

# ICAR



# Reporter

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## From the DG's Desk

Dear Readers,

In Punjab and Haryana, about 23 million tonnes of paddy straw is burnt in the field as an easy and quick method of disposal. Burning straw causes phenomenal pollution problems and huge nutritional loss and physical health deterioration to the soil. Actually, the time available between the rice harvesting and wheat sowing is very narrow, around 20-30 days. So, appropriate strategies for in situ crop residue management are planned for effective implementation to enable zero burning. Besides, reducing air pollution, and also enhancing quality of soil, it will lead to financial gain in the longer run owing to reduced nutrient input. Initially investment in machines and cost of cultivation for sowing the next crop will be higher. At present, in Punjab, area under rice-wheat cultivation is 2.1 million ha and under rice-potato it is 0.9 million ha. In Haryana, the area under rice-wheat cultivation is 1.0 million ha and under rice-potato it is 0.35 million ha. After harvesting rice by combine, the farmers sun-dry the straw for a few days (4-5 days) and then burn them in the field before preparing the field for next cropping by using disc harrow, cultivator and plunker and sow the wheat/potato by seed drill/planter. This practice has aggravated the air quality issues vis-à-vis human and soil health. It is estimated that from 23 million tonnes of rice residues in North West India about 3 million tonnes of C may be improved per year and save about 1.4×10<sup>5</sup> t of N (equivalent to ₹ 200 crores) annually. Benefits to soil includes, soil microbial biomass carbon, dehydrogenase and alkaline phosphatase activity, and heterotrophic population will be increased about 2.5 to 3 fold in incorporated field than burning of crop residue. From residue incorporation, farmers' can save about 1600 kg C, 20-30kg N, 4-7 kg P, 60-100 kg K, 4-6 kg S in addition to micronutrients, which is equivalent to ₹ 1500-2000/ha for plant nutrients with yield advantage of 1 tonne/ha.



An attempt was made by the Council to assess the requirement of machines for straw management such as, super straw

management system (super SMS) that is an attachment to the combine, Happy seeder, paddy straw chopper-cum-spreader, reversible Mould board plough to enable effective in situ crop management in the years to come. These machines are being fabricated by local manufacturers in Punjab and Haryana. Keeping coverage area and days available for residue management between two croppings, it is estimated that a total of 6500 and 2800 super SMS units would be required for the state of Punjab and Haryana, respectively. Incidentally, Punjab has already 1000 SMS units, whereas Haryana state does not possess any. Similarly, happy seeder requirement for the state of Punjab is 15100 (2100 already available) and for Haryana, it is 6550 (50 available). The number of paddy straw chopper-cum-spreader units required for Punjab is 6150 (550 already available) and for Haryana it is 2500. Apart from this, 6150 (150 available) reversible Mould board plough units are required for Punjab state and 2800 for Haryana. Over all, the initial cost for one set of all four requisite machines would be Rs. 6.5 lakhs and to enable zero burning in the entire state of Punjab and Haryana, the estimated cost worked out to be ₹ 71,390 lakhs only. It has been proposed to utilize the machines for straw management in place of burning in both rice-wheat and rice-potato systems. For rice-wheat system, it is advisable to attach super Straw Management Systems (SMS) in all existing combines for paddy harvesting and spreading of straw *in situ* for facilitating the subsequent operation of Happy seeder for sowing wheat crop, that is operated through tractor. In case of rice-potato system, the paddy straw chopper-cum-spreader, again an attachment with tractor will be operated in fields after harvest using combines (with or without SMS units). Subsequently, the chopped residue will be incorporated in to the field using reversible Mould board plough, again operated through tractor. After this process, the field can be prepared with rotavator and then, potato can be sown with a planter.

Capacity Building and mass awareness among all stakeholders is a must. General awareness on ill effect of residue burning and laying out field demonstration on machinery options in particular is a powerful way to convince the farmers about the successful management of residue. The implementation of proposed model will also depend on the capacity development of farmers, machine operators, custom hiring centres *etc.* Involvement of KVKs in the capacity development: 35 KVKs (22 in Punjab and 13 in Haryana) in association with Agriculture Department, and other line departments, Farmers' Clubs, Cooperative societies *etc.* will be conducting various capacity development programmes to reach out at grass root level. Several programmes have also been planned to strengthen the capacity development of all stakeholders for 2 consecutive years as well.

In order to effectively implement this program

towards achieving zero burning of crop residues in these two states, effective production, procurement and distribution plan for machines is required. For instance, the machines could be fabricated and supplied by already existing manufacturers in Punjab and Haryana. To enable this production process, the Government (Centre/State) should evolve a mechanism to place indent and procure requisite numbers of the aforesaid machines.

After hastening the process to achieve the target of zero burning of crop residues within a year or so, we can exercise other options. The first option is Mass awareness campaign for manufacturers, buyers and farmers regarding straw management and machineries to highlight various advantages (tangible/intangible) of crop residue management; (ii) ICAR Institutes, KVKs and State Agricultural Universities a key role of providing end-to-end facilitation, and (iii) Campaigns under the overall supervision of DCs at Block levels to the policy, scheme and technology. The second option could be to roll out the proposed plan of action, the existing combine owners may be encouraged to buy super SMS as a fitting attachment to combine, and the tractor owners be encouraged to buy Happy seeders, Paddy straw chopper-cum-spreader and Reversible Mould board plough; however, this could be facilitated by giving back end subsidy to the purchasers by State/Central Government. Option 3 shall be that the State Government could procure the machines and distribute to farmers, Farmer Producer Organization (FPOs) and CHCs by auction. Further, the State Government making it compulsory that the existing combines should have SMS and followed by happy seeder (75% subsidy could be recommended). The existing CHCs should have all the four machines suggested for *in situ* crop residue management. Establishing new custom hiring centres could be the 4<sup>th</sup> option, while the existing CHCs would also procure happy seeder and other equipments to enable zero straw burning. It has been estimated that one CHC can handle 4 happy seeders, 3 chopper-cum-spreader and 3 reversible mould board plough units. While exploiting the benefits of all these options, a vigilant monitoring mechanism should also be put in place in all districts of the Punjab and Haryana under the chairmanship of District Collector with other members (District Agriculture Officer; Block Development Officer; KVK Scientist; Agriculture cooperative society; FPO) who will monitor the implementation process on war footing. Along with, a strategy for redistributing the combines and tractors across the state for better coverage. Over all, at policy level, a mechanism is being worked out quickly to roll out this plan of action as a centrally sponsored scheme providing 100% subsidy in national interest.



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# WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, SYMPOSIA

## Olive Oil spreads in Srinagar

Srinagar, 24 October, 2017. Two-day workshop on Olive Research and Development in India, jointly organized by Oilseeds Division, Department of Agriculture and Corporation and Farmers Welfare and ICAR-Central Institute of Temperate Horticulture Srinagar was inaugurated at ICAR-CITH, Srinagar.



Shri Gajendra Singh Shekhawat, Union Minister of State for Agriculture and Farmers welfare in his inaugural address, emphasized the role of research and development for combating the challenges faced by farmers. He said India is importing about 68% of cooking oil and thus there is the challenge for farmers and scientists to decrease the import of cooking oil and make cooking oil available to feed the nation. It is a challenge for scientists to produce quality planting material and work on different research aspects of olive for making it a success story. He said India has a vast potential for olive cultivation which needs to be tapered by joint efforts of scientists and farmers.

Shri Sunil Kumar Sharma, Minister of State for Transport, Revenue, Public Works, Rural Development & Panchayati Raj, Agriculture Production, J & K also graced the occasion. Dr W S Dhillon, ADG, Horticulture, ICAR, New Delhi emphasised upon the need to production of quality planting material in olive for large scale production and popularization. Officials from SKUAST (K), Srinagar, IARI, New Delhi, State Horticulture Department J and K, State Agriculture Department J and K, participants and farmers from various states like Meghalaya, Mizoram, Tamil Nadu, Jammu and Kashmir etc. also participated in the event.

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## Silver Jubilee of AERA at NAARM

Hyderabad, 7 November, 2017. The Agricultural Economics Research Association (AERA) based at New Delhi with a membership of over 1000 agricultural economists and social scientists organized its silver jubilee annual conference at National Academy of Agricultural Research Management (NAARM), Hyderabad during 7-9 November 2017. The theme was "Doubling Farmers' Income: Options and Strategies".



In his inaugural speech, Shri S Niranjana Reddy, Vice Chairman, State Planning Board of Telangana State highlighted various initiatives being taken up by Telangana State Government such as Mission Kakatiya, Vegetable markets, focus on e- NAM etc. which are all aimed at increasing the income of the farmers and also complement efforts of Central sector schemes.

Dr P K Joshi, Director, International Food Policy Research Institute (South Asia) and president of AERA said that Doubling of Farmers' Income can be a reality through aggregation of farm holdings, linking farmers with markets, promoting agro processing, addressing trade related issues, agribusiness promotion and by building public - private partnership for inclusive reforms. Conference president Dr P G Chengappa quoted several case studies of basmati rice, poultry, sugarcane, rubber, coffee, tea, maize etc. which have succeeded at various scales in value chain management. He also emphasized on capacity building of value chain players and focus on agribusiness extension. Dr Ch Srinivasa Rao, Director, NAARM spoke on various technology and policy alternatives. Eminent agricultural scientists and economists such as Dr S S Acharya, Dr K Mahendra Dev, Dr Mrutyunjaya, Dr D K Marothia participated besides 120 agricultural economists.

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## Fighting Malnutrition

Ludhiana, 17 October 2017, ICAR-ATARI, Zone-1, Ludhiana, organized a workshop on 'Mitigating Malnutrition through Farm-Women Empowerment'.

Chief guest Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR), explained wide range of issues and realities linked to malnutrition in India and stressed upon women power through proper education for tackling malnutrition. Dr Mohapatra emphasized on health and nutrition in India, viz. higher incidence of malnourishment in rural areas and women compared to urban areas, food discrimination against girls etc. He suggested popularization of nutritious foods, Nutrition Gardens, bio-fortified foods such as orange flesh sweet potato, and harnessing traditional wisdom on nutrition management through involvement of elders. Raising concern on widespread incidence of anaemia in Punjab and Haryana among women estated that children can't be healthy if their mothers are not healthy and this hampers brain development of the child. Later, he released a book "Mitigating Malnutrition through Farm-women"

Dr B S Dhillon, Vice-Chancellor, PAU Ludhiana stressed upon the role of women in combating malnutrition and leading the society in the right direction. He also appreciated the role of ATARI Zone-1 in guiding PAU's KVKs on the path of higher productivity and efficiency in Punjab.

Dr Rajbir Singh, Director, ICAR-ATARI elaborated about various activities and programmes organized by KVKs in relation to celebration of National Nutrition Week and Breast Feeding Week. More than 100 farm-women and KVK personnel participated in this workshop.

