to upgrade technology to tackle the isssue

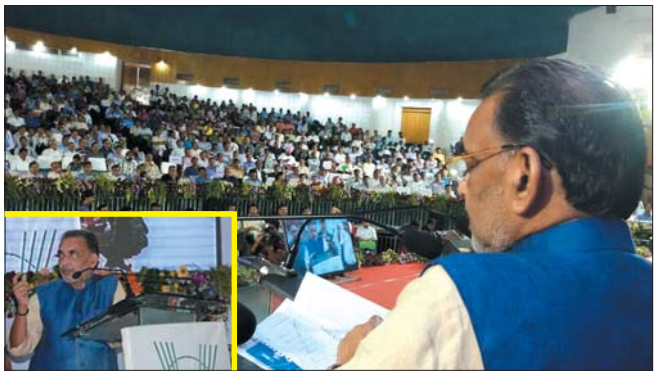
For most of us, the only effect the word "global warming" is to make us freeze over. But if decades of warning by environmentalists of a climate crisis have fallen on deaf ears it's not really our fault but theirs. Activists fail to move the public, not because they are wrong about the problems but because the solutions they offer are unappealing to most people.

They called for tightening belts and curbing appetites, turning down the thermostat and living lower on the food chain. They rejected technology, business and prosperity in favour of returning to a simpler way of life. No wonder the movement got so little traction. We trash the planet not because we are evil but because our industrial systems leave us with no choice.

Our high-rises, factories and farms, free ways and power plants were conceived before we had a clue how the planet works. They are primitive inventions that have been designed by people who didn't fully grasp the consequences of their actions. But as comprehension has grown, a market has emerged for more sensible alternatives.

WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, SYMPOSIA

IX National Krishi Vigyan Kendras Conference, 2015



Patna, 26 July 2015. The IX National KVK Conference, inaugurated on 25 July 2015, was followed by three technical sessions and a valedictory function on 26 July 2015 in which Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh, announced establishment of three new Agricultural Technology Application Research Institutes (ATARIs), reorganization of jurisdiction of ATARIs in terms of inclusion of states for better monitoring of KVKs. He also emphasized on the need for livestock improvement to bring in White Revolution. Shri Singh highlighted the basic aims of initiating four schemes namely, Farmer FIRST; Attracting and Retaining Youth in Agriculture (ARYA); *Mera Gaon Mera Gaurav* and Student Ready; and asked for timely implementation of these schemes to enhance lab-to- land process focused on various steps taken for strengthening of KVKs by increasing the number of scientific positions and cadre strength of KVK from 16 to 22. The Union Minister of Agriculture and Farmers' Welfare conferred eight awards to the best performing KVKs which include national award and zonal awards. He also launched the website of All India Agricultural Students Association and released knowledge products including a video-film on Krishi Vigyan Kendras.

Recommendations

- Focus on Second Green Revolution in the eastern states of the country;
- Work through four pronged strategies for agricultural development, enhancement of production of pulses and oilseeds; focus on skill-development;
- Pursuing enterprises like honey-bee keeping, processing and value addition, organic farming and indigenous technical knowledge;
- Joint action plans of KVK and ATMA, better human resource management for improving working conditions of the KVK; and
- Standardizing impact assessment methodologies for KVKs.

Review meeting and digitizing KVKs for on-line monitoring

Kanpur, 7 September 2015. ATARI organized one-day review meeting for the progress of Krishi Vigyan Kendras (KVKs) and also to deliberate upon to evolve the roadmap for digitizing the KVKs for ensuring on-line monitoring system. The Deputy Director General (Agricultural Extension), Dr A. K. Singh, suggested that each KVK must work on some focused problems which is unique to the district and at least 4-5 technologies must be saturated in the district. Dr Singh also shared his concern for timely execution of various works and procurement of different equipments so that the budget allocated in XII Five-Year Plan may be judiciously and effectively utilized.

Dr U. S. Gautam (Director, ATARI) suggested that on-line monitoring system shall enable the ATARI, Directorate of Extension as well as the Extension Division of ICAR to ascertain the status of work progress of any KVK under any host institution for technical, financial and administrative related issues. On this occasion, the detailed technicalities of use of ICTs for on-line monitoring system was deliberated for *Kisan* Mobile advisories; use of social media; content management and ultimately the complete digitization of KVKs. The progress of on-going *kharif* programmes and Plan for the coming *rabi* (2015-16) was discussed.

DDG (Agriculture Extension, ICAR) also inaugurated annex building of administrative block of ATARI, Kanpur.

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Space science, *kisan sammelan* and agromet advisories

New Delhi, 1 September 2015. Hon'ble Minister of State for Agriculture and Farmers' Welfare, Dr Sanjeev Kumar Balyan, chaired a consultation meeting on use of remote sensing technology for crop loss assessment during extreme weather events such as droughts, hailstorms, floods and cyclones at Krishi Bhavan. Shri Balyan desired that there is a need to use advanced space technologies for reliable and rapid estimation of

crop loss during extreme weather events. In view of the increased frequency of such events in recent years, it is important for the Government of India to address the issue of timely relief operations and genuine settlement of crop insurance claims in the affected areas. Dr Balyan desired that a study could be undertaken to standardize the methodology to be followed to tackle this issue.

Dr M. Prabhakar (Principal Scientist, CRIDA, Hyderabad) made a brief presentation highlighting the past experiences on use of remote sensing for crop specific mapping of damaged areas due to hail storms, unseasonal rains and floods by the ICAR institutes and a Work Plan for taking up pilot studies in selected locations. This was followed by detailed discussion on feasibility of using high-resolution satellite data and integration of cadastral maps with satellite data to identify farmer-wise damaged fields in the aftermath of the extreme weather events. Dr A. K. Sikka (DDG, NRM) stressed the need for reviewing available spectral vegetation indices for damage assessment in wide set of crops including field and horticultural crops, and develop new indices, if necessary using multi-temporal satellite data from different sources across the world. Dr Ch Srinivasa Rao (Director, CRIDA) appraised the research component in the project and highlighted application domain of the project outcome. Dr Ravi Shankar (NRCS, Hyderabad) focused on use of remote sensing data for agricultural applications. The concept was approved in principle with the funding by Department of Agriculture and Cooperation (DAC), and it was decided to develop a detail project document involving partners from the ICAR and other agencies.

First *kisan sammelan*, 2015

Dinajpur, 13 July 2015. Hon'ble Member of Parliament, Smt. Arpita Ghosh, inaugurated first *Kisan Sammelan*, 2015 (Pre-*kharif* and *kharif*), organized by D. Dinajpur Krishi Vigyan Kendra (KVK) in North Bengal area under Uttar Banga Krishi Viswavidyalaya. The theme was

'Suggestive contingent measures for progressive farmers to combat Natural Disasters'. The dignitaries said that the importance of these *Sammelan* is to develop better propaganda of advanced agricultural practices among the stakeholders and it should organize in each block of the district. Later few planting materials were distributed to the progressive farmers of the area.

Pre-*kharif kisan sammelan*

Lucknow, 11 July 2015. For creating awareness among the farmers on developed latest technologies from various research institutions/agricultural universities and acquainting about effect of climate change on the various crops was main objective of this pre-*kharif kisan sammelan* which was jointly organized by *Krishi Vigyan Kendra*, and Indian Institute of Sugarcane Research (IISR). This *Sammelan* focused on technology showcasing, technical sessions, award for innovative farmers, farmers-scientist interaction, and farmers' feedback. Hon'ble Member of Parliament, Mohanlalganj, Shri Kausal Kishore (Chief Guest) gave valuable remarks on organic farming, concept of

Sawdeshi in agricultural, conservation of landraces and wild genotype, and vermin-composting, production of manure, bio-pesticide, conservation of indigenous planting materials, quality seed production following this above tools farmers can be benefited and productivity of farm and soil-health will be also improved. He emphasized that farmers should avoid excess use of chemical fertilizer, pesticides. Shri K. Kishore mentioned there is need to conserve the traditional knowledge and ITK (Indigenous technical knowledge), which is treasure of our agriculture, without this agriculture cannot sustained and will not fulfil the requirement of future.

Dr O.K. Sinha (Director, IISR) focussed on developed technology of sugarcane and linked farmers for its dissemination at farmers' field.

Dr U. S. Gautam (Zonal Project Director, Zone IV) emphasized more about awareness among the farmers pertaining to innovative technologies, focused on farmers-farmers extension tools for transfer of technology at grassroot level. For improving lively hood of farming community, Dr Gautam mentioned secondary agriculture, value addition in horticultural produce, empowering the farm-women in agriculture, formation of Self-Help Group and linked with banking institution for providing financial supports, capacity building of rural youth for skill development in various enterprises, developing market linkages for getting good price of agricultural produce, farmers could be benefited properly.

Kharif kisan sammelan

Jodhpur, 20 July 2015. With the aim to create awareness among the farmers on developed latest technologies from Central Arid Zone Research Institute, and acquainting farmers about the delayed monsoon situation a *kharif kisan sammelan* was jointly organized by Krishi Vigyan Kendra, Central Arid Zone Research Institute at Bawarli village, Balesar *Panchyat Samithi*. Hon'ble Member of Parliament, Jodhpur, Shri Babu Singh Rathore (Chief Guest) emphasized that farmers should use nutrient as per test report provided in soil-health card and avoid excess use of chemical fertilizer and pesticides. Shri Singh appealed the scientists to demonstrate latest scientific technologies

to increase the production and productivity of arid agriculture with emphasis on livestock, perianal grasses, and solar-based drip/sprinkler irrigation system for environmental sustainability. Dr R. K. Bhatt (Director, CAZRI) emphasized on use of technologies developed by CAZRI for this region and their impact in sustainable livelihood of the farming community.

