ICAR

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

Reporter

www.icar.org.in

APRIL – JUNE 2013

News in Brief

From the DG's Desk

Dear Readers,

For more than a decade, Indian agriculture is encountering frequent occurrence of climatic extremes in form of droughts, floods, cyclones, sea-level rise, cold-and heat-stress. At any given time, one or the other region in the country experiences some form of climatic stress that results in considerable loss of agricultural production. Most climate models indicate that such trends will get further magnified in future which could result in greater instability in food production and threaten the livelihood security of farmers. Crop simulation studies indicate that future impacts on crops vary depending on the season and the geographical location with crops like wheat, rice and maize projected to record decreased yields due to rise in temperature while legumes like soybean, groundnut and chick pea are likely to gain due to increased CO_2 and rainfall.

For a developing country like India with a large farm-economy, the challenge lies in ensuring enough food for our population by adapting our agriculture to climate variability while contributing to global mitigation efforts. In this endeavour, deployment of new technologies and policy reforms play equal role. Mitigation can have a direct effect on climate change *per se*; adaptation can combat the severity of the impacts. Judicious natural resource management in vulnerable areas such as coastal zones, drought and flood prone, and hilly regions would be the first step towards promoting climate resilient agriculture. Efficient use of adapted germplasm and resource conservation based technologies with focus on water conservation and increasing crop water use efficiency are the essential pillars of climate resilient agriculture in the country. Moreover, improved weather forecasting and better communications can assist in contingency planning. Education, training and efficient rural extension services can help in adaptation at the community level.

Considering the potential impacts of climate change; current state of natural resources and the demand for producing more in difficult environments, it is important to develop appropriate

adaptation strategies. These strategies should be climate smart which as per FAO definition of climate smart agriculture (CSA) 'sustainably increases productivity, resilience (adaptation), reduces/ removes greenhouse gases (mitigation), and enhances achievement of national food security and development goals'. Even if the magnitude of climate change remains lower than as projected today we need to adapt because of continuous exposure to large climatic variability. Significant green house gas (GHG) emission reductions, of the order of 10 to 25%, are possible through changing water management regimes in rice production. Conservation agricultural practices have been shown to be of large significance in increasing the productivity of land, restricting land-degradation, and promoting carbon (C) sequestration. Laser land leveling is another option that improves water and nutrient use efficiencies in irrigated areas.

Crop simulation studies indicate that future impacts on crops vary depending on the season and the geographical location with crops like wheat, rice and maize projected to record decreased yields due to rise in temperature while legumes like soybean, groundnut and chick pea are likely to gain due to increased CO_2 and rainfall.

With intensification of agriculture, groundwater extraction has witnessed an increase even in the surface water irrigated regions. Management of climate change also requires the creation of additional water storage. Hence, there is a need for breakthrough in the construction design and technology of water-storage structures to store the heavy monsoon runoff. The use of efficient water utilization methods such as micro-irrigation coupled with groundwater use may lead to reduction in depletion of groundwater. Conjunctive management of surface and groundwater offers opportunities to improve water productivity and to save energy. Such resource conserving technologies in a rice-wheat system also have pronounced effects on mitigation of GHG emission and adaptation to climate change.

Further, an increase of 5 to 10% in fertilizer use can lead to considerable reduction in cost of cultivation and higher yields, as also mitigation of nitrous oxide emissions. Improving the efficiency of energy use in agriculture by using better designs of machinery, increasing fuel efficiency in agricultural machinery, use of wind and solar power, and use of laser levelers also leads to mitigation. Improved management of livestock diet through use of feed additives, substitution of low digestibility feeds with high digestibility ones, concentrate feeding, and changing microflora of rumen also leads to a reduction in methane (CH_4) emission.

The ICAR has launched a programme, 'National Initiative on Climate Resilient Agriculture (NICRA)' in 2011. Some salient achievements of the initiative include, computing vulnerability index for 572 districts and preparation of *Vulnerability Atlas of India for Agriculture*; Automatic Weather Stations were installed at 100 Krishi Vigyan Kendras across the country to generate crop yield and climate data from experimental farms on long-term basis; evaluation of major crops like wheat, rice, maize, pigeon pea, mango and tomato for tolerance to abiotic stresses (drought, heat, flooding, salinity) and work on genetic enhancement for stress tolerance/resistance, in a multi-institutional and multi-disciplinary network mode.

The Indian agriculture is moving forward towards climate change adaptation to increase food production and sustainable development through proper management of natural resources like water, energy and biodiversity by applying modern scientific tools and capitalize the indigenous knowledge of the farmers. Some of the recent initiatives have started to yielding results.

(S.Ayyappan)
e mail: dg.icar@nic.in

WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, SYMPOSIA

IVth Annual Workshop of AINRP on Onion and Garlic

Kalyani, 19 April 2013. Dr N.K. Krishna Kumar (Deputy Director General, Horticulture) inaugurated a 2-day IVth Annual Workshop of All India Network Research Project on Onion and Garlic (AINRP on O&G), organized by the Directorate of Onion and Garlic Research, Pune, at the Bidhan Chandra Krishi Viswavidayalya on 18 April 2013. He focused on socio-economic impacts of onion and garlic and the market trend across the states and regions for these two important vegetable and spice crops. There is need to increase productivity along with the quality parameters and development of varieties for specific characters like high medicinal value, processing quality, storability, table and *salad* purpose for domestic consumption as well as export, said DDG (Hort.), ICAR.

Recommendations

Two recommendations one on weed control and the other on integrated nutrient management were also made during the workshop.

Weed management in onion

Application of oxyflurofen 23.5 % EC before planting + one hand weeding 40 to 60 days after transplanting (Directorate of Garlic Research, recommended practices) was found superior in terms marketable bulb yield, weed control efficiency (WCE) and B:C ratio at 12 networking centers. Adoption of this practice increased the WCE by 75 to 90% over control.