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## Brain Storming Session in CIAE

Bhopal, 9 November, 2017. Central Institute of Agricultural Engineering Bhopal organized a Brain Storming Session on "Recent Advances in Biomass Energy Research and Management". The main objective was to identify researchable areas and technological interventions required for efficient utilization of crop residues for generation and utilization of biomass energy and thereby address the challenge of food, energy and environment security.

The programme was inaugurated by Chief Guest Dr Kanchan Kumar Singh, ADG, ICAR (Farm Engineering), and chaired by Dr K K Singh, Director, CIAE, Bhopal. Dr Singh stressed on urgency to find viable technological intervention to prevent mass scale burning of crop residue in the field by farmers as the burning of biomass causes environmental pollution and human health hazards besides adversely affecting the soil productivity. He pointed out that about 81%



of paddy straw and 48% of wheat straw are burnt in the farmers' field. Each tonne of straw (rice or wheat), on burning, releases 3 kg particulate matter, 60 kg CO, 1,460 kg CO<sub>2</sub>, 199 kg ash and 2 kg SO<sub>2</sub>. About 32-76% of the straw weight and 27-73% nitrogen are lost due to field burning. Hence, it is a challenge for scientists to provide suitable technological solution for efficient utilization of biomass for energy generation to mitigate the climate change.

The invited expert speakers Dr D K Tuli, Director, CABR, Faridabad, Dr Suneel Dingra, TERI, New Delhi, Dr M Shyam, Ex Director and Dr. Gaurav Mishra, Director, SPRERI, VallabhVidya Nagar, Gujarat, Dr P Subramanian, Dr S Puglendi and Dr S Kartikeyan, TNAU, Coimbatore presented the status of biomass availability in India, field burning and its consequences on human health and appropriate existing technologies and process for its efficient utilization.

The presentations were followed by panel discussion with focus on adoption / adaptation of available technologies for efficient utilization of rice-wheat residues to mitigate the environmental problem which is highly prevalent in New Delhi, Punjab, Haryana, and several other states of India. The major points were need for creation of database on (i) assessment of availability and utilization of crop residues / biomass in India, (ii) collection, transportation and storage of crop residue, and (iii) status of technologies available for bio-oil refinement, bio-ethanol, briquetting and power generation.

The session was well attended by Experts from TERI, New Delhi, SPRERI, VallabhVidya Nagar, Gujarat, IIT Mumbai, Centre for Advanced Bio-energy Research, Indian Oil Corporation Limited, Faridabad as well as by Scientists from ICAR-CIAE, Bhopal, TNAU Coimbatore, MANIT, RGPV and IIFM, Bhopal.

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## Vigilance Awareness Week

Pune, 3 November, 2017. Vigilance Awareness Week was observed at NRCG, Pune during October 30 to



November 4, 2017. The staff members were administered the pledge by on 30 October for promoting integrity, transparency and accountability in public life. A panel discussion was organized on 31 October, 2017 by ICAR-NRC Grapes and ICAR-DFR. The topic for panel discussion was 'My vision- Corruption free India'. It was a lively panel discussion where audience from both the institutes interacted with the panelists. Different aspects, viz. societal role in curbing corruption, government initiatives especially digitization for minimizing corruption were discussed.

An essay competition was organized on 1 November, 2017 on a theme "Digital governance - a tool for corruption free India", followed by debate on 3 November, 2017, on the topic "Can corruption be wiped off from India". The staff members of the institute actively participated in the event and resolved to strive towards corruption free India.

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## Regional Workshop on Farmers' Rights and Exhibition on Agro-biodiversity

Cuttack, 17 November, 2017. ICAR-NRRI, Cuttack organized a "Regional Workshop on Farmers' Rights and Exhibition on Agro-Biodiversity" on 17<sup>th</sup> Nov, 2017 sponsored by the Protection of Plant Varieties and Farmers' Rights Authority (PPV and FRA), Dept. of Agriculture Co-operation (DAC), Ministry of Agriculture & Farmers Welfare, Govt. of India, New Delhi.

Dr H Pathak, Director of the Institute welcomed the dignitaries, scientists and farmers. The Chief Guest Shri S K Pattanayak, IAS, Secretary (Agriculture), Ministry of Agriculture and Farmers Welfare,



congratulated the farmers of Odisha for submitting maximum number of rice varieties and encouraged them to submit more and more other crop varieties for registration with the PPVFRA and take advantage from the plant genome savior community award under benefit sharing. Dr T Mohapatra, Secretary (DARE) and DG, ICAR spoke about the importance of the wild and weedy rices apart from native land races/varieties in developing new varieties in the context of adverse climatic fluctuations causing severe damage to the crop. Chairperson and Joint Secretary (Seeds) Dr B Rajinder highlighted the importance of Farmers' Rights in the PPV and FR Act. Shri GK. Dhal, Agriculture Production. Commissioner, complimented the scientists of NRRI and State Agriculture Department in arranging several awareness programmes among the farmers about the Act which resulted in collection, conservation and submission of more than 950 rice varieties to the PPV&FR Authority for registration.

The technical session on Mainstreaming of Farmers' Varieties in Seed Chain was held under the chairmanship of Dr Ajay Parida, Director, Institute of Life Sciences, Bhubaneswar and the lead speakers were Shri M Prabhakar Rao, President, National Seeds Association of India, Dr B C Patra, NRRI and Dr R P Singh, Director (Seeds), Birsa Agricultural University, Ranchi. Several issues on farmers varieties, their rights, mode of registration were discussed.

More than 500 participants including scientists from ICAR Institutes, State govt. officials and farmers from Odisha, Chhattisgarh and Jharkhand attended the programme.

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## Burhanpur organises Workshop of KVKs

Burhanpur, 24 November, 2017. The 24 Zonal Workshop of KVKs of Zone IX comprising of Madhya Pradesh, Chhattisgarh and Odisha was held at KVK, Burhanpur, Madhya Pradesh from November 24-26, 2017.

The Special Guest, Smt Archana Chitnis, Minister for Women and Child Development, MP said that to meet the challenges in agriculture, Maket SMART, Nutrition SMART, Climate SMART, Secondary Agriculture SMART (MNCS) agriculture should be followed for doubling the farmers income.

Dr Trilochan Mohapatra, Secretary (DARE) and DG ICAR, the Chief Guest at the Valedictory session stated that success models of the farmers should be validated, scientifically documented after economic analysis and replicated in other states. He also interacted with the farmers who have doubled their income and visited the KVK exhibition.



Dr A K Singh, DDG (Agril. Extension) in his address stated the important role KVK scientists have to play in doubling the income of farmers. Dr Anupam Mishra, Director ATARI, Jabalpur, briefed the dignitaries about the activities of KVKs in the Zone.

Progressive farmers who have doubled their income also presented their success models during the workshop. Representatives of ICAR institutes presented their strategies of doubling income and role of technologies in their respective domain in income enhancement. About 300 participants from three states Madhya Pradesh, Chhattisgarh and Odisha participated in this Zonal Workshop.

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## Pomegranate at NRCP, Solapur

New Delhi, 30 October, 2017. A 'Stakeholders Meet on Pomegranate Value Chain' was organized by ICAR-NRCP and SARP, Solapur at NASC Complex, New Delhi. The meeting was chaired by Dr Trilochan Mohapatra, Secretary (DARE) and DG, ICAR, Dr A K Singh, DDG (Horticultural Science) and Shri Devender Kumar Singh, Chairman, APEDA were the guests of honour. Padmashri Dr K L Chadha, President HSI also graced occasion. Major exporters of fresh pomegranate from India also took part.



Mr Ashwin Raghivanshi President, INI Farms made a brief presentation on pomegranate aril export scenario. He pointed out that the label claim issue needs to be sorted out for production of residue free pomegranate. Mr Shashank, Partner Fruitvilla Corporation delivered presentation on his experiences in establishment of the state of art facility including

washing, mopping, waxing, grading and packaging facility for pomegranate. He also acknowledged the help rendered by ICAR-NRCP in establishment of this modern packhouse at Vadaki, Pune. Mr Vijay Kale MD, TVK beverages shared his experience of establishment of start up enterprise on pomegranate based beverage processing and acknowledged the support and guidance through technology licensing by ICAR-NRCP. Mr Yogesh from M/S Moscos Foods Pvt Ltd appreciated the technological support of ICAR-NRCP on establishment of their pomegranate aril processing unit at Nasik.

Dr R K Pal, Director, ICAR-NRCP made detailed presentation on pomegranate value chain. He described the concept of 'know your produce'. He dealt in detail the ICAR-NRCP developed value chain technologies for entrepreneurs development for production of juice and RTS drinks, processing of fresh arils, pomegranate wine, pomegranate seed oil etc. The research outputs revealed the use of virgin pomegranate seed oil (VPSO) in reducing colonic inflammation VPSO triggered apoptosis in HCT-116 cells through the induction of DNA damage/p53 axis. Dr Pal shared research findings regarding pomegranate peel extract and its efficacy in managing the oral health and diabetic nephropathy by use peel extract-stabilized gold nano particle (PPE-AuNP of on how pomegranate) formulation. Since most of the pesticide residues are water soluble and are restricted to rind portion, research on development of proper post harvest packhouse operation of washing and mopping should be carried out for delivering residue free pomegranate before marketing. Dr Kaushik Bannerjee Principal Scientist, ICAR-NRC on Grapes made detailed presentation on pomegranate export to one of the premium market Europe and MRL and PHI issues involved therein. Padmashri Dr KL Chadha, President Horticulture Society of India chaired the plenary session and Dr W S Dhillon, ADG(HS-II) ICAR co-chaired the same. Several action points with time line were chalked out. The programme ended with vote of thanks by Dr Nilesh Gaikwad, Scientist, ICAR-NRCP.

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## ICAR-CMFRI holds meet on fishers' perception of vulnerability to climate change

Kochi, 13 December, 2017. To understand the impact of climate change on the coastal environment, marine fisheries and socio economic life of fisher folks in Thoothukudi District in Tamil Nadu from their view point, the Tuticorin Research Centre of Central Marine Fisheries Research Institute organised a fishermen meet 'Fishers perception of vulnerability to climate change and its adaptation strategies', under the National Innovations on Climate Resilient Agriculture (NICRA) project. Around 52 fishermen



from 15 villages actively participated in the vulnerability resource mapping that is meant to indicate the status of different resources such as mangroves, seagrass, coral reefs, fish farming etc., natural calamities, environmental changes, anthropogenic activities and industrial development. There was a village level presentation by representatives from different coastal villages on the

visible changes occurred in their respective villages owing to climate change and its effect on fisheries, sea level raise, sea surface temperature, sea inundation and livelihood.