Rabi action plan

Hyderabad, 26 September 2015. Dr Ch. Srinivasa Rao (Director, CRIDA) inaugurated an interaction meeting of Krishi Vigyan Kendras (KVKs), Zone V, jointly organized by ATARI and CRIDA for discussing the crop planning in *rabi* 2015-16. Dr Srinivasa Rao focused on the *monsoon* progress in Maharasthra, Telangana and Andhra Pradesh, and experiences of normal/excess rains during early season, followed by mid-season droughts and good terminal season *monsoon* in September, 2015 in given states. Good rains of September and sufficient residual soil moisture need to be utilized for compensatory *rabi* cropping like

pulses and oilseeds. Dr Srinivasa Rao said that KVKs of Zone V have to play an important role in informing the farmers about the crop planning and sowing methods based on soil type and following proper management of water, nutrients etc. Dr N. Sudhakar (Director ATARI) said that during *kharif* 2015, there has been a decrease in area under cultivation of all major crops in the Zone V due to scanty rainfall coupled with prolonged mid-season drought in major parts of Telengana, Maharashtra and Andhra Pradesh which would adversely affect the *kharif* crop production across the states. In view of such situation it is essential to utilize the late season rainfall received in September to produce more yield during *rabi* through appropriate crop and varietal selection and judicious utilization of water through micro-irrigation, mulching etc.The Directors of Extension Education of State Agricultural Universities and Horticulture Universities and ICAR research institutions based at Hyderabad such as IIRR, IIMR, and NAARM participated in the meeting.

Monsoon and agromet advisories/ contingency plans...

Hyderabad, 28 September 2015. Between 1 June and 28 September 2015, the country as a whole received 759 mm rainfall, which is 14% less than the normal

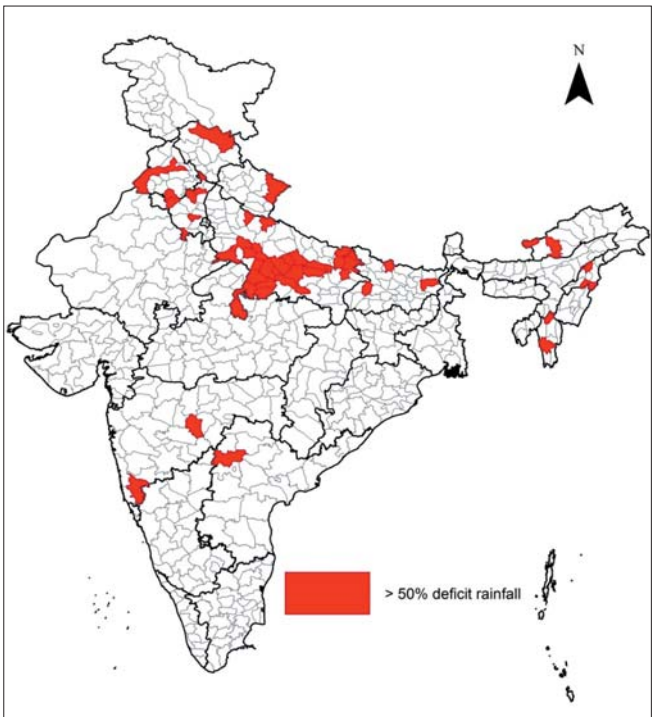

Fig. 1. Districts (53) with >50% rainfall deficit (upto 28 September 2015)

(839 mm). The region-wise south-west *monsoon* rainfall status is: East and North-east India: 8% deficit, North-west India: 17% deficit, Central India: 16% deficit, and South peninsula: 15% deficit. Out of 36 meteorological sub-divisions in the country, 17 are facing deficit rainfall condition; 18 are under normal rainfall condition and one region is with excess rainfall condition. Districts which received rainfall less than 50% of normal during 1 June to 28 September were identified and depicted in Fig. 1. Rainfall received between 1 June and 28 September, and agromet advisories for deficit/excess rainfall conditions and the crops/cropping systems in different states/regions are mentioned as under:

Uttar Pradesh

Rainfall status: Eastern and western Uttar Pradesh are facing a deficit rainfall of 47 and 42%, respectively. In drought areas where *kharif* crops have lost, preparation for sowing of early *rabi* crops can be taken. Life saving irrigation should be done in cereals, pulses and oilseed crops to maintain proper moisture. Undertake intercultural operation to conserve soil moisture.Emphasis on drip/sprinkler irrigation. Soil and water conservation should be adopted properly. Under drought condition farmers are advised to adopt the crops of low water requirement and short duration preferably catch/cash crops.Ensure the supply of water in canal to tail end and prevent the more number of diversion to reduce the seepage loss and to reach the water at tail point.

Maharashtra

Rainfall status: Marathwada region is reeling under drought conditions with 39% deficit rainfall. *Madhya* Maharashtra, Konkan and Vidarbha regions are also facing deficit rainfall of 32%, 31% and 11%, respectively.

Marathwada **:** Preparation of field for sowing of *rabi* sorghum and safflower. On vapsa condition, undertake sowing of *rabi* sorghum, safflower and sunflower. For taking *rabi* crops, prepare compartmental bunding to conserve moisture wherever sowing is not carried out. Continue harvesting of *kharif* crops like green gram, black gram and pearl millet after current spell of rain. Keep the harvested produce in safe place.

Madhya Maharashtra**:** Prepare flat beds and ridges and furrows for conservation of soil and water in *rabi* proposed fields. For planting of winter onion (Rangada) select seed of following varieties like, 'N-2-4-1', 'Pusa Red', 'Agrifound Light Red', 'Arka Niketan', 'Phule Safed', 'Phule Suvarna' and plant seed on nursery bed.

Madhya Pradesh

Rainfall: West Madhya Pradesh (MP) has received 5% excess rainfall and east MP has received 29% deficit rainfall.

Soybean at pod development stage: Early maturing varieties need to be harvested. For late maturing varieties, control of hairy caterpillar by Trizophos 40 EC at 800 ml/ha.

Maize at silking stage: Green cob hybrids used for vegetables like sweet corn needs to be harvested.

Rice: Late planted rice varieties need light irrigation, and construct bunds around field to conserved water.

Sesame: Leaf-spot disease control by applying Mancozeb at 1 kg/ha at 500-600 litres of water.

Fruits: Apply recommended dose of fertilizers. Apply insecticides as per the recommendations in guava, pomegranate, and citrus fruits for controlling leaf-eating caterpillar.

Vegetables: For onion, white grub control need Thimet 10 G at 8 kg/acre (0.414 ha).

West Bengal

Rainfall status: While sub-Himalayan West Bengal has received 5% deficit rainfall, gangetic West Bengal has received 10% excess rainfall.

- In uplands black gram ('T9', 'Pant urd 30' and 'Pant urd 19'), green gram ('T44', 'Samrat'), pigeon pea ('Bahar', 'Pusa 9' and 'Narendra Arhar 1'), groundnut ('TAG 24', 'TG 44') and horse gram ('DV 7', 'BR 5', 'BR 10', 'S67/26', '14','31') can be sown with available seeds in locality/seed agencies.
- Priority should be given for *in situ/ex situ* rain water harvesting during the remainder of the season.
- Irrigation in paddy crop as to maintain proper moisture at tillering/PI stage.
- Undertake intercultural operation and mulch with crop residue to conserve soil moisture in vegetable crop field (cabbage, cauliflower, chilli, onion etc).
- Apply protective irrigation in standing crops in case

of water-stress condition.

- Undertake weeding operation in crop field.
- There is a chance for stem fly infestation in vegetables due to low rainfall and partly cloudy weather. Spray Chlorpyrifos @ 25 ml per 10 litre of water.
- Prevailing cloudy weather is congenial for the incidence of downy mildew in cucurbits; spray Metalaxyl 8% + Mancozeb 64% @ 20 g in 10 litre of water.

Asom

Rainfall status: The state as a whole has received 2% deficit rainfall so far.

Rice (Seedling): Fertilizer management): Apply second split of urea in long duration varieties like 'Manohar Sali', 'Gitesh', 'Mahsuri' etc after 20 to 30 days after treatment.

Green gram and Black gram. Prepare to sow seeds of green gram and black gram. Green gram : 'T-44', 'Kopergaon', 'K-851', 'ML-56', 'ML-131'; and Black gram : 'T-9', 'T-27', 'Pant U-19', 'T-122' are recommended.

Sesame: Well-drained sandy-loam soil is preferable. Seed rate: 500 g/*bigha*, Spacing: 30 cm (row to row) × 15 cm (plant to plant). Farmyard manure @1.3 q/*bigha*, urea: single super phosphate: mutriate of potash: 9:19:5. Improved varieties are: SP-1181(Madhabi), Gauri, Binayak, ST 1683, Punjab Tall No.1.

The above is a general overview for the states. However, ICAR (CRIDA) has prepared district level contingency plans (covering all farming situations within the district) and placed on the web site of the Ministry of Agriculture and Cooperation, Government of India (www.agricoop.nic.in), and CRIDA (www.crida.in) for further details. The mentioned map of India is developed by AICRPAM, CRIDA (with the data provided by IMD), Hyderabad to identify the districts experiencing more than 50% deficit condition.

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Scientist-farmers interface meet

The details of scientist-farmers interface meetings in Haryana and Himachal Pradesh are as follows:

Haryana

Chandigarh, 30 July 2015.To provide sustainable farming solutions related with Natural Resource Management Strategies to the farmers of Shiwalik Foot-hills Region of Panchkula district, Haryana, Indian Institute of Soil and Water Conservation Research Centre (Chandigarh) organized one-day scientist-farmers interface meeting in village Sukhomajri of Panchkula district in Haryana to understand the existing problems of farmers and to provide appropriate technical solution of these problems. This programme was designed to improve the capacity building of the farmers for productive utilization of existing resources, and sensitizing the farmers of climate resilient resource conservation technologies.

The President of Hill Resource Management Society of Haryana, Shri Gurmail Singh, villagers, women-farmers and school children were apprised of the initiatives of *Mera Gaon, Mera Gaurav* and *Swatchh Bharat Abhiyan*. The farmers of Sukhomajri village were advised to make more efficient use of water by diversifying cropping system. More emphasis should be given on growing vegetables, pulses, horticultural crops in combination with grasses or crops. Farmers were sensitized to stop crop residue burning in their fields and benefits of using improved seeds, balanced fertilizers, and crop diversification through low-water requiring crops. Farmers mobile numbers were registered to provide them free weather based agro-advisory to plan and execute appropriate farm operations. Farmers were also advised to bring the soil samples to the research centre for free testing for appropriate remedial measures in their agricultural fields.