Thirumathi Bala Saraswathi, Assistant Director of Fisheries, Thoothukudi District inaugurated the programme. She said that the technical support extended by the TRC of ICAR-CMFRI for the cage culture, Integrated Multi-trophic Aquaculture (IMTA), cage construction, erection and sea cage farming of sea bass, cobia lobsters etc., under FIMSUL projects of State Fisheries Department, Tamil Nadu really helped the fishermen to get alternate income.

A handbook, specially prepared for the fishermen, on Integrated Multi-trophic Aquaculture in Tamil was released on the occasion.

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## Success Stories

### Potential for Growth – Agro Processing Centre

Agro-processing not only leads to income generation but also helps in reduction of wastage, value addition, and foreign exchange earnings and enhancing manufacturing competitiveness. An agro-processing centre is an enterprise where the required facilities for primary and secondary processing, storage, handling and drying of cereals, pulses, oilseeds, fruits, vegetables and spices are made available on rental/ charge basis to rural people.

Value added agro based products and processed food items are also prepared and marketed by the centre. This type of centre is managed by individuals/co-operatives/community/organizations/voluntary organization. Machines and equipment of small to medium capacity are used for these centres so that it will be easy to operate and handle. The centre meets the processing, preservation, handling and marketing needs of surplus produce available in a village or a cluster of villages. Thus, it is a means of providing income and employment to rural people through agro-processing activities of various produce. Based on the available surplus produce, technologies and equipment for processing the marketable

products as per demand of market is decided. The activities of centre can be defined on the basis of available raw materials, processed products, market potential, etc. These activities could also be the basis of estimation of capital cost investment and requirement of land and building.

Under the guidance of ICAR, the All India Coordinated Research Project on Post Harvest Engineering and Technology has been working on establishment, monitoring and promotion of Agro Processing Centres (APC). APC set up by its operating centers have been quite effective in post harvest loss reduction, value addition, employment generation and income augmentation in rural catchments. Junagadh Centre for AICRP on Post Harvest Engineering and Technology has established Agro Processing Centre at Village TadkaPipaliya, Taluka Bhesan, District Junagadh. The APC was established under the Village Co-operative society so that earning of the processing becomes earning of the members of co-operative society, i.e. farmers of the village. Farmers avail the facility of processing machinery at their doorstep to process their agricultural product.



Groundnut threshing on the farm



Pulse milling at Agro Processing Centre



Power ghani for *Til ki sani*

The following machinery was installed at APC

1. Mini oil mill
2. Power ghani
3. Pulse mill
4. Grader
5. Spice mill
6. Mango pulper
7. Groundnut thresher
8. Chaff cutter

This Cooperative society is running the Agro Processing Centre on custom hire basis where a farmer comes with his agricultural products and returns with processed product by paying processing charges. Thus APC facilitates the farmers for processing machineries. Processed product from agricultural crops are groundnut oil, sesame oil, threshed groundnut, *Tilkisani* (Kaccharyu), pigeon pea dhal, red gram dhal, green gram dhal, black gram dhal, grading of wheat, green gram, red gram, black gram, pigeon pea, sesame, pearl millet etc.

During the year 2016-17 they processed the following products and earned the processing charges as shown in the table below:

Product	Processed quantity in the year 2016-17	Processing unit cost (₹)	Income (₹)
G. nut oil tin	400 tin	100/tin	40000
Sesame product ( <i>Sani</i> )	380 kg	50/kg	19000
Pigeon pea dhal	6000 kg	5/kg	30000
Wheat grading	2000 kg	2.5/kg	5000
Turmeic	400 kg	10/kg	4000
Chilly	325 kg	10/kg	3250
Mango pulp	500 kg	10/kg	5000
Red gram dhal	250 kg	10/kg	2500
Black gram dhal	150 kg	10/kg	1500
Green gram	175 kg	10/kg	1750

Thus the Agro Processing Centre provides opportunity to have better quality product, to process products, and earn. The centre has also provided opportunity for employment.

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## Giriraja back yard poultry farming brings food

Washim is a relatively new district created on 1st July 1998. Located in Vidarbha Region of Maharashtra, it occupies an area of about 5150 square kilometer. Agriculture is the primary industry in the region. The other economic activities of the district are dairy / poultry / fisheries which has very good potential. Poultry farming provides a source of supplementary income and gainful employment to farmers throughout the year. Egg and poultry meat are important sources of high quality animal practices to balance the diet of common people.

Poultry is probably the most important livestock species for many poor rural families. It is largely the responsibility of women.

Gaps in promotion of poultry farming:

- There is no commercial poultry feed plant considering the huge population of poultry.
- For availability of day old chick there is no commercial hatchery in the district.

### Critical intervention created by KVK for definite impact:

Initially Animal Science Discipline of KVK Karda, Washim was engaged in providing training, organizing workshops and interaction meet on poultry farming to the rural youths. There was lack of response in undertaking poultry activities, due to non availability of good quality poultry germ plasm. Poultry entrepreneurs were demanding regular batch to batch supply of day old chicks, without giving gap in poultry batches.

Therefore, in the year 2004, KVK introduced dual

purpose Giriraja poultry breed developed by Directorate of Poultry Research, Hyderabad for backyard poultry farming due to the following characteristics.

- Similarity in phenotypical appearance of these bird with desi birds
- Birds are multi colour.
- Highly disease resistance and less mortality.
- Giriraja female lays a large numbers of eggs 130-150 per year.
- Giriraja eggs weight 52-55gm their shells are brown in colour and thicker than other commercial eggs.
- The birds exhibit better growth compared to local varieties and are suited for mixed and backyard farming.

### Other KVK interventions:

For promotion of Giriraja poultry farming among entrepreneurs, KVK is regularly providing trainings and sensitizing farmers. Trainings on poultry housing,



### Details of day old chicks supplied by KVK poultry hatchery

Villages	No. of beneficiaries	No. of Chicks supplied	Mortality	Expenditure on feed and medicine (₹)	Gross income (₹)	Net income (₹)	Live weight (Kgs)
25 villages	450	63400	1268	6461728	17396960	10935323	124264

Note: Birds after attaining average live weight 2.00 kg to 2.50 kg are sold and sale of giriraja birds are done @ ₹ 140 per kg. while desi birds @ of ₹ 275/kg.

feeding and health management before distribution of chicks is imparted by KVK to 6630 trainees in the district so that the poultry bird can be reared to attain full genetical potential. Core area of training in poultry farming was on low input technology in poultry. Farmers are encouraged to vaccinate their flocks and Animal Science expert trained the rural youths in vaccinating poultry birds.

The birds are reared on backyard semi intensive system and fed with compound concentrate feed and locally available material.

The KVK has established poultry hatchery in the year 2010 with incubation capacity of setter 15000 and 5000 capacity hatchers for regular supply of giriraja day chicks to the upcoming farmers. Every 10-12 days interval hatching of 3400-3800 of day old chicks was sold to the farmers. Requirement of the district for day old chicks is very high in comparison KVK is supplying average 10000 birds and subject to demand and supply KVK also purchases day old chicks from private hatcheries and supplies to the farmers.

Beside this KVK has organized 23 farmers field school (FFS) in poultry farming for 460 upcoming poultry farmer. As a part of mandatory activities for assessment and refinement of technologies KVK has conducted on farm- trials on Giriraja poultry birds. In convergence with ATMA KVK organized Front line demonstrations on poultry farming. FLDs of regular KVK mandate also focussed on low input technology component in poultry farming.

KVK has conducted large scale front line

demonstration for vertical spread of the technology among the poultry farmers and has involved farm women and women SHG in this activity.

In poultry rearing mostly amount of ₹ 6461728 is spent on purchasing of feed and medicine. Most of the farmer sold their bird after attaining 2.0 kg to 2.50 kg at three to four months of age. The total live weight of the birds was around 124264 kg. Several farmers retain some of their female birds for egg laying purpose also. Therefore the gross income generated after sale of bird was ₹ 1,73,96,960/- and after deduction of expenses incurred on feed, vaccine and medicine the net income earned was ₹ 1,09,35,323/-.

#### Impact

Since 2004 due to concentrated efforts and support services made available by Krishi Vigyan Kendra to poultry farmers has encouraged to start 95 backyard poultry units in Washim and adjacent Buldana, Akola and Hingoli district. Mostly marginal farmers are coming up to start poultry unit as an allied enterprises in addition to farm activities. KVK has published good success stories in newsletter and also broadcasted on *Swaranant* Radio Station. Extension folder on poultry rearing was circulated among the contact farmers of KVK, mostly *gram-mitra* and *gram-sakhi* in entire Washim district.

The success of giriraja poultry farming has motivated more farmers and educated unemployed rural youth to undergo poultry farming on commercial basis.

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## Rice value chain for increasing Farm income

Among the various approaches to increasing farm income and promoting entrepreneurship, the prospect of value chain is being advocated in agriculture and allied sectors. Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) (former Director, ICAR-NRRI) first made an attempt to operationalize in rice. According to him, the rice value chain besides having the fundamental benefits have some added prospective which are, firstly rice will continue to dominate the farm production for various socio-economic and cultural reasons in spite of poor financial gains and market glut, secondly the demand in the national and international market for quality

rice is quite apparent, thirdly apart from farmers, others too can join the chain leading to creation of additional employment and lastly quality and specialty rice varieties developed by research institutes can spread quickly with less investment in extension. Having the above logic in view, the planning for the model was initiated.

#### Planning the Model

Several brainstorming sessions, consultations and focused group discussions were held to decide the objectives, stake holders, activities, links, responsibilities of the party and benefits sharing.



Finally, a chain emerged in PPP mode with the need for five parties including National Rice Research Institute, Cuttack

### The Process

The objective of the rice value chain was to promote large scale cultivation of high quality rice varieties of this institute in contiguous patches, undertake its processing and trade so that the consumers have access to its premium quality and all the parties involved in the value chain are benefitted. The first party, i.e. ICAR-NRRI, Cuttack in consultation with rice processor and trader decided the variety *Geetanjali*, a long slender grain aromatic rice to include in the rice value chain. Being the developer of the variety and having knowledge about its characteristics, the institute is involved in its maintenance and production of quality rice. The institute provides breeder seed of *Geetanjali* to a seed company for production of foundation seeds to be used by the participating farmers in the chain. Besides, farmer and farmwomen associations are involved which need to undertake survey of the rice ecology, motivate farmers to participate in the chain, monitor the production and arrange lifting of production by the rice processor-cum-trader. The final party in the process is the rice processor and trader who lifts the production from the production site and make immediate payment to the farmers at a price better than the MSP. The processor-cum-trader finally takes the responsibility to maintain the quality and take up market strategy including pricing to create a market demand for the rice variety. The responsibility and benefits for each party have been decided and agreed upon through a memorandum of participants (MoUs).

### Parties in the Rice Value Chain

**1st Party:** ICAR-NRRI, Cuttack (for supplying breeder seeds of *Geetanjali*, technical backstopping and overall monitoring);

**2nd Party:** Sansar Agropol Pvt. Ltd.,

Bhubaneswar, (A Seed Company for multiply the truthfully labeled seeds and supplying seeds to farmers groups at desired destination);

**3rd Party:** Ananya Mahila Bikash Samiti Sankilo, Nischintakoili, Cuttack (A Farm women group for mobilizing large number of farmers and producing grains);

**4th Party:** Mahanga Krushak Vikas Manch, Cuttack (A Farmers group for mobilizing large number of farmers and producing grains); and

**5th Party:** Sabitri Industries, Pvt. Ltd., Mayurbhanj (Rice Processor and Trader for procuring grains from farmers' point at 20 percent above MSP, processing and marketing).

### The success of the first cycle

Under this programme, 6.5 qtls. of breeder seed of *Geetanjali* was supplied to M/s Sansar Agropol Pvt. Ltd., Bhubaneswar by ICAR-NRRI, Cuttack for multiplication of sufficient quantity of TL seed during the *kharif-2015*. A total of 49.5 acres were covered under seed production in four different locations of Odisha. About 500 qt of Truthfully Labeled (TL) Seeds were produced by the company for covering about 1000 ha for production of rice during *rabi* 2015-16. The Monitoring Team of NRRI visited the different sites of seed production and gave suitable advice to the company for higher yield.

A brochure on "Package of practices of rice variety *Geetanjali*" was prepared in Odia and distributed to the farmers and the seed grower for their reference. Awareness programmes were conducted in selected localities with the participation of scientists of ICAR-NRRI, Cuttack and Miller as a confidence building step.

With the involvement and mobilization by the two farmers groups (3rd and 4th parties), the grain was produced in three clusters totaling 166 acres of Khurda and Cuttack districts involving 82 farmers during dry season/ *rabi*-2016. The average yield of the crop was recorded at 4-4.5 t/ha. After keeping for seed and household consumption, 202 tons of paddy grains were sold by the participating farmers to the 5th party, i.e. Sabitri Industries at the rate of ₹ 1,740/- per quintal (i.e., 20% above MSP), amounting to a total of ₹ 35.15 lakhs. As per the agreement, payments were made to all the farmers within ten days from the date of procurement. Now, the grains are being processed and packed for marketing by the 5th party.

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## Informal experimentations with Wheat Variety KRL 210 – A grand success

Shri Surjeet Singh, a farmer known for his grassroots innovations, and producing quality seed lives in village Baras, Karnal. He came into contact with ICAR-Central Soil Salinity Research Institute, Karnal during 2013 to get advisory on soil quality, and salt

tolerant wheat variety KRL-210. Shri Surjeet has been sowing the CSSRI bred KRL-210 since 2013 with remarkable yield (64.55 to 70.75 q/ha) on soils characterized as slightly alkali (pH range of 8.45±0.15). He sowed KRL-210 in salt affected soils



between first to second week of November with zero or reduced tillage using seed-cum-fertilizer drill. In order to harvest grains of KRL-210 (for seed purpose) with enhanced number of tillers, he calibrated his seed-drill to sow KRL-210 variety with lower seed rate of 55 kg/ha at 18 cm row spacing as against the recommended seed rate of 100 kg/ha with 22 cm row spacing. Shri Singh reduced the nitrogen fertilizer by 10% (135-140 kg N/ha), but maintained 15% higher P (58-60 kg P<sub>2</sub>O<sub>5</sub>/ha) application. Although he has been applying 1-2 irrigation normally since past 15 years in any of the wheat variety, for example during 2016-17 he irrigated KRL-210 only once after 30 days of seed sowing after experiencing weather pattern. No subsequent irrigations were applied as moisture requirement was fulfilled with intermittent rainfall received with 6 rainy days (total 96.3 mm rainfall) during January and March 2017, and optimum moisture remained in the field till harvest of the crop. The crop was harvested on 4 April, 2017 and yield data was recorded. With variability of 3.63%, the average yield of KRL-210, in past five years (2013-2017), was observed to be 67.47q/ha and maximum yield of 70.75 q/ha during 2016-17. This could be possible owing to creative farmer's management practices, relatively more number of effective tillers in KRL-210 (452-476/m<sup>2</sup>) and higher grain weight [(46.2-48.1 g/1000-grains) (during 2016-17)]. These adaptations with KRL-210 resulted in almost 25-30.0

### Adaptation practices of Shri Surjit Singh compared with other farmers' practices

Adaptation components	Shri Surjit Singh's practice	Practices followed by other farmers
Variety	KRL 210	HD 2967
Seed rate (kg/ha)	55	100
Method of sowing	Zero till	Rotavator/ Zero till
Spacing (cm)	18	20-22
Fertilizer application		
Nitrogen (kg N/ha)	135-140	165-195
Phosphorus (kg P <sub>2</sub> O <sub>5</sub> /ha)	58-60 kg	50
Irrigation (No.)	1-2	3-4
Yield (q/ha)	70.75	60
Cost of cultivation (₹/ha)*	12986	18855-19238
Gross returns @ ₹ 1625/q <sup>1</sup>	114970	97500
Benefit : Cost ratio <sup>1</sup>	8.85	5.07-5.46

\*Other input costs being considered common while calculating cost of cultivation under both the practices.

<sup>1</sup> This exclude the income generated from KRL-210 as seed sell for which this variety was adopted by Shri Surjit Singh

% saving of resources with better monetary returns (B:C) with MSP of wheat along with conserving natural resources and enhancing environmental sustainability. Other than routine sell on MSP, he has been selling KRL-210 as seed on an average 70-90 quintals every year with price Rs 3000/q, and could earn Rs 195,000/ha from KRL-210 seed through farmers' network.

Besides using KRL-210 since 2013, Shri. Surjit Singh has been continuing his informal agronomic experimentations with less seed and water since last about one and half decades to cope-up with climate variability. Such informal agronomic experimentation led by him in association (2013-2017) with CSSRI for assessing sodicity, providing salt tolerant wheat KRL-210, and farmer networking support, gives an example of co-production of adaptive knowledge for adapting abiotic stresses and enhancing livelihood resilience.

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## Capacity Building

### PM dedicates "Nanaji Deshmukh Plant Phenomics Centre" to the Nation.

New Delhi, 11 October, 2017. The Prime Minister, Shri Narendra Modi, inaugurated the birth centenary celebration of Nanaji Deshmukh at Indian Agricultural Research Institute, New Delhi. Shri Modi said that the day marks the birth anniversary of two great leaders - Nanaji Deshmukh and Loknayak Jayaprakash Narayan, who devoted their life to the betterment of the nation.

The Prime Minister said that deeply popular among youth, Loknayak Jayaprakash Narayan was never interested in power politics, and fought corruption. He said Nanaji Deshmukh also preferred to devote himself towards rural development and making our villages self-reliant, and free from poverty.

The Prime Minister said that ideas are not sufficient, initiatives have to be completed on time and the fruits of development must reach beneficiaries. Efforts have to be comprehensive and 'outcome driven', not 'output driven', the Prime Minister said.

The Prime Minister said that facilities that are associated with cities must also be made available to our villages. He said that the real essence of a democracy is *Jan Bhagidari* and integrating people in the development journey of cities, and villages. Regular interaction with governments is required, he added.

Noting that lack of sanitation facilities is adversely impacting the development journey of villages, the Prime Minister said the Government is working to build toilets in rural areas.

The Prime Minister released a commemorative postage stamp on Nanaji Deshmukh and launched DISHA Portal - a smart governance tool developed for MPs and MLAs for monitoring of implementation of various Programmes and Schemes of different Ministries in their constituency through a single portal. As on date, integration of datasets of 41 programmes and schemes of 20 Ministries has been achieved on this Portal.

He also launched *Gram Samvaad* - a citizen centric mobile app to serve and empower the rural citizens of India, by facilitating single window access for citizens to information at *Gram Panchayat* level, on various Rural Development programs. The App presently covers seven programs of the Ministry of Rural Development. The Prime Minister digitally inaugurated 11 Rural Self Employment Training Institutes (RSETI) Buildings and a Plant Phenomics Facility at IARI. Addressing an audience of over 10,000 people, drawn from Self Help Groups, Panchayats, water conservation innovators, and beneficiaries of Pradhan Mantri Awas Yojana, the Prime Minister dedicated "Nanaji Deshmukh Plant Phenomics Centre" to the nation.

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## CMFRI's RAS facility dedicated to Nation by DG ICAR

Vishakhapatnam, 28 October, 2017. Dr Trilochan Mohapatra, Secretary, DARE and DG, ICAR visited Vizhinjam and Visakhapatnam Regional Research Centres of the Central Marine Fisheries Research Institute on 28 October and 7 November 2017 respectively.

The indigenous Re-Circulatory Aquaculture System (RAS) developed by the Vishakhapatnam Regional Centre of CMFRI was dedicated to the nation by DG, ICAR during his visit to Vishakhapatnam Regional Centre on 7 November 2017 in presence of Dr Shubhadeep Ghosh, Scientist-in-charge, Vishakhapatnam Centre of CMFRI. Established for broodstock maturation and spawning of marine finfish, the RAS facility will help overcome the challenges in maintaining live broodstock in seawater



involves high costs, bio-security problems and possible impacts on marine ecosystem. This system minimizes consumption and wastage of water.

Dr Mohapatra observed the functioning of the RAS where broodstock of orange spotted grouper (*Epinephelus coioides*) and Indian pompano (*Trachinotus mookalee*) are being maintained currently. He visited the newly developed *Artemia* culture unit and the copepod culture unit besides the broodstock facilities at the Centre. Dr Mohapatra also visited the mariculture hatchery of the Centre where he saw larvae of grouper at various stages of development, fingerlings and live feed facility including mass culture of algae and rotifers. He released a book titled *Prioritized Species for Mariculture in India* and interacted with the scientists and staff members of the Institute along with stakeholders.



Dr Mohapatra appreciated the achievements made by the Centre and shared his views on research activities with scientists at the Centre. After visiting the Marine Research Aquarium and other facilities at the Centre, DG, ICAR urged scientists to focus more on implementation and widespread dissemination of technologies developed for better adoption among regional, national and global user groups. He requested to have more active collaboration with the State Department functionaries and to maintain regular interaction with the department officials.