The importance of introduction of organic farming practices in the fields were also informed to the farmers along with various strategies for efficient and effective use of organic wastes to enhance sustainable systems of agriculture. The beneficial effects of organic wastes on soil physical properties such as increased water infiltration, water-holding capacity, water content, aeration and permeability, soil aggregation and rooting depth, and recycling of organic wastes were also informed.

Himachal Pradesh

Mandhala village, 27 August 2015. In order to provide help in Mandhala village of Solan district in Himachal Pradesh, the President of Hill Resource Management Society of Himachal Pradesh, Shri Fateh Singh, villagers, women-farmers were apprised of the initiatives of *Mera Gaon, Mera Gaurav* and *Swachh Bharat Abhiyan*.

- The farmers of Mandhala village were advised to make more efficient use of water by diversifying cropping system.
- Farmers were sensitized about the benefits of using improved seeds, balanced fertilizers, integrated pest management and crop diversification through low-water requiring crops.
- Farmers were sensitized to use vermin-compost in the field.
- Farmers mobile numbers were registered to provide them free weather based agro-advisory to plan and execute appropriate crop operations.
- The beneficial effects of organic wastes on soil physical properties such as increased water infiltration, water-holding capacity, water content, aeration and permeability, soil aggregation and rooting depth, and recycling of organic wastes were also informed.

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National consultation meeting on Sapota

Navsari, 29 September 2015.Dr C. J. Dangaria (Vice-Chancellor, NAU) inaugurated National Consultation Meeting on 'Sapota', jointly organized by AICRP on Fruits, and Navsari Agricultural University, and focused on the problems associated with marketing and processing of sapota, which were the major issues

related to sapota cultivation in Gujarat. Dr T. Janakiram (ADG, Hort. Sci.) focused on the important researchable issues in relation to sapota, such as post-harvest management and use of micronutrients and crop regulation, which are areas yet to be addressed. Dr Prakash Patil (Project Coordinator, Fruits) gave a brief presentation about the scenario of sapota cultivation in the country and also spoke about the genesis of the consultation meeting.

All the stakeholders of sapota *viz.* policy makers, farmers, co-operative societies, self-help groups (SHGs) related to processing and traders were brought together on a common platform during the meet. Fruitful interactions were conducted among the stakeholders, scientists and policy makers. An exhibition of the different sapota varieties, as well as of the processed products from farmers and SHGs, was also organized.

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National seminar on 'Chitin in agriculture, medicine and allied fields'

Cochin, 29 September, 2015. With the aim to bring together researchers from academia and industry to share their knowledge on the path breaking technologies and developments related to the biopolymer 'chitin and chitosan' as well as to scientifically and commercially address the issues faced by Indian chitin industry, the Society of Fisheries Technologists (India), National Academy of Agricultural Sciences (NAAS), Indian Chitin and Chitosan Society, Erode, and Central Institute of Fisheries Technology, jointly organized one-day Seminar on 'Chitin in Agriculture, Medicine and Allied Fields' at Central Institute of Fisheries Technology. Dr C.N. Ravishankar (Director, CIFT) said that seminar on chitin and chitosan is very imperative as in India alone, from the organized processing sector a substantial quantity of shell-fish waste, are discarded annually. This figure has increased noticeably with the introduction of vannamei shrimp culture in a big way, as seen in the recent years. The seminar witnessed participation from 150 researchers and entrepreneurs across the country.

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Viral and greening diseases of citrus: challenges and way forward

Nagpur, 28 July 2015.One-day Brainstorming dialogue was jointly organized by Central Citrus Research Institute (CCRI), and Technology Mission on Citrus (TMC) on the occasion of 30th anniversary of the CCRI to discuss strategies to tackle emerging threats of greening and viral diseases of citrus and work-out the future roadmap.

Dr C. D. Mayee (former chairman, ASRB, New Delhi) suggested that genetically modified citrus utilizing suitable resistant gene of wild citrus species or cultivated plant need to be developed for resistance to greening. Dr Mayee said prevention should be the best policy in case of virus, virus-like and greening (Huanglongbing) pathogens. In this direction CCRI is producing disease-free planting materials which are produced from shoot-tip-grafting (STG) derived mother trees and sterilized growing media. The mother trees from which budstick is taken are indexed regularly. Thus these plants are free from viruses and *Phytophthora* as well. Dr Mayee stressed on sanitation in nurseries and prevention of disease-spread by management of insect vectors. The RNAi technology and cross-protection through mild strains of viruses for resistance to viruses and greening need further research.

A Bio-control laboratory for production of talc-based *Trichoderma* product was also inaugurated at CCRI, Nagpur.

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MSME policy for manufacturers of agricultural machinery

Bhopal, 25 August 2015. The Central Institute of Agricultural Engineering and Micro, Small, Medium Enterprises Directorate (MSME), Indore organized one-day Seminar on 'Central Government Public Procurement Policy for Micro- & Small-Enterprises - Manufacturers of Agricultural Machinery'. The seminar highlighted the Government of India plans, policies for the benefit of MSME firms with major focus on agricultural machinery manufacturing sector.

Dr K. K. Singh (Director,CIAE, Bhopal) appealed the manufacturers to associate with CIAE in proactive mode so that the CIAE developed modern equipment and technologies reach to the farmers. Dr Singh emphasized need of quality agricultural machinery and skill-development programmes for manufacturers and offered CIAE support for these activities. Er. Rajeev Choudhary focused on Madhya Pradesh State Government policies for promotion of agricultural mechanization in the state. Shri Pradeep Kumar (Director, MSME-DI, Indore) discussed the importance of small-and medium-agricultural machinery manufacturers and their relevance in the growth of economy.

More than 50 agricultural machinery manufacturers from different parts of Madhya Pradesh presented their needs and constraints in manufacturing and marketing of agricultural machinery manufacturers.

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National consultation meet on Rainbow trout farming: prospects and challenges....

Bhim Tal, 21 September 2015. Shri Aditya Kumar Joshi (Joint Secretary, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture and Farmers' Welfare, New Delhi), chaired two-day National Consultation meet on 'Rainbow Trout Farming: Prospects and Challenges for Strategic Development' from 20 to 21 September, 2015 at Bhim

Tal. It was organized by the Directorate of Coldwater Fisheries Research in collaboration with Department of Biotechnology, New Delhi, and National Fisheries Development Board, Hyderabad. Dr A.K. Singh (Director, DCFR, Bhim Tal) emphasized upon jointly addressing the challenges for the strategic development of the rainbow trout farming with the state fishery departments and the trout growers. Trout growing states presented the status of the trout farming and raised the constraints pertaining to achieving the desired level of productions. The stakeholders, fisheries director and their representatives including scientists discussed on policies for framing a road map on strengthening and shaping trout farming in India.

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Interface meet of IVRI with KVKs

Hyderabad, 28 August 2015.Dr Ch. Srinivasa Rao (Director, CRIDA) inaugurated an interface meet between the Veterinary Officers of Animal Husbandry Department, and Subject Matter Specialists of KVKs , Government of Andhra Pradesh and Telangana with scientists of Indian Veterinary Research Institute at Institutes' Campus in collaboration with the Zonal Project Directorate V, Hyderabad, and the State Department of Animal Husbandry of Andhra Pradesh and Telangana.

Dr Srinivasa Rao focused on improvement in shelter management, feeding management and methanogenesis reduction. He emphasized that such programmes can improve the linkage of the research institutes with the state functionaries thereby enhancing the transfer of technology through the lab-to-land.

The main researchable and technology commercialization issues that emerged were: field detection tool for milk adulteration, diagnostic kits for blood protozoan diseases, development of homeopathic drugs for various diseases and for resistant parasitic infestations, assessment of other

binding material for preparing UMMB and the availability of effective herbal acaricides in the market, availability of a filed tool for pregnancy detection in animals within a month, availability of field kits for testing whether oxytocin has been used for milk let down, and the effect of such milk on the consumers, the effect of the indiscriminate use of oxytocin on animals, the state of adoption of urea treated straw in the various parts of the country and the reasons for it, incidence of thalitis in first parity animals and the reasons and control/treatment measures, feeding of brewery waste and its effect on animal health/development of cystic ovaries and researches to increase the fat content of the milk.

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National interactive workshop on *Brucellosis* control

New Delhi, 10 July 2015. A National interactive workshop on 'Brucellosis Control Programme' (jointly organized by the Department of Animal Husbandry, Dairying, and Fisheries; Ministry of Agriculture and Farmers' Welfare; Animal Science Division, ICAR; and National Institute of Veterinary Epidemiology and Disease Informatics, Bengaluru) was inaugurated by Dr S. Ayyappan, (Secretary, DARE and Director General, ICAR) at NASC Complex. Dr Ayyappan appreciated Department of Animal Husbandry, Dairying, and Fisheries for initiating control programme of important zoonotic diseases like Brucellosis and assured the support of ICAR for such great cause. Dr Ayyappan advised the participants to make use of disease informatics developed by NIVEDI for control and prevention of diseases in India and neighbouring countries like SAARC and South Asian countries.

Dr Suresh S. Honnappagol (Animal Husbandry Commissioner) focused on the brief history, different factors responsible for spread and socio-economic impact of brucellosis in the country. Dr Honnappagol expressed concern over disease persistence and briefed about the genesis and implementation of Brucellosis Control Programme by the Department of Animal Husbandry, Dairying, and Fisheries.

Dr H Rahman (Director, NIVEDI) briefed on the objectives and purposes of the interactive workshop of Brucellosis Control Programme. Dr Rahman also informed the house that the newly developed farmer friendly, rapid and point of care diagnostic kit-flow assay for diagnosis of brucellosis under the project and expressed need for further implementation of Brucellosis Control Programme in those states which have not yet started the programme.

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Workshop on Bluetongue

Gwalior, 27 August 2015. With the aim to create awareness among the veterinarians about bluetongue, considering the fact those substantial sheep populations exist in Gwalior, Chambal and Ujjain divisions of Madhya Pradesh a one-day workshop on 'Bluetongue' (a devastating viral disease of sheep and goats that causes heavy mortality and economic losses) was jointly organized by National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI) Bengaluru, and AICRP on ADMAS Centre of Department of Animal Husbandry and Veterinary Services, Government of Madhya Pradesh. Dr H. Rahman (Director, NIVEDI) focused on vaccines for bluetongue, epidemiology, pathogenesis and pathology, clinical diagnosis of bluetongue. Deliberations were also made on different aspects of bluetongue disease.