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## Farmers FIRST - A mega project of ICAR, Dehradun

Dehradun, 6 November, 2017. Four day program on "Methodological Framework for Implementation of FFP" was concluded at Indian Institute of Soil and Water Conservation, Dehradun on 9 November, 2017. During the workshop, methodological framework of agriculture research on farmer's field in participatory mode was discussed. The project aims at including



farmer's concerns and ideas in technology development and its refinement, so that suitability of technology in a given agro-ecology and its sustainability in the longer run could be ensured.

This mega project is running at 52 centres (ICAR Institutes and State Agricultural Universities) in all over the country under the supervision of ICAR, New Delhi. The program was organized by National Academy of Agricultural Research Management, Hyderabad and hosted by Indian Institute of Soil and Water Conservation, Dehradun. Dr P K Mishra, Director, ICAR-IISWC appreciated the organizers for the meticulously planned workshop and emphasized on the importance of Farmers FIRST program of ICAR which could serve as an important tool in the agenda of "doubling of farmers income" based on actual field results. Dr P Venkatesan from NAARM, Hyderabad who was the key coordinator of the program appreciated the participants for the work being done at different Institutes and highlighted the importance of showcasing the results in form of brochures, newsletters, media and focused on the importance of the FFP portal which would be a common sharing platform for the entire Farmers FIRST community. Training program was appreciated by the participants who found it a good learning experience. Dr Bankey



Bihari, Head, HRD and SS and his entire team received accolades for their relentless support and work for organizing the event.

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## ATARI, Ludhiana organises strategy on Residue Management

Ludhiana, 17 October, 2017. ICAR-Agricultural Technology Application Research Institute (ICAR-ATARI), Zone-1, Ludhiana organized a "Stakeholders' Meet on Residue Management" on 17 October 2017. Chief guest Dr Trilochan Mohapatra, Secretary (DARE) and DG, ICAR stressed upon the need of proper management of rice straw as highlighted the seriousness of residue burning. He urged the stakeholders to join hand with KVKs in campaign against residue burning and become ambassador of this campaign. He honored seven *sarpanch* of villages where no residue burning took place. He awarded Ms. Sonali, 11<sup>th</sup> class student of Jind district of Haryana, for registering an FIR against her own father for residue burning. The chief guest released a book titled "Vignettes of Farming Excellence", a CD on residue management "*Parali se Khushhali*" (पराली से खुशहाली). In the end, DG, ICAR and VC, PAU flagged-off Mobile Van which would travel across the state of Punjab to highlight technologies for residue management and different slogans.

Dr Rajbir Singh, Director, ICAR-ATARI, Ludhiana briefed the house about the seriousness of the issue of residue burning and efforts taken by the ICAR-ATARI and KVKs in curbing residue and assured the DG, ICAR about taking every possible step to sensitize all the stakeholders in the region about the ill effects residue burning.

Dr Ashok Kumar, Director (Extension), PAU, Ludhiana assured that burning will be quite less during this session as about 1700 combine harvesters have been fitted with Super SMS and more than 1000 happy seeders have been purchased by farmers which will be quite effective in managing rice residue.

Programme Coordinators from KVKs of Bathinda, Faridkot, Fatehgarh Sahib, Ropar and Yamunanagar shared their experiences with residue management in NICRA villages. Many farmers shared their experience on rice residue and its alternate uses. An interaction session was conducted to share varied experiences, to answer farmers' technical queries and to formulate a collaborative strategy for residue management. A strategic action plan was also formulated in which all KVKs in Punjab and Haryana will adopt a village where all out efforts will be exhibited to demonstrate various technologies for residue management.

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# Celebrations

## Agriculture Innovations Day and Kisan Mela at CAZRI

Jodhpur, 23 September, 2017. Shri G S Shekhawat, Union Minister of State (MoS) for Agriculture and Farmers' Welfare inaugurated Kisan Mela and Agriculture Innovation Day at ICAR-Central Arid Zone Research Institute, Jodhpur. He stressed upon doubling of farmers' income by 2022 and further mentioned that improving agricultural productivity by adopting new and innovative technologies developed by CAZRI and elsewhere would play a catalytic role. Shri Shekhawat emphasized to place a high priority for enhancing resilience in arid agriculture in view of prevalent adverse agro-climatic conditions in western Rajasthan.

Dr O P Yadav, Director, ICAR-CAZRI briefed about the recent achievements of the Institute and mentioned that promotion of water-efficient crops and modern methods of irrigation are must to sustain agriculture

Special Guests, Dr Balraj Singh, Vice Chancellor of Agriculture University, Jodhpur and Dr. NV Patil appreciated the remarkable efforts of the institute in demonstration, transfer and upscaling of improved technologies in a challenging environments.

Seven farmers (Captain Babu Khan, Babu Lal Suthar, Vijay Singh, Ram Chander, Gordhan Singh, Govind Ram and Mala Ram) were acknowledged as the CAZRI *Kisan Mitra* for their significant contribution in adoption and upscaling of agricultural improved technologies. Farmers producing best crops of pearl millet, mungbean, mothbean and clusterbean were also awarded. A 'Scientist-Kisan Sangoshthi' was organized in which more than 100 farmers' queries were addressed by experts and several farmers also shared their experiences of undertaking modern agriculture to further enhance their income. Exhibitions showcasing agricultural technologies suitable for drier regions were put up. More than 3000 farmers including 900 women farmers from Western Rajasthan participated in the event.

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## Farmers attend CAU Regional Agri Fair in Tripura

Tripura, 7 November, 2017. The three days long CAU Regional Agri Fair 2017-18 which opened grandly on 5 November, 2017, concluded on 7 November, at the College of Fisheries, Tripura. Chief Guest, Shri Aghore Debbarma, Minister of Agriculture, Tribal Welfare and Animal Resource Development, Government of Tripura, mentioned the need for convergence of three



components, i.e. government approach, scientific contribution and interest of farmers. He pointed the need for farmer friendly policies on agriculture inputs like feed and seed, better training dissemination to counter farmer suicides in the country. He gave importance on prime areas of agriculture like fisheries and forestry to enable increased farm income with low investment.

Dr R B Singh, said that the fair acted as a mutual learning process between farmers and scientist and emphasized the need for women empowerment in agriculture to remove poverty from the country.

The fair organized under the theme "Integrated Farming for Doubling of Farm Income" was attended by 7,000 farmers across Northeastern states. Various governmental, non-governmental organizations, entrepreneurs showcased their farmer friendly technologies, success stories, innovative ideas and products in 42 exhibition stalls. Altogether 83 scientist and technical staff of different organizations of NE region took part as resource persons. They replied to the various queries of farming regarding regional suitability of fish species and livestock breeds, fish disease outbreak during winter months, utilization of green manure crops in integrated farming, problem of bird flu, de-worming in pigs and cattle, ways and means to start agri-entrepreneurship, schemes available for poultry farming, training needs of the farmers from various extension functionaries etc.

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## Rice field day and Farmers' Meet

Cuttack, 3 November, 2017. ICAR-National Rice Research Institute (NRRI), Cuttack organized a "Rice Field Day and Farmers' Meet" in Chundri village of Ghaghra block in Gumla district, Jharkhand. Over two hundred fifty farmers/farm women and about thirty senior officers and scientists of ICAR-NRRI, Cuttack participated in this meet.



Crop cutting experiments were conducted on two newly released NRI varieties, viz. 'CR Dhan 202' (a 110-115 days duration variety suitable for aerobic situation) and 'CR Dhan 305' (a 120-125 days duration variety suitable for favourable medium land). Results showed about 20 per cent grain yield advantage in both the varieties over the most popular local rice variety '*Sahabhagidhan*' under farmers' practice.

Dr S K Mishra, PS and Principal Investigator of the project briefed about the kharif 2017 cluster demonstrations of these two varieties (CR Dhan 202 and CR Dhan 305) in four selected districts, viz., Ranchi, Gumla, Palamau and Garhwa of Jharkhand with the participation of sixty rice farmers (15 from each district) by providing 5 kg seed minikits to each farmer. Chief Guest, Dr Subash Singh, Director, SAMETI advised beneficiary farmers not to consume the produces of these two varieties, instead they should use these as seeds and supply surplus quantity to neighbouring farmers as seeds to replace the low yielding local varieties.

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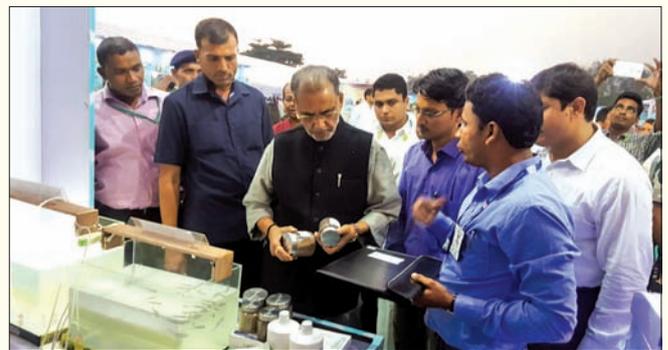
## Brackishwater aquaculture attracts visitors

Goa, 7 December, 2017. ICAR-CIBA, Chennai showcased novel technologies at the 'Aqua Goa Fish Festival', at Panaji, Goa in a four day festival. Smt Mridula Sinha, Hon'ble Governor of Goa and Shri Manohar Parikar, Chief Minister of Goa visited the ICAR-CIBA Stall on the first day and interacted



with scientists about brackishwater aquaculture technologies developed by CIBA. They also stressed for effective convergence through strategic planning for large scale promotion of brackishwater aquaculture in Goa. Shri Parikar sought special focus on Asian seabass and shrimp farming in Goa.

On the third, i.e December 9, 2017. Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture and Farmers Welfare, visited the CIBA Stall and observed the exhibits on brackishwater aquaculture candidate species; fish and shrimp feeds, water quality testing kits etc. Appreciating the research efforts in the direction of 'Make in India' and their outcome of CIBA in brackishwater aquaculture he advised scientists to further take it up to newer heights.



About 3500 stakeholders including farmers and farm women, aqua-entrepreneurs, officials from Development Departments, financial institutions, faculty and students visited CIBA stall during the exhibition and more than 300 farmers interacted with the scientists about brackishwater aquaculture. The visitors showed keen interest for acquiring skills in technologies related to brackishwater aquaculture through training programmes and interest in the farming of Asian Seabass, Milkfish and Shrimps.