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International Linkages

Third International symposium on *Phytophthora*: Taxonomy, Genomics...

Bengaluru, 12 September 2015. International Symposium on '*Phytophthora:* Taxonomy, Genomics, Pathogenicity, Resistance and Disease Management', organized by the Central Plantation Crops Research Institute, Kasaragod in association with Indian Institute of Horticultural Research and Association for Advancement of Pest Management in Horticultural Eco-system (later 2 from Bengaluru) was inaugurated on 9 September 2015 at Indian Institute of Horticultural Research for three days. Dr N. K. Krishnakumar (DDG, Horticultural Science) said that despite increase of horticultural production, problems such as pests and diseases, particularly *Phyto-phthora* diseases besides viruses are also on increase owing to development of fungicide resistant populations and global trade. Strengthening of bio-security in agricultural trade is the key to avoid introduction of

invasive pests. Dr Krishna Kumar added that 'chain is as strong as the weakest link'.

Dr T. Janakiram (ADG, Horticultural Science) said that due to destructive nature of *Phytopthora*, ICAR initiated 'Phytonet', a network project on *Phytophthora* in 1997, which is being continued as 'PhytoFura', as an outreach programme during XII Five- Year Plan. Dr Janakiram appealed Indian scientists to utilize this opportunity to develop partnerships at global level to reduce the impact of *Phytophthora* disease on Indian horticulture.

Dr P. Chowdappa (Director, CPCRI, Kasaragod) pointed out that species in the genus infect an array of plantation, tuber, spices, fruit, ornamental and vegetable crops in India and in some cases are reducing yields up to 80%. In India, crop losses are especially difficult to manage by small- and marginal-scale producers due to lack of resources and access to the fungicides.

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Foreign delegation visits CIFT

Cochin, 12 August 2015. As part of the U.S.–Indo-Africa Triangular International training programme on 'New Dimensions in Agricultural Extension

Management for Extension Functionaries', four foreign delegates from Kenya and Liberia visited Central Institute of Fisheries Technology. The visiting team comprise of Ms. Muhonja Ruth (Senior Fisheries Officer, Kenya), Mr Komu Simon Mulwa (Principal Fisheries Officer, Kenya), Mr Y. Sumo Andrew (Sectional Head, Marine Artisanal Fisheries, Liberia), and Mr McMillan Wilmot (Fisheries Inspector Supervisor, Department of Technical Services, Liberia) along with Dr N. Balasubrahmani (Deputy Director, MANAGE, Hyderabad). They visited various laboratories, Pilot plant and ATIC of the Central Institute of Fisheries Technology and had interactions with the scientists.

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MoUs

CIFT signs MoU with private firm

Kochi, 6 July 2015. Dr C.N. Ravishankar (Director,CIFT) and Shri M. Anantharaman (Managing Partner, M/s Vinayaka Foods & Beverages) signed on Memorandum of Understandings with M/s Vinayaka Foods and Beverages for the technology transfer of ready- to-eat (RTE) products at Kochi. Dr Ravishankar said that this consultancy agreement signifies the broad scope of the Institute technologies, particularly thermal processing.

He said that Fish Processing Division of CIFT will provide technology for the optimization of process conditions for the production of 12 ready- to-eat products which include *palada, payasam* and different vegetable curries. The consultancy includes optimization of process time and temperature for desired F_o values and sterility tests for the optimized products. The CIFT will also provide training and support to M/s Vinayaka Foods and Beverages for the establishment of a processing unit exclusively for the production of RTE products.

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NBSS&LUP signs MoU with State Government of Goa

Goa, 6 July 2015. Dr S.K. Singh (Director, NBSS&LUP, Nagpur) signed an MoU with Mr Orlando Rodrigues (Director of Agriculture, Government of Goa) at Directorate of Agriculture, Government of Goa. This Memorandum of Understanding is based on 'characterization and mapping of land resources of Goa State' under *Rashtriya Krishi Vikas Yojana*. Under this mega project, the National Bureau of Soil Survey and Land Use and Planning (NBSS&LUP) will prepare map on the fallow lands in Goa and recommend land use pattern, characterize soils and undertake nutrient mapping in all the 12 *talukas* of the state. The

Government of Goa will meet cost of the project, which is ₹ 10 million.

Dr S.K. Singh (Director, NBSS&LUP, Nagpur) mentioned that NBSS&LUP will study the field number-wise nutrients, the cropping pattern the field can support, the varieties of crops it can introduce and the quantity and type of fertilizer required during the survey. All this data will be uploaded on the web sites of the Directorate etc. Any farmer may log in, key in the required survey number, obtain all data required and do farming as advised.

Mr Orlando Rodrigues (Director of Agriculture, Government of Goa) expressed the hope that the project would go a long way in enhancing agricultural development of the State.

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ICAR signs MoU with Seychelles Agricultural Agency

New Delhi, 26 August, 2015. An Memoradum of Understanding was signed between ICAR and Seychelles Agricultural Agency, Seychelles for co-operation in agricultural research and education.

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Success Stories

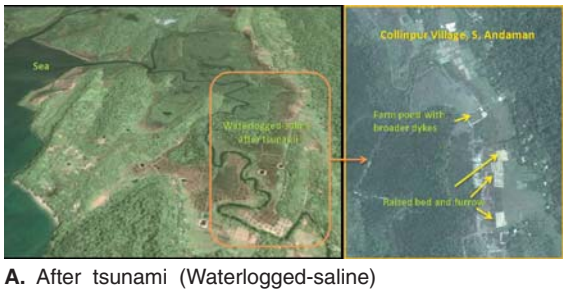
Improved economic status of farmers in South Andaman

Collinpur. The farmers of South Andaman were affected by tsunami sea water as saline water was gushing into the land inundating paddy fields in Collinpur, South Andaman. Realizing that agriculture and livelihood are being worst affected by saline water intrusion and climate change a raised bed and furrow system was made in the field of Shri Ranjit Baroi and ten other farmers at Collinpur village by the Central Island Agricultural Research Institute (CIARI), Port Blair under National Agricultural Innovation Project.

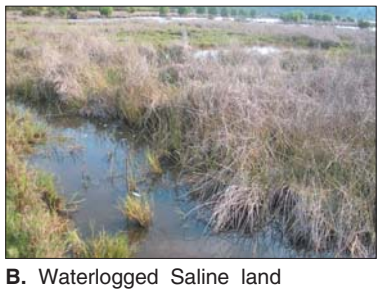
The CIARI imparted the training of raised bed and furrow (RBF) system and *Panchagavya* to the farmers of Collinpur village, South Andaman. One of those farmers Shri Ranjit Baroi cultivated banana by adopting RBF system (between 2012 and 2015) and using compost prepared from farm wastes and poultry manure, and *Panchagavya* for four years. By using this technique Shri Baroi has become a model farmer to emulate in the rest of the coastal low lands of Andaman Islands. He used water from the furrows to irrigate his banana crop during dry season and successfully harvested short duration vegetables such as radish and *Amaranthus* grown as intercrop.

The raised bed and furrow system comprised of three raised beds of 4 m width and equal number of furrows of 6 m width formed to a convenient length (~ 36 m) in an area of about 0.3 acre of coastal lowland made in March 2013.The salts and the other toxic substances from the raised beds were leached out using rainwater during the subsequent rainy season. Rainwater was harvested in the furrows from 2014 onwards after draining off the water harvested in the first year. By the end of July 2014 nearly 465 m^3 of freshwater was harvested and stored in the three furrows which was good enough for culturing of Indian major carps. The fishlings were provided by the CIARI and subsequently the farmer has restored his backyard poultry farming of 'Vanaraja' birds.

The farmers appreciated the efforts of CIARI technology as raised bed and furrow system and enabling technology for organic cultivation banana in the degraded coastal lowlands.



A. After tsunami (Waterlogged-saline)



B. Waterlogged Saline land

C. Organic cultivation of Banana in the beds + furrow (after intervention)

D. Fingerlings of IMC were distributed to fish in the each farmer to begin the fish culture

Shri Ranjit Baroi has succeeded in integrating fruits, vegetables, fishes and poultry in his field by the technical support and knowledge gained from CIARI.

Shri Ranjit Baroi earned ₹ 40,000 from his 0.3 acre coastal lowland intervention and his income started to improve.

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Handing over of gas stove on 'gratis': boost in egg production, backyard poultry rearing

Muttar. Backyard poultry rearing (BPR) is a common practice of farm-women of Kerala and Muttar village of Kuttanad region of Alappuzha district is no exception. To face endemic problems of Muttar village, improved and climate resilient practices like modified cages, use of automatic vaccinator, improved breed of poultry, and *Azolla* as feed supplement were introduced as technology demonstrations in backyard poultry rearing in this village by KVK-Alappuzha hosted by the Central Plantation Crops Research Institute as part of NICRA project from 2012 to 13. Initially farm-women were given training on scientific backyard poultry rearing with the support of *Gram Panchayath* members. In these trainings the advantages of slatted floor cages to overcome floods was discussed. Following this, poultry cages were fabricated in 120 cm X 90 cm X 75 cm size using wire mesh on all the sides, wooden planks at the bottom and tin sheet as roofing material. This cage was fixed on GI pipes at the height of 120 cm to withstand flood. Each cage could accommodate 20 to 25 birds. Thirty numbers of such cages were fabricated and demonstrated during the first two years. The partner farmers realized that with this intervention the birds could overcome the flood, disease outbreak, and mortality reduced (53 to 13 %) due to adequate aeration, and loss through predators prevented. Since the bottom of this cage is fixed with wooden planks and spread with saw dust, poultry manure could be effectively utilized for homestead farming. Realizing the advantages of this cage, more farmers came forward to adopt this technology. Hence, during the third year 40 such units were fabricated and demonstrated with 50% farmers' contribution.

Regular vaccination at desired intervals for the poultry had been a problem for the farm-women as it required the service of skilled-persons. Realizing this, the use of Automatic vaccinator was introduced through method demonstrations. Forty-eight farmers and farm- women attended these programmes in which, vaccination schedule and use of automatic vaccinator were demonstrated. In normal cases vaccination is done with ordinary syringes for which skill is needed. But by using the automatic vaccinator, the required quantity of medicine could be adjusted in the syringe for each shoot. This did not warrant any skill and farm-women could use this without any difficulties. Now there are 12 women farmers regularly using this for own purposes as well as providing service to others.

The farmers normally depended on street vendors for procuring chicks which were brought from unknown source and unvaccinated. These birds do not normally survive till the production stage. Importance of having improved breed was highlighted in the training programmes. Twenty-five farm-women were selected for demonstration of 'Gramapriya' breed of poultry @ 10 birds/backyard unit. This dual purpose breed released by Project Directorate on Poultry, Hyderabad laid up to 197 eggs/year (120 by local breeds) in backyard system at Muttar village. Sexual maturity attained at 165 days and the adult male and female attained a body weight of 4.0 and 2.9 kg, respectively with a meat yield of 72.5% and average livability of 85% at 72 weeks of age.

The abundance of water-bodies in this village was exploited for the cultivation of *Azolla*. The farm-women were given training on *Azolla* cultivation in ponds or small pits in homesteads. Two such training programmes for 44 farmers were conducted. Seed culture was provided and the KVK facilitated the establishment of as many as 26 production units. *Azolla* could be harvested after 7 days @ 500 to 750 g/pit/day and supplemented with feed in daily ration. The 10 to 15% feed could be replaced with *Azolla* as it contains all the essential nutrients. Egg yolk colour and egg weight improved after feeding with *Azolla* and the eggs fetched a better price of ₹ 6/- each. All these interventions created an encouraging revival of the backyard system of poultry rearing in the village. A survey in 20 units revealed that the average number of bird stock per unit increased from 9 to 22 and the mortality rate reduced to 13% from 53%, over 3 years. The average annual egg production increased by 231% (from 810 to 25,684/unit) resulting in a net return of ₹ 3,682/- per household from ₹ 432/-before.

Thus the efforts of CPCRI, Kasaragod and KVK-Alappuzha showed significant change in self-sufficiency of egg production in Muttar village, and increase in income to the families with minimum investments and efforts.

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Farming system diversification enhances income

Chhattisgarh. On-farm Research Centre of All India Co-ordinated Research Project on Integrated Farming Systems (under Indian Institute of Farming System Research functioning in Sant Kabir College of Agriculture & Research Station, Kawardha) selected Shri Pardeshi Ram Netam for conducting the on-farm research entitled as 'On-farm evaluation of farming

Effective recycling of wastes through vermin-compost unit

IPM in chickpea with pheromone trapsportable

system modules for improving profitability and livelihood of small-and marginal-farmers.

Shri Pardeshi Ram Netam s/o Phuduk Singh Netam from Heerapur village of Kawardha block in Kabirdham district of Chhattisgarh. He was deriving livelihood from 1.30 ha land for his 6 member family including 3 children living in two room temporary hut house (*jhopadi*). He also maintained *deshi* poultry birds in backyard. Shri P. Ram used to earn ₹ 6,000 from low yield rice (2,500 kg/ha), soybean (1,300 kg/ha), chickpea (1,000 kg/ha) and cow (1 litre/day) because of lack of skill and awareness on scientific practices including improved varieties and integration of components. This income was not sufficient to meet the family requirement for food, clothes, education of children etc.

Shri Pardeshi Ram Netam had decided to sell his land and migrate from village to town for doing labour work. The constraints were addressed through low cost and capacity building-based interventions by AICRP on Integrated Farming Systems (IFS). His existing farming system of crops + dairy + poultry was diversified with scientific cropping system + cattle + goat + poultry + pig + fishery + duckery + mushroom + vermin-compost system. The cropping system was changed with improved varieties and practices. The income augmenting was done through growing pigeon pea and vegetables on bunds and embankments of pond. Shri P. Ram was guided to use the best of his land by allocating 0.09 ha to fish pond. In the pond, fingerlings (*rohu, catla, mirgal*) + ducks (15) were reared together. He also built poultry-shed and kept poultry 'Vanaraja' in backyards and added 1 milch cow, 5 goats 'Jamunapari' and 2 pigs 'Large white Yorkshire' to best integrated the components. Shri P. Ram was motivated to produce oyster mushroom in small hut. The poultry were fed with grain, broken rice and farm-waste. Poultry litter and cowdung served as fish feed. The cattle were fed with green fodder grown in cropping system, crop residue and urea treated paddy-straw. He has been given trainings from AICRP on IFS on all the new enterprises (fish, duck, poultry, pig, mushroom and vermin-compost) integrated. The residues were recycled to the farm in the form of vermin-compost with portable unit. AICRP on IFS imparted training to farm-women on processing module and started to make *dal* from pulses, cleaning, grading of vegetables, and dry products of mushroom. With the diversification of farming systems, Shri Pardeshi Ram earned a monthly income of ₹ 13,475 which is more than double of his original income. He has made permanent house (*pakka* building) and purchased 0.50 acre additional land from his savings. The family also meets the nutritional requirements from diversified products such as milk, egg, poultry meat and vegetables.

After getting beneficial training from AICRP on IFS, Shri Pardeshi Ram Netam is also imparting training to other farmers of his village to start scientific IFS model.

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Post-harvest management of mango for improving income

Rayagada. Kashipur is one of the tribal blocks of Rayagada district of Odisha where Tribal Sub-Plan (TSP) project has been implemented by the Central Horticultural Experiment Station, Aiginia, Bhubaneshwar. More than 450 farm-families from 21 villages of 9 *Gram Panchayat* of Kashipur have been selected as beneficiaries under the Project. The livelihood of tribal farmers was primarily dependant on agriculture and forest produce and they used to have subsistence agriculture. The area is characterized by undulated sloppy land wherein the cultivation of annual crops was challenging and unprofitable. Moreover frequent tillage aggravated soil erosion and in turn affected soil fertility and productivity.

The Central Horticultural Experimental Station took up mango cultivation in holistic manner and addressed the issues of production technology, post-harvest management, skill upgradation and effective marketing of produce to tribal society (HARPAL). Critical inputs and farm-tools were made available and scientific production and post-harvest management technologies were demonstrated to beneficiaries. The harvesting of mango was usually done by tribal women and they sell mango either in the local market (Kashipur) or at most in district headquarter i. e. Rayagada. They had no idea about mango maturity, harvesting technique, grading, packing and market channel. The lack of knowledge accounted for significant post-harvest loss (25-30%) and in turn economic loss because of lack of knowledge about importance of market value of quality mango, techniques like judging of mango maturity, use of mango harvester and transportation of mango in

plastic crates to maintain the fruit quality. Moreover grading on the basis of fruit size (grades I, II and III), use of low-cost technology for production of ethylene gas (ethrel and caustic soda) for fruit ripening, hot water treatment of mango (52°C for 10 min) to manage anthracnose and fruit fly, and fruit packing were important techniques for enhancing shelf-life and value of the produce.

The interventions showed the results as tribal mainly women farmers started harvesting fruits with peduncle at proper maturity and transported to collection point in plastic crates. With the help of tribal society HARPAL fruits were collected from different villages, graded by women and subject to hot-water treatment and finally sent to Bhubaneshwar by trucks. The Directorate of Horticulture, Government of Odisha also helped in providing ripening chamber to ripen the fruits with ethylene gas. Finally fruits were sorted and packed in the plastic crates and sent to Bhubaneshwar *mandi*. The interventions not only increased the fruit quality and income but also the marketable surplus by reducing the post-harvest loss (< 10%). The beneficiaries, who were selling fruits @ ₹ 10-12/kg in local market, enhanced selling of quality fruit at ₹ 20-25/kg. The marketing channel for mango enabled them to supply every day about 50 to 60 q of mango in Bhubaneshwar *mandi*. The adoption of interventions and linkages with the local society and State Horticulture Department, Government of Odisha, transformed the mango cultivation into a profitable venture and brought smile on the faces of resource-deficient tribal farmers of Kashipur.

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Capacity Building

ICAR consortium research platform on 'Genomics' launched

Lucknow,12 July 2015. Dr S. Ayyappan (Secretary, DARE and Director-General, ICAR) launched ICAR Consortium Research Platform on 'Genomics' at National Bureau of Fish Genetic Resources. Dr Ayyappan said that the food and nutritional security has been among the foremost agenda and challenges, as well. He said that the genetics and breeding served for long in improving agricultural productivity, and the current cutting-edge technologies could further enhance the production with added precision. This platform, of utmost importance, is intended to generate structural and functional genome level insights for several commercially potential crops, animals, fish, insects and microbes. The ICAR envisages facilitating intensive genomics research through integrating all institutes with diverse capabilities across commodities and develop quality human resources in the country, in coming years. Over 100 researchers from different institutes participated in the workshop.

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Small-scale lac processing unit

Jharkhand, 31 August 2015. Dr P. K. Waghmare, Chief Guest, inaugurated a Small-Scale Lac Processing Unit at Rania block, Khunti district of Jharkhand as a new technological intervention under a collaborative project of the Institute. Dr Alok Kumar (Senior Scientist, IINRG, Ranchi) informed that under this project, the Institute providing all the technical support through training, field visits, monitoring and technical guidance to the stakeholders. Dr Kumar also briefed about the activities of newly established KVK in Khunti district and requested for the support from the district administration.

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DG inaugurates Regional Centre of CIAE at Coimbatore

Coimbatore, 27 August 2015. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurated Regional Centre of the Central Institute of Agricultural Engineering (CIAE) at Coimbatore. Dr Ayyappan exhorted the farmers to adopt the mechanization technologies developed by CIAE Regional Centre, other ICAR Institutes/ State Agricultural Universities to make field operations cost effective and to achieve higher productivity. The commendable post-harvest technologies, developed by CIAE RC, Coimbatore, have the potential to enhance the benefits of farmers and processors.

Dr K Alagusundaram (DDG, Agric. Engg) encouraged the entrepreneurs/incubatees to expand their

activities to achieve more revenue. Dr Alagusundaram urged them to make use of the new emerging technologies in farm- mechanization and post-harvest technology.