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## Animals get treatment at Dehradun

Dehradun, 27 November, 2017. Under Farmer FIRST Project, IISWC, Dehradun organized an Animal Health camp in Bhagwanpur and Koti Maychak villages of Raipur Block. With the help and cooperation from Uttarakhand Government Veterinary hospital, Raipur



and Thano, two animal health camps were organized where about 210 farmers arrived to get their animals treated. Medicines for control of ecto- endo parasites and UMMB were also distributed. From Government Veterinary hospital, Raipur and Thano, Dr Manish Patel, Chief Veterinary officer, Mr Raghuvir Solanki, Ms Deepika Aggrawal, Mr Sudarshan Rawat and all Livestock Extension officers participated in the programme. From ICAR-IISWC, Dehradun, Shri Rajesh Bishnoi, Scientist (Agril. Extension), Dr (Mrs) Trisha Roy, Scientist (Soil Science), Shri S N Gupta, PS, Shri Anil Malik, SRF, Shri Ravinder, Assistant, Shri Dinesh Chand and Shri Ramesh Prakash worked for the successful organization of the animal health camp. This will certainly help to improve the livestock health as well as milk production and will also help to create awareness among the farmers of adjoining areas regarding improved animal health practices.

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## Silver Jubilee Conference of AERA inaugurated

Hyderabad, 7 November 2017. The Agricultural Economics Research Association (AERA) based at New Delhi that has a membership of over 1000 agricultural economists and social scientists is organizing its silver jubilee annual conference at ICAR- National Academy of Agricultural Research Management (NAARM), Hyderabad during 7-9 November 2017. The theme for this year's conference is "Doubling Farmers' Income: Options and Strategies". Dr R Kalpana Sastry, Joint Director, NAARM welcomed the dignitaries and the delegates of the conference. The conference was inaugurated by Shri S Niranjana Reddy, Vice Chairman, State Planning Board of Telangana State where he highlighted the various initiatives being taken up by Telangana State Government such as Mission Kakatiya, Vegetable markets, focus on e- NAM etc. which are all aimed at increasing the income of the farmers and also complement efforts of Central sector schemes. Dr P K Joshi, Director, International Food Policy Research Institute (South Asia) and president of AERA said that Doubling of Farmers' Income can be a reality through aggregation of farm holdings, linking farmers with markets, promoting agro processing, addressing trade related issues, agribusiness promotion and by building public - private partnership for inclusive reforms. The conference president Dr P G Chengappa quoted several case studies of basmati rice, poultry, sugarcane, rubber, coffee, tea, maize etc. which have succeeded at various scales in value chain management. He also emphasized on capacity building of value chain players and focus on agribusiness extension. Dr Ch Srinivasa Rao, Director, NAARM spoke on various technology and policy alternatives for achieving the Prime Minister's vision of doubling the farmers' income by 2022.

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## Agriculture Education Day for Students

### CMFRI, Kochi

Kochi, 3 December, 2017. The Agriculture Education Day was celebrated at various Regional and Research Centres of the ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi in a befitting manner inculcating scientific temperament in students.

the Mumbai Research Centre of ICAR-CMFRI joined hands with the ICAR-Central Institute for Research on Cotton Technology (ICAR-CIRCOT) to celebrate the Agriculture Education Day. The experts who spoke on the occasion stressed the need for improving agricultural education with respect to skills, integration, collaboration and cooperation among various institutes.



As many as 120 students and a group of 17 teachers participated in the Agriculture Education day held at the Vizhinjam Research Centre of ICAR-CMFRI. The programme helped the students to know more about the sea, the marine organisms such as ornamental fish, sea anemones, sea urchins, sponges and corals. The students were then exposed to sea turtles and lobsters in tanks and they marveled to see the specimens mounted and preserved as the exhibits such as sun fish.

Lectures on various topics were delivered by Dr S S Raju, Principal Scientist, Mr Loveson Edward, Scientist and Mr Pralaya Ranjan Behera, Scientist at the Centre. Around 46 students with their teachers participated enthusiastically. An essay competition was held for students on the topic, "Role of Agriculture in Poverty Alleviation in India. A video film 'Marine Debris' was screened to create awareness among the students on Swachh Bharat. Dr Shubhadeep Ghosh, Scientist In-charge of the Centre briefed students about the different activities being carried out by the ICAR-CMFRI.

Around 51 students from 10 schools interacted with the scientists regarding the existing options for agriculture education especially in the fisheries and aquaculture. Dr P Jawahar, Professor, Fisheries College and Research Institute, Tuticorin and scientists from ICAR-CMFRI replied to their queries. The students visited the laboratories at the Centre and the scientific experts from respective laboratories explained to them various ongoing research programmes in their respective fields.

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## CIBA, Chennai

Chennai, 4 December 2017. ICAR-Central Institute of Brackishwater Aquaculture (CIBA), Chennai conducted the Agricultural Education Day to educate the school students on various facets of brackishwater aquaculture and inspire them to develop interest in agriculture in general. About 250 higher secondary students and 17 school teachers from leading schools of Chennai participated in the programme held at the Field Experimental Station of CIBA at Muttukadu 30 km south of Chennai.



They were taken to the research facilities especially shrimp, mud crab, fin fish hatcheries, live feed units, fed mill, aquatic water quality and health laboratories for a real-time field exposure. They were exposed to aquaculture of shrimps, mud crabs and finfishes including their seed production, feeds and feeding. The importance of soil and water quality, disease prevention, diagnosis and management were explained to the students. The nutritional specialities of 'fish as health food' were vividly articulated in detail with illustrations. Further, a career guidance session pertaining to aquaculture, agriculture, veterinary and fisheries subjects was held wherein the students had evinced keen interest to know the higher educational courses and job opportunities available in the sector. Finally a quiz programme comprised of identification of fish, shrimp and mud crab species, inputs and aids used in aquaculture and general knowledge in agriculture was conducted. Students and teachers had a feel about the facilities and the research work being carried out at ICAR-CIBA and appreciated the efforts of the institute in creating awareness on fisheries and aquaculture to the student community. The programme was coordinated by social sciences division of ICAR-CIBA.

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## CRIDA, Hyderabad

Hyderabad, 3 December, 2017. ICAR-CRIDA celebrated National Agriculture Education Day to mark birth anniversary of first President of Independent India and Union Minister of Agriculture, Bharat Ratna (Late) Dr. Rajendra Prasad. The objective is to expose school students to agriculture and its relevance to country's development, inspire them and attract them towards agriculture, so that they develop interest in agriculture and allied subjects and choose these subjects to become agri-entrepreneurs.

Essay writing competitions were organised for Class VIII and IX students and Painting competitions for Class VI and VII students. Total 36 students from 12 different Kendriya Vidyalaya Schools located in Hyderabad and Secunderabad participated. Each

school was represented by a three-member team. The theme for Essay writing was "Agricultural Science subject in the curriculum at school level is required or not?". The Theme for Painting was "Indian Agriculture Scenario" containing sub-themes: (a) How farmers grow and sell their products; (b) How Farmers and Agriculture Scientists interact; and (c) Water Harvesting. Later students were taken to CRIDA Gallery on rainfed technologies, climate research facilities like Open Top Chambers.

Dr K Sammi Reddy, Director (Acting), CRIDA congratulated all students for their participation and appreciated the interest shown by the students and encouraged them to participate in more competitions. Dr K Sammi Reddy, Director (Acting), CRIDA distributed prizes and advised the students to choose agriculture science as a career option and said that agriculture has huge opportunities for which awareness has to be created through such science based programmes.



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## VPKAS, Almora

Almora, 3 December, 2017. On the occasion of birth anniversary of nation's first President and first Union Agriculture Minister, Bharat Ratna (Late) Dr Rajendra Prasad, ICAR-VPKAS, Almora observed Agricultural Education Day to promote agriculture students and motivate them to take agriculture as their professional career, the day was celebrated with the students. About 35 students of different classes of Koormanchal Academy, Kosi participated. Theme lectures were delivered by scientists and students were made aware about the history of institute and on-going activities of ICAR-VPKAS, Almora through museum and field visit. Film shows on agriculture as a career option and institute work were a visual delight to the students and they participated in drawing speech competition.

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## East Champaran celebrates Pashu Arogya Mela 2017

East Champaran, 29 October, 2017. ICAR Research Complex for Eastern Region, Patna in collaboration with Bihar State Milk Co-operative Federation Ltd. (COMFED) organised "Pashu Arogya Mela 2017" at Village Semuwapur, Kesaria Block in East Champaran district of Bihar during October 28 - 29, 2017.

Shri Radha Mohan Singh, Union Minister of Agriculture and Farmers Welfare emphasized that livestock is the

most important income generating enterprise in Indian agricultural economy and plays a multifaceted role in providing livelihood support of even landless farmers. He also informed that fodder museum is being developed at KVK, Piprakothi for dairy farmers. He stressed upon the importance of indigenous breeds of cattle, buffalo and goat and their superiority over exotic breeds in climate change scenarios. He further reiterated that infertility camp for animals shall be organised in every block of the district. He urged farmers to adopt diversified farming by adopting enterprises beyond dairy production. Fisheries, Poultry, Piggery and Goat farming sectors provide good alternative options in social development. He advised farmers to take assistance from centrally sponsored schemes like the National Gokul Mission.

Animal health and infertility camp, vaccination and immunization camp was also organised in which more than 250 livestock including cattle, buffalo, goats and horses were inseminated, vaccinated and



treated. Farmers were provided with advisory services on up-keeping of general health status of farm animals. An animal show was organized in which best animals of different species were conferred award.

The next day Chief Guest Shri Sachendra Prasad Singh, MLA, Kalyanpur Vidhan Sabha Constituency stressed on the role of animals and urged farmers to improve soil fertility by animal farming.

An exhibition was put up to showcase various technologies/products. Farmers-scientist interactions were organized in which different aspects of livestock and poultry production and management were discussed.

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## ICAR celebrates *Rashtriya Mahila Kisan Diwas*

New Delhi, 15 October, 2017. Speaking on the occasion of *Rashtriya Mahila Kisan Diwas*, Shri Radha Mohan Singh, Union Minister of Agriculture and Farmers' Welfare said women can propel the country



towards second Green Revolution and they can change the landscape of the development if they get opportunities and facilities.

He said that decision to celebrate October 15 as *Rashtriya Mahila Kisan Diwas* was inspired by the celebration of October 15 as International Women's Day by UNO.

Shri Singh said that women's contribution to the prevention of climate change and management of natural resources could not be denied. Women play important roles through labour supervision and participation in post-harvest operations. According to the Food and Agriculture Organization, women's contribution to Indian agriculture is about 32 percent, while in some states (such as Hills, Northeast, and Kerala) contribution of women to agriculture and rural economy is more than men. Women are involved in 48 percent agriculture-related employment whereas 7.5 crore women are playing a significant role in milk production and livestock management.

He said to strengthen women's participating in agriculture and allied activities and to improve their access to land, loans and other facilities, the Ministry of Agriculture and Farmers Welfare has policy provisions like joint leasing for both domestic and agricultural land under National Policy for Farmers. Proper structural, functional and institutional measures are being promoted to empower women, to build their abilities and to increase their access to input technology and other agricultural resources and various initiatives have been taken in this regard.