Dr K Ramasamy (former Vice Chancellor, TNAU and Member, Tamil Nadu Planning Commission, Agriculture) urged the scientists to develop suitable technologies and equipment to fulfil the needs of the farming community and also asked the farmers to adopt the latest technologies.

Dr K. K. Singh (Director, CIAE) focused on the achievements of this centre which till now was working as an industrial extension project of CIAE since 1983. Dr Singh added that technologies and equipment, developed by the centre, are package of equipment for sugarcane bud chip technology, package of equipment for banana central core minimal processing, curry leaf and moringa leaf strippers, package of equipment for *Garcinia* processing, millet mill etc.

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Newly developed equipments for sugarcane setts/buds

Coimbatore, 13 July 2015. A field day on newly developed equipment for treatment of sugarcane setts/ buds was organized jointly by the Central Institute of Agricultural Engineering Regional Centre, and Sugarcane Breeding Institute, Coimbatore at M/s Ambiga Sugars, Kottur, Kumbakonam, Tamil Nadu.

Dr Bakshi Ram, (Director, Sugarcane Breeding Institute) emphasized the importance of pre-planting treatment of sugarcane seed material with special reference to red rot, smut and wilt disease in sugarcane. The scientists explained that the traditional practice of sugarcane setts/buds treatment is very cumbersome and time consuming because of which farmers were not adopting treatment of large volume of sugarcane setts before planting, in spite of knowing its advantages. Considering the need for a portable, simpler and faster treatment equipment, a new equipment was developed, in which the soaking time is reduced significantly by 90% and achieved more effective penetration of the chemical in to the sugarcane setts/buds due to reduced pressure created in the treatment chamber. Recycling of chemicals resulted in huge savings in chemical used for pre-treatment, thus making the system environmental friendly.

The tractor drawn equipment (for portability from one place to other) was developed jointly by Central Institute of Agricultural Engineering Regional Centre, Coimbatore, and Sugarcane Breeding Institute, Coimbatore with funding from IDP group of Department of Science and Technology, New Delhi. The demonstration, given by the scientists, was followed by field visit where the settlings treated with mechanized system against red rot and smut disease were planted (both new planting and ratoon). The gathering appreciated the effect of low pressure system which was effective for treatment against red rot and smut diseases.

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Low cost coconut wood canoe

Chellam, 8 July 2015. Dr Madan Mohan (ADG, Marine Fisheries) launched canoe and handed over it to the Kannamali Cheriyakadavu Fishermen Development Welfare Co-operative Society for field trails. Dr Madan Mohan said that the association between the organizations like CDB, CIFT and Fishermen Societies will go a long way in promoting technologies in the sector. Dr E.G. Silas (former Vice Chancellor, Kerala Agricultural University) observed that once the canoe is operational the feedback from fishermen must be used to fine tune the technology.

The coconut wood canoe is cheaper by about 40% when compared to the cost of most preferred aini wood canoe and refinements in the preservative technology and increasing the scale of production, will further bring down the costs through preservative techniques. The durability and strength of the coconut wood was

increased and the wood made suitable for constructing the canoe because of preservative techniques standardized by CIFT. The canoe has been constructed taking into consideration the requirements of the fishermen who will be using the canoe.

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Muttukadu Experiment Station of CIBA makes significant maiden achievement in milkfish breeding

Muttukadu, 10 July 2015. The Muttukadu Experimental Research Station of Central Institute of Brackishwater Aquaculture (CIBA) has made a significant maiden success in India in artificially breeding and seed production of the milkfish (*Chanos chanos*), locally known as 'Paal Kendai' or 'Poo Meen', in captivity. Milkfish has the ability to grow in brackishwater, seawater and even adapt to freshwater conditions. Presently, milkfish farming in the country is carried out using milkfish seeds collected from wild, during small window of 2 months during a year. Hence the development of hatchery technology of the milkfish is a boon for fish farmers, who would be able to grow the milkfish at a low cost, especially in polyculture systems with shrimps.

Adult marketable size of milk fish (*Chanos chanos*) of about 500 g.

Milk fish fingerlings (about 3.5 cm) ready for stocking in the fish farms produced in CIBA

In the fish hatchery of the Experimental Research Station of CIBA Muttukadu, the male and female adult milkfish were reared in cement tanks for 6 to 8 years, under captive conditions. While the milkfish attains natural maturity, breeding and spawning in the open ocean, maintaining the brood stock (parent fishes), inducing them to mature and breed further were technically challenging tasks. These fishes were bred by induced breeding methods through hormonal manipulation, administering standardized doses of permitted hormone. The fertilized eggs obtained were hatched and reared to fingerling stage, which are further suitable for nursery rearing and farming.

Presently, when the cost of marine fish is costing very high in the market, milkfish with vegetarian feeding habits, could be grown using low cost supplemental feeds, could be produced under ₹ 100/kg, can cater to the need of the common men in Indian domestic markets, as a suitable source of animal protein. The small-sized milkfish is also being used as a preferred live bait for tuna fishing industry. Milkfish with its ability to grow with other fishes and shrimp and also disease resistant nature, is an ideal fish suitable for poly-culture, including pokkali farming practised in Kerala. The significant maiden success, achieved by Muttukadu Experiment station of CIBA, in the hatchery production of milk fish, would pave brighter path for expansion of fish farming and an increased fish production, contributing the Blue Revolution.

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Celebrations

87th Foundation Day and ICAR Award Ceremony

Patna, 25 July 2015. Hon'ble Prime Minister of India, Shri Narendra Modi, addressed 87th Foundation Day lecture and said that agricultural scientists and planners to design Second Green Revolution with new vision, dimensions and objectives to address the agricultural challenges in this modern era.

Shri Modi reiterated that Second Green Revolution will begin from the land of eastern India which has immense potential in terms of natural resources and willing farmers to take up experiments in fields.Emphasizing on the lab-to-land initiative, Prime Minister urged agricultural scientists to make farmers their fellow travellers in development and refinement of farm technologies. Adoption of villages by teams of scientists can bring significant changes in the life of farmers by enhancing productivity, he said. Hon'ble Prime Minister expressed satisfaction that ICAR has translated his vision of Lab-to-Land into new schemes. Hon'ble Prime Minister especially emphasized to extend technologies of honeybee keeping to large number of farmers for enhancing production of honey which

commands global market and can be a very successful venture for enhancing income of farmers. He also suggested increasing area under organic farming and vermin-composting. Hon'ble Prime Minister launched ICAR schemes such as Farmer FIRST, ARYA, Student READY and *Mera Gaonm, Mera Gaurav*. He also released *ICAR Vision-2050* which presents a roadmap for food, nutrition and livelihood security by 2050.

The Union Minister of Agriculture, Shri Radha Mohan Singh, expressed his gratitude to Prime Minister on behalf of people of Bihar and agricultural scientists for approving various schemes of agricultural education and research for Bihar. The Ministers conferred various categories of ICAR awards. ICAR distributed 82 awards under 18 different categories, which include three institutions, one AICRP, nine KVKs, 55 scientists, seven farmers and six agriculture journalists. Fifteen women scientists include the list of awardees.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) briefed on achievements of various new initiatives and schemes launched by the ICAR.

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National Fish Farmers' Day

Lucknow, 10 July 2015. Dr J.K. Jena (Director, NBFGR) inaugurated National Fish Farmers' Day at National Bureau of Fish Genetic Resources. He emphasised importance of hormonal action in the field of fish seed production and also highlighted the recent achievements of his institution, NBFGR.

Dr V. P. Kamboj (former Director, CDRI, Lucknow) chief guest, narrated importance of endocrinological secretion in the animal with special reference to welfare of mankind. Dr Kamboj also gave overview of various revolutions taken place in the field of agricultural science and their impact on farmers and society. With the special reference to importance of fisheries and aquaculture of Uttar Pradesh, deliberations were based on farming community of north-eastern India and sought scientific input from NBFGR in terms of farmers' training and fish seed production.

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22nd Foundation Day of NRC on Banana

Tiruchirapalli, 28 August 2015. Dr. S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated 22 Foundation Day of National Research Centre for Banana (NRCB) in which Banana Farmers' Meet and Agro-tech exhibition were hosted.

Dr Ayyappan said there was a growing increase in the area and production of horticultural crops and a series of programmes on research and extension services and value addition in banana by NRC on Banana had gone down well with the banana cultivators across the country. He also called the banana farmers 'high-tech' farmers, as they adopt all the improved production technologies including 'Tissue Culture' banana cultivation, which results in profitable yield.

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23rd Foundation Day of IIPR

Kanpur, 5 September 2015. The Indian Institute of Pulses Research celebrated its 23 Foundation Day. Dr J.S. Sandhu (DDG, Crop Science) suggested that the fertilizers should be used with constraints. He also expressed concern over changing climate scenario and the bad affects of rising pollution levels over the fields. Dr Sandhu added that if the hybrid quality of seeds and production techniques are made available to the farmers, the production of pulse crops is likely

to go up by 30%. He urged the scientists to work in the direction of benefitting the farmers. The other scientists expressed concern over the difficulties that farmers are facing in getting high quality of seeds and advanced production techniques. They added that if the farmers are made a part of the various research based programmes and the same research is applied in their fields they will surely get better results.

Dr N.P. Singh (Director,IIPR) informed that scientists of the Institute has identified heat-tolerant varieties of chick pea and lentil, and large-seeded lentil that will be shortly available for cultivation. Dr Singh also said that research on development of pod borer resistant transgenic chick pea and pigeon pea is going in the right direction and yielded promising results. Dr Singh informed that IIPR has also developed an online 'PulseExpert' system for the benefit of farmers and agriculturists to identify diseases in pulse crops and their remedies.

A new publication on *Primer on Modern Tools of Plant Biotechnology* was released.

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66th Foundation Day of CPRI

Varanasi, 22 August 2015. The Central Potato Research Institute celebrated its 66 Foundation Day. Dr V.N. Sharda (Member, ASRB) stressed on the need for soil and water conservation in agriculture and also development of small-and marginal-farmers in the country through agricultural technologies. Farmers were trained in quality seed potato production and disease and pest management by the expert scientists of CPRI.

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28th Foundation Day of NIVEDI

Bengaluru, 1 July 2015. The National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI) celebrated its Foundation Day at the Institute campus. The Institute was established in 1987 as All India Co-ordinated Research Project on Animal Disease Monitoring & Surveillance under the aegis of ICAR,

with a vision of 'Freedom from diseases, poverty alleviation, food and nutritional security and economic growth in India and the Region' and a mission of 'Capacity building in frontier areas of animal health intelligence and dynamics of diseases affecting animal population'.

Dr H. Rahman (Director, NIVEDI) emphasized the importance of livestock sector for ensuring nutritional security and specifically the role of NIVEDI in epidemiology, economic impact, risk assessment and disease informatics in the country. Dr Rahman stressed the need for teamwork and inter-institutional collaborative research. On the occasion, the tree saplings were planted by the guests and scientists in the campus.

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Farm Innovators Day at CIRG

Makhdoom, 10 September 2015. The Central Institute for Research on Goats organized 'Farm Innovators Day' to share experiences and innovations of goat farmers with the institute scientists and invited experts to achieve the goal of sustainable goat production in the country. Three sessions viz. farmers innovations in goat production, scientist-farmers interaction on scientific goat farming and presentation of success stories by the progressive goat farmers were organized.

Dr A.C. Varshney (VC, DUVASU) focused on the importance of goat farming along with agriculture as an integrated approach for overall development of the farming community in the country. Commenting on innovation of goat farmers, Dr Arvind Kumar (Vice Chancellor, RLBCAU, Jhansi) said that such interaction of scientists with innovative goat farmers will be beneficial to identify different problems in goat and to develop low input goat rearing practices.

Dr S.K. Agarwal (Director, CIRG) highlighted achievements of the institute made during the recent past in the area of goat production, pro-farmers institute technologies and programme on goat production. On this occasion, 15 progressive goat farmers presented their success stories and large number of farmers interacted with experts on their

various problems in goat farming. The goat farmers (102) and entrepreneurs from 14 states of the country participated in the programme.

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Fair-cum-exhibition for groundnut farmer

Junagadh, 10 September 2015. In Gujarat, groundnut is sown approximately in 15 million ha of area annually giving 20 million tonne of production with 1,400 kg/ha productivity. The Directorate of Groundnut Research (DGR) has developed various improved technologies for this region which can increase groundnut productivity and has organized a 'Groundnut farmer fair-cum- exhibition' to acquaint the farmers of Saurashtra region of Gujarat with the improved package of practices for cultivation of groundnut for its sustainable production and improved productivity. This fair was sponsored to DGR, Junagadh under NMOOP with a financial assistance of ₹ 4.00 lakh.

Interactive sessions were well organized between scientists and farmers after the formal inaugural session. The highlights of the farmers' fair are given below:

- On 10 September, a competition was also organized for farmers. The farmers were given an opportunity to display their groundnut plant samples which were evaluated by an expert committee. As a token of recognition of their efforts in promoting good agricultural practices; some utility items were distributed to these farmers as prizes.
- The farmers were taken around the 'Technology Park' of DGR to enable farmers appreciate the impact of various technologies on growth and other yield attributes of groundnut plants. Farmers also visited various stalls exhibiting the agro-chemicals that are now available in market for use in agriculture. Information pamphlets and brochures describing (in Gujarati) various aspects of groundnut were distributed to farmers free of cost.

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Kisan Mela at EF of VPKAS

Hawalbagh, 29 September 2015. The *Kisan Mela* was organized at VPKAS Experimental Farm (EF). Main attraction of the *Kisan mela* was distribution of soil-health card to farmers. Dr A.K. Singh (Director, DCFR, Bhim Tal) focused on the achievements made by the VPKAS Experimental Farm in improving hill agriculture, and emphasized on water conservation and fish farming for additional income generation for marginal- and small- farmers.

Dr A. Pattanayak (Director, VPKAS Experimental Farm) focused on the training programmes and front-line demonstrations organized by the institute. Farmers-scientist interaction meet was also organized. Institute's newsletter, *Parvatiya Krishi Darpan* and a technical bulletin on *Pests of Vegetable Crops and their Management* was released.

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Kisan Mela and *Farm Innovation Day at CAZRI*

Jodhpur, 24 September 2015. Shri Joga Ramji Patel (M.L.A., Luni Tehsil, Jodhpur) inaugurated *Kisan Mela* and Farm Innovation Day at CAZRI. Prof. B. R. Chhipa (Vice-Chancellor, SKRAU, Bikaner) appreciated the contribution of CAZRI in the development of agriculture, livestock production and natural resource management in arid region. Prof. Chhipa advised farmers to diversify the traditional agriculture by adopting modern technologies.

Dr A. K. Misra (Director, CAZRI) mentioned that institute is giving top priority on development of low cost, sustainable and practically adoptable technologies. Two extension programmes namely 'CAZRI Model Village Project' and '*Mera Gaon, Mera Gaurav*' were initiated for livelihood security of farmers by the institute. Dr Pratibha Tewari (Head, Division of TOT, Training and Production Economics) highlighted the efforts of CAZRI for improving dissemination of technologies and capacity building of farmers and farm-women. About 2,350 farmers including 700 farm-women and other stakeholders from western Rajasthan participated in the *Kisan Mela*.

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Agriculture Fair-cum-exhibition on Soybean at DSR

Indore, 25 August 2015. With the aim to demonstrate the improved production technologies on soybean in the light of substantial yield gaps between the yield potential and the average yields obtained by the farmers, an Agriculture fair-cum-exhibition on Soybean was organized at Directorate of Soybean Research (DSR). It was sponsored by Department of Agriculture and Co-operation, Ministry of Agriculture and Farmers' Welfare, Government of India.

An on-line mobile-based farmers' advisory helpline system on soybean, developed by DSR, was

inaugurated by the Director (DSR) Dr G.K. Gupta, who emphasized that the potential of soybean in the country is between 2.5 and 3 tonne/ha against which the average national productivity is 1.2 tonne/ha. Non-adaption of improved production technologies is a major factor for low productivity in the farmers' fields. During the event, live demonstrations on improved soybean varieties, production technologies and use of farm machineries were demonstrated to the farmers. An interactive session involving scientists/experts of all the discipline with farmers was also held where large number of queries and problems were resolved. Moreover, farmers were also exposed to food uses of soybean and exhibition of various agro- chemicals, plant growth bio-products, agricultural implements and improved soybean varieties etc.

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Parthenium Eradication Week

Ropar, 22 August 2015. The 7-day *Parthenium* Eradication Week was started on 16 August 2015 at Krishi Vigyan Kendra under the guidance of Dr Harinder Singh (Deputy Director, T) who informed about harmful effects of *Parthenium* on human health and livestock, and immense economical losses caused owing to invasion of *Parthenium* weed on the agricultural lands. In this programme, practical demonstration of mechanical and chemical methods were demonstrated. Massive eradication campaign of *Parthenium* was celebrated involving farmers and farm-women to eliminate *Parthenium* from Semfalpur, Ferozpur, Haveli kalan, Fatehgarh Viran, Mohan Majra, Rampur Fasse and Rasidpur villages. Dr Harinder Singh said that this obnoxious weed starts germinating in February and reaches at its full bloom during rainy season and causes allergy, respiratory and skin diseases. It can be managed by cutting it repeatedly or uprooting. Another is chemical method of spraying using roundup (Glyphosate 41 SL) @ 1 litre per acre or excel merra (Glyphosate 71 SL) @ 600 g/acre. To involve private partners, Public-Private Collaborative effort was initiated.

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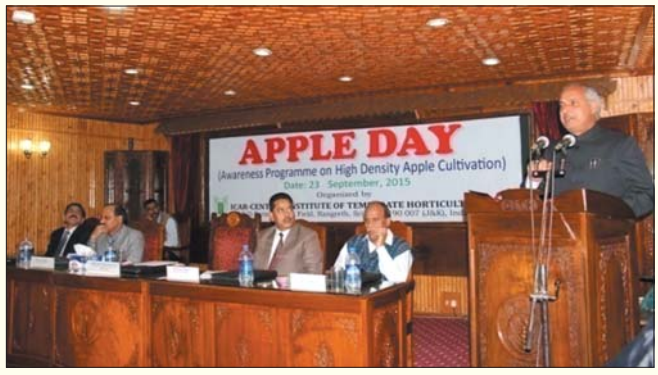
Apple Day at CITH

Srinagar, 23 September 2015. Hon'ble Minister for Horticulture and Haj & Auqaf, J&K State, Jenab Abdul Rehman Bhat (Veeri) inaugurated Apple Day at the Central Institute of Temperate Horticulture and gave emphasis on High Density Plantation and its importance for enhancing the livelihood of farmers and highlighted various programmes and policies initiated in horticulture especially the Mission on apple HDP. Shri Bhat informed about the various measures taken on eradication of spurious pesticides and fertilizers and assured establishment of soil and



pesticide testing laboratories in the state. Hon'ble Minister stressed the growers for value addition of their produce by proper grading and packaging. During Technology Pack visit, Shri Bhat was highly impressed to see fruiting on various training systems under HDP and different varieties under evaluation and showed great interest and advised the scientists to take these varieties and technologies to the farmers' field through demonstrations in each district.

Prof. Nazeer Ahmed, (Director, CITH) informed about technological inventions requirements for enhancing the productivity and quality of apple.

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Farmers' Fair at Krishi Vigyan Kendra

Korea, 1 July 2015. Hon'ble Governor of Chhattisgarh, Shri Balramji Dass Tandon, inaugurated Kisan Bagwani, organized by Krishi Vigyan Kendra, Korea, along with convergence of National Horticulture Board and Indira Gandhi Krishi Vishwavidalaya, Raipur. Shri Tandon appreciated KVK for its sincere efforts in promotion of fruit plantation and technology dissemination for livelihood upliftment of tribal farmers of the district. Hon'ble Agriculture Minister of Chhattisgarh, Shri Brij Mohan Agarwal appealed the farmers to take latest information of agriculture diversification and scientific technology to increase the production and productivity of tribal farmers with inclusion of vegetables, fruit plantation, drip irrigation and organic cultivation for additional income. Dr S.K. Patil (Vice-Chancellor, IGKV) focused on KVK activities especially integrated farming system models and community farming implemented at KVK Farm and tribal farmers' fields to uplift the

livelihood. Sports Minister of Chhattisgarh, Shri Bhaiyalal Rajwade, addressed farmers to come and see live technology of high density plantations of mango, guava, litchi and citrus at KVK Farm for rapid income through fruit orchard.