Each KVK has a home science wing. In the year 2016-17, 21 techniques related to women were evaluated and 2.56 lakh women were trained in agriculture-related fields like sewing, manufacturing, value addition, rural handicraft, animal husbandry, bee-keeping, poultry, fisheries, etc.

Apart from this, at least 30% of the funds are being earmarked for women under various schemes/programs and development related activities. To ensure various beneficiary-oriented programs/schemes reach them, the emphasis is on the formation of women self-help groups (SHGs) to connect them with micro-credit through activities like

capacity building and giving them access to information and to encourage their participation in planning and decision-making process.

Smt Krishna Raj, Union Minister of State for Agriculture and Farmers Welfare and Smt Archana Chitnis, Minister of Women and Child Development, Madhya Pradesh Government also graced the occasion. Dr Trilochan Mohapatra, Secretary (DARE) and Director General (ICAR) said the role of women in agriculture is commendable.

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## Foundation Day

### ASRB, New Delhi

Hyderabad, 1 November, 2017. The Agricultural Scientists Recruitment Board (ASRB), Indian Council of Agricultural Research (ICAR) celebrated its foundation day at ICAR-National Academy of Agricultural Research Management, Rajendranagar, Hyderabad.

Dr R S Paroda, former Secretary (DARE) & Director General (ICAR), who is also chairman of the Committee on revamping ASRB delivered the foundation day lecture.



Dr A K Srivastava, Chairman, ASRB, in his welcome address briefed about achievements of ASRB in selecting scientific staff for ICAR institutes.

Later Dr Gurbachan Singh and Dr M Mahadevappa former chairmen of ASRB and Dr K V Raman former member ASRB spoke on the contributions of ASRB besides making suggestions for reforming the ASRB to adapt to the changing demands of Indian agriculture. Vice Chancellors of agriculture

universities from Andhra Pradesh, Telangana and Maharashtra, former member of UPSC, Directors and scientists of ICAR institutes graced the foundation day celebrations. The event was attended by around 200 scientists from various ICAR institutes of the region.

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### NIBSM, Raipur

Raipur, 7 October, 2017. The 6<sup>th</sup> foundation day of the ICAR-National Institute of Biotic Stress Management was celebrated at Raipur. The theme of the foundation day was agriculture based women empowerment.



Dr U K Mishra, Vice- Chancellor, Chhattisgarh Kamdhenu Vishwavidyalaya Durg was the chief guest of the function and Shri S R Verma, Director State agricultural management extension training institute (SAMETI) and Registrar IGKV, Raipur was guest of honor.

The event was attended by over 100 farmers including equal proportion of women farmers from nearby villages where extension activities of the institute is being carried out. All the dignitaries visited the campus and appreciated the efforts of institute in addressing the problems of biotic stress in a comprehensive way. A farmers-scientists interaction was held on the occasion.

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### CAZRI, Jodhpur

Jodhpur, October 1, 2017. The 59th foundation day of the Central Arid Zone Research Institute (CAZRI) was celebrated in which Dr A K Singh, Vice-Chancellor, Rajmata Vijaya Raje Scindia Krishi Vishwavidyalaya, Gwalior and former DDG (NRM) was the chief guest. The celebrations began with the



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a wonderful, joyful, healthy, wealthy &  
prosperous New Year 2018





Foundation Day Lecture by Dr A K Singh on 'Is Agricultural Water Crisis Solvable' followed by Dr O P Yadav, Director welcoming the guests, employees of CAZRI and retired employees. Dr Yadav highlighted the major achievements of CAZRI during last one year that included establishment of Agri-Voltaic System and enhancing the research-undertaking capacity, outreach programme, quality publications and supply of improved quality planting material from institute.

The dignitaries visited experimental area and appreciated the efforts of institute in addressing the problems of arid zone in a comprehensive way. Nine employees were awarded for their outstanding contributions. Dr R K Kaul was given a very special appreciation for his outstanding work in PME cell of the institute. Retired employees also recalled their previous experiences of working in institute.

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### NIANP, Bengaluru

Bengaluru, 24th November, 2017. The ICAR-National Institute of Animal Nutrition and Physiology, Bengaluru, celebrated its 23<sup>rd</sup> Foundation Day.

Padma Bhushan Dr M Mahadevappa, former VC, UAS, Dharwad and former Chairman, ASRB was the Chief Guest of the event. Speaking on the occasion, he lauded the contributions of the Institute. Noting the highly significant contributions of the Institute in the field of Animal nutrition, Animal physiology and related areas, Dr Mahadevappa encouraged the scientists to establish closer connection between the



scientific outcome and its potential beneficiaries.

Dr H Rahman, Regional Representative for South Asia, ILRI and Former DDG (AS), ICAR was the Guest of Honor. He mentioned the significant contributions of ICAR-NIANP as a unique and outstanding research Institute in the area of animal science of this country. He emphasised that more international research collaborations are required for this Institute to increase its visibility beyond the national boundary

Dr Raghavendra Bhatta, Director of the Institute highlighted various ongoing activities and recent developments of the Institute. A publication entitled "NIANP at a Glance" and DVD of the short documentary film "A Glimpse of ICAR-NIANP" were also released on this occasion.

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### Central Zone Sports Meet at Bhopal campus

Bhopal, 10 November, 2017. Central Institute of Agricultural Engineering, Bhopal organized the ICAR Central Zone Sports Meet-2017 during November 10-13, 2017. The Meet was inaugurated at ICAR-CIAE, Bhopal by Dr. K Alagusundaram, Deputy Director General (Agril. Engg.), ICAR. Dr Kanchan Kumar Singh, ADG (Farm Engg.), ICAR was the Guest of Honour. Dr KK Singh, Director CIAE presided over the function. CIAE, Bhopal organized the events at its own campus for the first time in which 536 sportspersons from 18 ICAR Institutes of ICAR Central Zone located in nine cities of the Central Zone including New Delhi, Ludhiana, Nagpur, Indore, Pune, Raipur, Jabalpur, Maunath, and Bhopal participated in individual as well as team events organized for men and women.



The Indian Agriculture Research Institute (IARI), New Delhi won the overall championship by winning the Men's events including Badminton, Basketball, Football, Table Tennis, and Volleyball (smashing) and Women's Chess. The host team of Central Institute of Agricultural Engineering (CIAE) was the overall runners up and it won the events in Men's Volleyball (shooting) and Women's Badminton, Carrom, Table Tennis events.

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## Sankalp se Siddhi at KVK Baramulla

The KVK Baramulla of Central Institute of Temperate Horticulture organized *Sankalp Se Siddhi* on 24 October 2017 at Tangmarg in the presence of Chief Guest. Shri Gajendra Singh Shekhawat, Minister of State for Agriculture and Farmers Welfare. About 1500 farmers and rural youths participated in the programme.

Shri Shekhawat administered the pledge to build a New India by 2022 devoid of corruption and poverty.

Speaking on the occasion MOS Agriculture, Shri Sunil Kumar Sharma emphasized the need for better application of technology towards enhanced farm productivity and to make agriculture as more profitable enterprise. Member of Parliament Muzaffar Hussain Beigh highlighted the importance of agriculture towards improving living standards of farmers wherein KVK can play much greater role.

Earlier Dr A K Singh, DDG (Agril. Extension), ICAR highlighted the importance of KVK in agricultural development and socio economic upliftment of the rural poor. Dr W S Dhillon, ADG, Dr. Rajbir Singh, Director, ATARI zone-I Ludhiana, Dr Nasir Ahmad Naqash, District Development Commissioner Baramulla, Dr D B Singh, Director CITH, Dr Manoj Kumar, Head KVK and many other dignitaries also expressed their views on the occasion. Later the Minister laid the foundation stone of the Administrative building of KVK.

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## World Soil Day

### IISWC, Dehradun

Dehradun, 5 December, 2017. December 5, 2017 was celebrated as "World Soil Day" at ICAR-Indian Institute of Soil and Water Conservation, Dehradun. Shri Satpal Ji Maharaj, Cabinet Minister Under guidance of the celebration began with oath ceremony on 'Save Soil Campaign' in which 40 scientists, 55 agricultural students and 5 faculties from Shri Guru Ram Rai University, Dehradun, 25 technical, 30 administrative, 25 officer trainees, other staff (60 nos.) of the Institute and 35 farmers



participated. In his address, Sh Satpal Ji Maharaj and urged the farmers to make right application of the card and spoke about Super Food and Protein Revolution.

Two hundred fifty Soil Health Cards were distributed to the farmers from four adopted villages of the institute (Hattal, Sainj, Semalta and Naini) by the Chief Guest which was prepared under the leadership of Dr D V Singh, Principal Scientist. Sh Prabhu Lal Sharma, Gram Pradhan, Hattal expressed his deep gratitude for effort of the Institute in improving the status of farmers in his village Dr M Sankar and Dr Trisha Roy conducted the visit of B Sc Agriculture students to Institute Museum and Laboratory while the farmer's visit to the Museum and Laboratory was conducted by Dr Ramanjeet Singh and Dr Darshan Kadam.

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### CRIDA, Hyderabad

Hyderabad, 5 December 2017. ICAR-CRIDA celebrated World Soil Day on 5 December, 2017 at Rakamcharla village, Pudur Mandal, Vikarabad district under the Chairmanship of Dr K Sammireddy, Acting Director, ICAR-CRIDA, Hyderabad. Around 200 farmers from villages of Pudur cluster, Vikarabad district attended the program. Dr G Nirmala, Principal Scientist and Head, TOT and PI, FFP welcomed the participants and



explained the objectives of the program. Shri Ram Mohan, Agricultural Officer oriented the farmers about soil testing facility, procedure of soil sample collection and analysis and usage of recommendations for higher crop yields. Sri Pentaiah, Village Sarpanch requested similar cooperation and support in future. CRIDA scientists and extension functionaries from Agriculture and Horticulture department interacted with farmers. Farmer representatives shared their experience on the Soil Health Cards and its usage for nutrient management. 140 Soil Health Cards were distributed with crop related recommendations to farmers of Rakamcharla village, Tirumalapur village, Devanoniguda village of Pudur cluster under Farmers' First Project. Dr K Sammireddy, Director, ICAR-CRIDA explained the usage of Soil Health Cards and its interpretation for effective nutrient management in the field crops for sustainable crop yields.

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### VPKAS, Almora

Almora, 5 December, 2017. World Soil Day was celebrated at ICAR-Vivekananda Parvatiya Krishi



Anusandhan Sansthan Experimental farm Hawalbagh, Almora Uttarakhand. The Chief Guest Mr Raghunath Singh Chauhan, Member of legislative Assembly of Almora appreciated the ongoing research programme and development activities of the institute and said that farmer's must have socio-economic prospect for development of state and achieve the target of doubling of farmer income by year 2022. He congratulated farming activity of Jur-Kafun's farmers especially women workers involved in agriculture. He emphasized that soil testing is necessary to for better soil health management and soil fertility. Hilly agriculture depends on rainfall only therefore he advised farmers to adopt Pradhan Mantri Fasal Bima Yojana.