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The Himalayan Day

Dehra Dun,9 September 2015. The Himalayan Day was celebrated at Indian Institute of Soil and Water Conservation. Dr P.K. Mishra (Director, IISWC) focused on the Himalayas. The students and participants were exposed to various technological information through an interactive seminar on the importance of the Himalayas, environment and technological needs.

Dr N.K. Sharma, (Director, IISWC) briefed the importance of the Himalayas and the day to bring a preponderance on the protection of the Himalayas. Dr Sharma urged all the participants and the inhabitants in the Himalayan region to use the resources present responsibly for their own benefit and the people in downstream reaches.

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Seed Spice Farmers' Fair at NRCSS

Ajmer, 28 September 2015. Hon'ble Prof. Savar Lal Jat (Union Minister of State, Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India) inaugurated three-day farmers' fair in the campus of National Research Centre on Seed Spices. Prof. Jat focused on reducing the cost of cultivation and increasing the sale price of the commodities so that farmers can earn more per unit area. He also described about the crop insurance policy implemented by the government for farmers benefit. Prof. Jat encouraged for adapting organic cultivation practices looking the hazardous effects of chemicals used in agriculture. He released printed and electronic books on soil-health rejuvenation, seed spice diseases and its management and extension folders describing package of practices.

Dr Balraj Singh (Director, NRCSS) briefed about the significant achievements of the centre made in terms of varietal development like 'Ajmer Coriander 1' (stem gall resistant variety), 'Ajmer Fenugreek 3' (high yield variety with high medicinal value), 'Ajmer Ajwain 93' (early variety), production technology like intercropping of seed spice with vegetables, protection technology, post-harvest management and value addition, participatory seed production, off season seed spice cultivation under shade net etc. In the event NRCSS sold quality seed of all the varieties developed by the centre which included mainly ACr-1, AFg-3 and AA-93, along with seeds the centre also provided bio-control agents like *Trichoderma*, PSB, *Baveria*, pesticidal soap etc.

The Centre participated in Sakal Agrowon Grape-Pomegranate-Mahayatra at Pimpalgaon Baswant, district Nasik from 4 to 6 September 2015. Dr Balraj Singh appealed farmers to consider agriculture more as an enterprise rather than just a livelihood mean by adopting improved package of practices including quality seeds. He emphasized on post-harvest management and value addition in seed spice crops at village level.

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Mera Gaon, Mera Gaurav at NRC on Camel

Bikaner. The National Research Centre on Camel launched the programme activities for MGMG in one of the 15 villages selected by the Centre at village Kalasar, 60 km away from Bikaner city in *tehsil* Khajuwala. In order to create awareness among the farmers who also practice various other allied agricultural activities like animal husbandry, horticulture or value addition to agriculture produce, all 4 institutes located in Bikaner namely NRC on Equine, CSWRI ARC, CIAH and CAZRI Research Station were also invited to explain various technologies developed by their respective institutes and interact with farmers.

Dr Amar Singh Faroda (Ex-Chairman, ASRB, New Delhi) stressed about importance of such programmes for the benefit of the farmers in the region. He stressed that the farmer now have to look towards agriculture as a business enterprise and learn important techniques and methods by which production for agricultural commodity would be increased.

Dr P.P. Rohilla (Zonal Project Director, Zonal Project Directorate, Zone-VI, Jodhpur) informed that regular visits of the scientists and technical personnel will help in the knowledge of real constraints faced by the farmers and which will help in application of practical solutions to the problems available on the ground.

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Hindi Chetana Mas at CIFT

Cochin, 16 September 2015. The Central Institute of Fisheries Technology, celebrated '*Hindi Chetana mas* 2015' from 12 August to 11 September 2015. A two-day Hindi workshop was conducted from 15 to 16 September 2015 as part of the *Hindi Chetana Mas* celebrations. Shri K. Ravinder Kumar [Manager (OL), SBT, Zonal Office] was the resource person for the Workshop. He conducted classes for the technical staff (T-1 to T-4) and also for the young scientists.

Dr P. Radhika (Professor & Head, P.G. Research Centre, *Dakshin Bharat Hindi Prachar Sabha*, Cochin) Chief Guest, spoke about the importance of Hindi as Official Language and lauded the efforts made by CIFT in implementing Official Language. The Institute *Jhalak* (in- house periodical) was released by the Chief Guest. She distributed prizes to the winners.

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Establishment Day at Division of Pathology, IVRI

Izatnagar, 7 September 2015. The Division of Pathology, IVRI celebrated its 52 year of establishment in association with local chapter of Indian Association of Veterinary Pathologists under the theme 'In Quest of Understanding Pathology and Pathogenesis and Macro- and- Micro levels and Striving for Better Animal Health'. Renowned neonatologist Dr Ravi Khanna of Bareilly highlighted the role of mosquitoes in transmission of the virus of Japanese Encephalitis from reservoir (birds) and amplifying (pigs) hosts to humans, cattle and horses.

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Animal health camp-cum-awareness...

- Bud bud, 7 August 2015. Eastern Regional Station of Indian Veterinary Research Institute, Kolkata organized an animal health camp-cum-awareness programme at Sidhabari village, under Dendua G*ram Panchayat* of Salanpur Block of Asansol Subdivision, West Bengal in collaboration with CRIJAF Krishi Vigyan Kendra Burdwan, Bud Bud. In the camp, health coverage was provided to 64 cattle, 29 goat and 31 sheep along with combined vaccine (FMD + HS+BQ) to cattle (30). Treatment was also provided to sick animals (25) for various ailments.

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Personnel

Visits

- Union Minister of State for Agriculture [MoS(A)], Dr Sanjeev Balyan, visited Morocco, Senegal, Algeria from 6 to 13 July 2015 as the special envoy of the Prime Minister of India to deliver letters of invitation for the Indo-Africa Forum Summit (IAFS-III) along with Shri Sushil Kumar Singh, PS to MoS (A).

Union Minister Sri Jual Oram visits CIFA

Bhubaneshwar, The Union Tribal Affairs Minister, Sri Jual Oram, visited Central Institute of Freshwater Aquaculture (CIFA) and emphasized that tribal sub-plan activities should be planned and implemented in such a way that it results in direct benefit to tribal communities. The Minister visited the farm facilities, hatcheries and other production units. Sri Jual Oram Minister interacted with the scientists about the fisheries development and the contribution of Central Institute of Freshwater Aquaculture. Sri Oram suggested that round the year fish seed production technology needs to be disseminated and larvicidal fish *Gambusia* (mosquito fish) be promoted as a means of controlling Malaria. Hon'ble Minister also urged that CIFA declares open house for few selected days in a year, so that common people may get an opportunity to come and see the Institute and draw motivation for adopting scientific aquaculture in their farms.

Dr P. Jayasankar (Director, CIFA) said that the Institute lays adequate emphasis on research application and programmes like Tribal Sub-Plan for North-Eastern-Hills Region, *Mera Gaon, Mera Gaurav* are being implemented in right earnest.

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- Anand, 8 July *2015*, Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) visited Directorate of Medicinal and Aromatic Plants Research, where he emphasized the role of secondary agriculture in the development of MAP sector in particular. Dr Ayyappan expressed the necessity of collaborative

research for development activities in all aspects of MAP with the other stakeholders. Dr Ayyappan also advised to have databases on MAP and attract start-ups for the development and commercialization of high value compounds.

- Dr Amit Vashisht (ADG, PIM) visited Kuala Lumpur, Malaysia from 3 to 7 August 2015 to participate in the capacity development workshop on 'Planning Monitoring and Evaluation towards measuring outcomes and Impacts'.

- Dr Raghu Prakash (Principal Scientist, CIFT, Cochin) visited Port Louis, Mauritius to participate in FORV Sagar Sampada Cruise 344 starting from Kochi, India from 3 to 29 September 2015.

Trainings

- Siltiguda, 20 July 2015. The Visakhapatnam Research Centre of CIFT conducted TSP Training-cum-Demonstration on 'Harvest and Post-harvest Technologies' at Siltiguda, Rayagada District Odisha.

- Hyderabad, 16 September 2015. The National Research Centre on Meat sponsored short course on 'Applications of genomic and proteomic technologies in meat quality and food safety research' from 7 to 16 September 2015.

- Dehra Dun, 21 September 2015. A training course for All India Service Officers was held at Indian Institute of Soil and Water Conservation. This is fourth in the series of 6 courses being organized under *Pradhan Mantri Krishi Sinchai Yojana* by the Ministry of Agriculture, Cooperation and Farmers' Welfare, Government of India.

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- Thiruvananthapuram, 11 September 2015. A short course on 'Business Planning for Developing New Agro-Technology Enterprises', sponsored by the Agricultural Education Division ICAR, New Delhi, was conducted at the Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala from 2 to 11 September, 2015.

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Appointments

S.No.	Name, Designation and Address	Date of appointment
1.	Dr N.S. Rathore DDG (Agriculture Education) ICAR Hqrs., New Delhi	31 July 2015
2.	Dr Trilochan Mohapatra Director IARI, New Delhi	28 August 2015

Retirements/Relieved

S.No.	Name, Designation and Address	Date of retirement
1.	Dr Madan Mohan ADG (MF) ICAR Hqrs., New Delhi	31July 2015
2.	Dr M.M. Mustafa Director National Research Centre on Banana, Tiruchirapalli	31 July 2015
3.	Dr Arun Kumar Sharma Director National Bureau of Agriculturally Important Micro-organisms Mau Nath Bhanjan	31 August 2015
4.	Dr AlokJha ADG (IR) (ICAR Hqrs.), New Delhi	31 August 2015 (Relieved)
5.	Dr B. Mohan Kumar ADG (AAF & CC) (ICAR Hqrs.), New Delhi	4 September 2015 (Relieved)

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