Acting Director of ICAR-VPKAS Dr J K Bisht delivered a lecture on soil health management and importance of soil health card. He suggested soil testing is important for efficient utilization of nutrients said that soil health card scheme was launched February of 2015 and till date approx health card was distributed to Indian farmer. A short film was shown and soil health cards were distributed.

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## CIAE, Bhopal

Bhopal, 5 December, 2017. ICAR-Central Institute of Agricultural Engineering, Bhopal celebrated "World Soil Day" farmers from different villages of Bhopal district.

Dr Nachiket Kotwaliwale, Incharge Director, ICAR-CIAE, in his welcome address talked about adopting improved agricultural equipment for crop production, processing and value addition, so as to reduce cost of cultivation, get higher output, minimize the losses and increase the income without compromising on soil health.



Shri M S Devke, DDA and PD, ATMA, Bhopal appealed to the farmers to get their soil tested and obtain soil health card, and urged farmers to get their soils tested on regular interval. Soil Health Cards were distributed to around 100 beneficiary farmers by the Chief Guest.

Dr A K Patra, Director, ICAR-IISS, Bhopal said that scientific methods of farming would help maintain bio-diversity, mitigate problems due to climate change, maintain public health and food security.

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## International Linkages

### Opportunity for Africans Nationals to study in Indian Agricultural Universities

To support the Agricultural human resource development in Africa through formal education of African scientists/faculty and students, India with its wide experience, infrastructure and competitive technical man power in Agricultural and allied sciences, implemented India- Africa Fellowship Programme under India Africa Forum Summit I. Under the programme 75 fellowships (50 Master's and 25 Ph.D. programme) were offered each year for a period of four years (2010-14) to the nationals of African continent to pursue Master's and Ph.D. programmes in varied disciplines of Agriculture at Indian Agricultural Universities (AUs). The programme

is a joint engagement of African Union and Government of India through Mwalimu Nyerere African Union Scholarship Scheme (MNAUSS).

**Mode of Implementation:** The modus operandi and other terms subjecting to nomination may be tracked via syntax: <http://www.advance-africa.com/Mwalimu-Nyerere-African-Union-Scholarship.html>

In India, applications are received by Ministry of External Affairs (East & South Africa division), and forwarded to Directorate of Agriculture Research in Education (DARE). Where the Preliminary Screening of applications are held at ICAR. Agricultural Education division is primarily responsible for admission process in following ways:

- Screening Committee/Experts recommends/ approve the subject of study and assign host University, based on the eligibility criterion/ availability of discipline in respective University.

- As each State Agriculture University has their own criterion to select candidates for higher education. Therefore, provisional selection of a candidate is finally at discretion of Host University.
- Enrolled candidates are provided monthly fellowship throughout the tenure of the programme and the air tickets on arrival and departure. All foreign students are provided accommodation in the host-university campus. Under rare circumstances, candidates may avail the extension of fellowships.
- To facilitate foreign nationals, Institute Economic/Bench fee is provided annually to host University, on account of each enrolment.

**Participation of African Countries:** Since the inception year (2010-11), a total of 195 candidates from 27 countries have been enrolled. Ethiopia (33), Nigeria (35), Sudan (21) and Malawi (20) countries are having maximum number of beneficiaries under programme. Nigerian, Ethiopian and Sudanese have maximum enrolments for doctoral (Ph.D.) programmes. Two candidates of Cameroon and each from Ethiopia, Tanzania, Liberia, Kenya, Mozambique, Malawi, Uganda, Nigeria and Cameroon extended their programme maximum up to six months. Four candidates from Ethiopia and one from Malawi and Somalia have left in mid without completing the programme due to ill health and domestic reasons.

**Participation of Host Universities:** Thirty six (36) State Agriculture Universities have contributed to enrol African candidates under IAFS. Indian Agriculture Research Institute, New Delhi TNAU Coimbatore and PAU Ludhiana has enrolled maximum number of African candidates (Table IV).

**Major disciplines pursued by African candidates under IAFS:** Agriculture Economics remained the main area of study pursued by African. Agronomy and Animal Science fields comes next to Economics. It is assumed that Agricultural Economic Association of

South Africa (AEASA) could be a major area in interest of Africans. As the association is supporting significantly to agricultural economists with the aim of declining BPL ratio in communities of South Africa.

**Gender-wise plot:** A total of 119 males and 76 females have been the beneficiary of the programme. Tanzanian females are higher in number enrolled for Master's programme than the males of their native country.

Suggestive points: Nationals IAFS I has been the point of attraction for other ASEAN/SAARC countries. African are academically sound and carry good physical and mental strength. Only six candidates have left in mid of programme. However few discrepancies were realized during evaluation process at ICAR. Following suggestive points, may aid smooth functioning of the programme.

- Fellow's applications need pre-assessment from their concerned High Commissions/Embassies. Incomplete applications, essential document other than English language should be checked prior to submission.
- English is considered as global language, hence the candidates who are not well versed to English need not to apply as medium of instruction in Indian AUs is English. Reading and writing skills of the candidates suggestively be verified by HC/Embassies.
- Postage of applications must adhere to University schedule. Fellows need to look into respective website of host University.
- Candidates need to undergo thorough health check-up under endorsement of Indian Mission /African Union, so that on admission he/she may complete his programme without leaving in mid due to weak health or nostalgic reasons.

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## Trainings

- Udhagamandalam, 9 November, 2017. Indian Institute of Soil and Water Conservation, Research Centre, Udhagamandalam organized a 21 days Winter School on "Advanced Technologies in Natural Resource Management to Mitigate Climate Change Impacts" from 9 November to 29 November, 2017 sponsored by Indian Council of Agricultural Research (ICAR), Ministry of Agriculture and Farmers Welfare, Government of India.

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- Bhopal, 24 October, 2017. An International Training of African-Asian Rural Development Organization (AARDO) was conducted from 24 October to 6 November on "Agricultural Engineering Technologies for Enhancing Productivity and Profitability in Agriculture Sector" at ICAR-Central Institute of Agricultural Engineering, Bhopal. Dr K K Singh,

Director, ICAR-CIAE, Bhopal, in his inaugural address briefed about the technologies developed ICAR-CIAE deemed suitable for small farm mechanization in AARDO member countries.

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- Jodhpur, 9 November, 2017. One-day sensitization training programme on Personal Finance Management System (PFMS) for KVKs/SAUs and NGOs of Rajasthan and Haryana was organised at ICAR-Agricultural Technology Application Research Institute, Jodhpur. Dr S K Singh, Director, ICAR-Agricultural Technology Application Research Institute, Jodhpur in his inaugural address briefed on emphasis and methodology of KVKs in the changing scenario of development in general and agriculture in particular. Dr Singh emphasized on importance of PFMS at present scenario and briefed the development of KVKs since inception.

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- New Delhi, 1 November, 2017. A 21 days ICAR Winter School on “Omic technologies and modern breeding approaches for conservation and productivity enhancement of indigenous cattle resources” from 1 November to 21 November, 2017 was inaugurated at Central Institute for Research on Cattle, Meerut by Dr S K Singh, Project Director, ICAR-DKMA, New Delhi. The emphasis was on various biotechnological and bioinformatic tools relevant to livestock genome analysis. Dr B Prakash, Director, ICAR-Central Institute for Research on Cattle called for the importance of phenomics in the omic era. Dr S K Singh in his inaugural address described the importance of animal recording system in the genetic improvement of livestock.

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- Lucknow, 6 November, 2017. A Human Resource Development Week on “Skill and Competency Enhancement” was organized at ICAR- National Bureau of Fish Genetic Resources, Lucknow from 6 to 10 November, 2017. The programme emphasised on enhancing the skills and competency through need based lectures and hands-on exercises for all categories of staff members. A 3 day special training capsule was also designed and conducted for the Skilled Support Staff of the Bureau.

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- Bhopal, 15 December, 2017. A Model Training Course (MTC) on “Women Friendly Technologies for Agriculture Production and Processing Operations” was inaugurated at Central Institute of Agricultural Engineering, Bhopal. The Course was sponsored by Department of Agriculture and Co-operation & Farmers Welfare, Ministry of Agriculture, Government of India. Dr K K Singh, Director, ICAR-CIAE, Bhopal inaugurated the course and urged the participants to propagate the CIAE developed women friendly machines and technologies in their respective States.

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- Dehradun, 10 December, 2017. Six days training program on Watershed Management and Ravine Reclamation organized by ICAR-Indian Institute of Soil and Water Conservation, Dehradun and sponsored by the Uttar Pradesh Bhoomi Sudhar Nigam, Lucknow concluded on 16 December, 2017. Ten participants from different districts of Uttar Pradesh participated in the training programme. The course was structured to cover watershed concept and the basic techniques related to ravine reclamation through various engineering, agronomic, forestry, agro-forestry and horticulture measures. Success stories of the Institute related to Participatory water resource management, mine spoil rehabilitation and development of degraded land were also visited by the trainees.

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Visit

## NITI Aayog Member Visits CMFRI



Kochi, 17 November, 2017. Professor Ramesh Chand, a full-time member of the NITI Aayog and noted agriculture economist visited the CMFRI in Kochi. He suggested

taking proactive measures to sustainably enhance marine fisheries harvests through scientific interventions. Marine fisheries exports sector should give due importance to develop internationally acclaimed brands through high quality value addition, certification and promotional activities so that India could fully exploit the potentials of niche markets in developed countries, he said. Urging ICAR-CMFRI scientists to focus more on different ways to increase the fish productivity, Professor Ramesh Chand opined that higher production and technology integration is required to boost domestic and overseas trade of fish and other value added products. He said that implementing Minimum Support Price (MSP) for fish does not seem to be a practical step. Instead, implementation of some types of price support through Price Stabilization Fund and formation of Fish Producers Organizations will offer solutions.

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## Personnel

### Superannuation

Name, Designation and Address	Superannuation
Dr Jagmohan Kataria, Director ICAR-CARI, Izzatnagar	31 October 2017
Dr Mrs Jatinder Kishtwaria Director, ICAR-CIWA, Bhubaneshwar	30 November 2017 Relieving
Dr SM Deb, Director ICAR-NRC on Yak, Dirang	05 December 2017 Relieving
Dr AK Singh, Director ICAR-DCFR, Bhimtal	31 December 2017 Relieving
Dr DK Sharma, Director ICAR-NRC on Pig, Guwahati	31 December 2017 Relieving
Dr RK Pal, Director ICAR-NRC on Pomegranate, Solapur	31 December 2017

### Editorial Board

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