Integrated nutrient management for rabi *onion*

Combined application of 110:40:60:40 kg N:P:K:S along with organic manures equivalent to 15 tonne farmyard manure and *Azospirillum* spp. and Phosphorus solubilizing bacteria @ 5 kg each/ha was found better with respect to marketable bulb yield and cost: benefit ratio over previous recommendation of Directorate of Garlic Research (150:50:80:50 kg N;P:K:S + 20 tonne farmyard manure/ha) and local recommendations of networking centers. Besides, the yield and cost: benefit ratio, soil available nutrient status after harvest was also increased over the initial values. By adopting this recommendation, the use of costly inorganic fertilizers can be reduced by 25%.

e mail : director@dogr.res.in

Agri-Summit 2013

Patna, 8 April 2013. The Agri-Summit 2013 was inaugurated by the Agriculture Minister, Government of Bihar, Shri Narendra Singh at ICAR Research Complex for Eastern Region, Patna. The Minister discussed the agri-road map prepared by the Bihar Government for achieving the targeted growth in all the sectors of agriculture between 2012 and 2022.

Dr R.S. Paroda (Chairman, *Haryana Kisan Ayog*) said that hybrid maize, micro-irrigation and protected cultivation will play an important role in bringing Second Green Revolution in the eastern region states.

Dr B. P. Bhatt (Director, ICAR Research Complex for Eastern Region, Patna) said that at present the population of the eastern region states is around 407 million and production of foodgrains is around 65 million tonnes. After four decades the population will go to 550 million and the foodgrains requirement will be 98 million tonnes. Therefore, there is an urgent need to take necessary measures for bringing the Second Green Revolution from these states of the country.

e mail : drbpbhatt.icar@yahoo.com

56th Annual Maize Workshop : Maize hybrids released, web site launched

Hyderabad, 8 April 2013. Dr S.K. Datta (Deputy Director General, Crop Science) inaugurated a 3-day 56th Annual Maize Workshop, jointly organized by the Directorate of Maize Research and Acharya N G Ranga Agricultural University at ANGRAU, Hyderabad on 6 April 2013.He mentioned that it is not unrealistic to think of achieving 50 million tonnes of maize grain production in next decade, given the increased trends of demand of maize in international market for food, feed and ethanol production. Dr A. Padma Raju (Vice-Chancellor, ANGRAU) extolled the scientists efforts in touching new heights of maize productivity from 3 tonnes/ha to 8 tonnes/ha in some areas of Andhra Pradesh during the *rabi*. The variety identification committee, which met during the workshop, identified maize hybrids CMH 08-350, CMH 08-292, CMH -08-433, CMH 08-287, MH QPM 09-08, HKH317, BH 41009, Bio 151, Bisco 2668, KDMH-176, NMH 1242, S6217, Yuvaraj Gold, VMH 4106, FH 3513, Bisco New704, Sun Vamman, 31Y45, X8F984, KDMH - 755, REH 2009-12, X35A019, Pro379, EHQ - 16 and NSCH - 12. The identified maize hybrids include specialty in corn and Quality Protein Maize (QPM).The hybrids that are very high in starch suitable specifically for starch industry.The new web site of the Directorate of Maize Research (http://www.dmr.res.in) was launched during the workshop. Dr O.P. Yadav (Project Director) quantified specific role of Single-Cross-Hybrid-Technology in further augmenting the rate of improvement in maize productivity. He highlighted that the increase of maize productivity during last 10 years was @ 73 kg/ha/year than productivity enhancement rate of 20 to 33 kg/ha/year between 1950 and 2000. This could be achieved due to greater adoption of hybrids and production technology.

e mail : hoodaks@gmail.com

Assessment of Impact of grazing by small ruminants on natural resources

Dehra Dun 16 May 2013. Dr P. K. Mishra (Director, CSWCR&TI) inaugurated a two-day National Workshop on 'Assessment of impact of grazing by small ruminants on natural resources and surrounding environment of pasture/rangelands located in different agro-climatic regions', organized by the Central Soil and Water Conservation Research and Training Institute on 15 May 2013. He emphasized that while satisfying increasing and changing demands for animal food products, and at the same time sustaining the natural resource base (soil, water, and plant biodiversity) and environment are major challenges being faced by world agriculture now-a-days. Livestock grazing can result in impacts on

commons, and with degradation of common grazing lands the animals are unable to meet their requirement from grazing alone, the situation worsen in event of drought which is a common phenomenon in this part of the world. Therefore, a well-managed grazing provides greater amounts of nutrients to the livestock with low environmental impacts.

The draft project proposal with objectives—Assessment of the productivity and plant diversity of grazing land, evaluation of grazing induced changes in soil properties, quantification of runoff and soil loss from grazing land, study of the grazing behaviour, preferences for plant biota and productivity of small ruminants under varying grazing pressure on grassland/ pasture and nutrient budgeting of grazing land under different grazing management options—was developed. On the successful completion the scientific and technical outcome of the project will be useful in developing strategies for developing well-managed rangelands and pastures. Such rangelands and pastures will be able to support small ruminants and generate higher income to livestock farmers on sustainable basis and at the same time maintain healthy watersheds, increased carbon sequestration and greater plant biodiversity.

e mail : director@cswrrtiddn.org

Interaction meet on ICT initiatives

Navsari, 8 May 2013. An inter-action meet on 'ICT initiatives in brackishwater aquaculture' was held to assess the information needs of aqua-farmers. It was jointly organized by Central Institute of Brackishwater Aquaculture and Navsari Agricultural University, Navsari. Leaflets containing information about the about the existing ICT—based dissemination systems, soil and water management aspects, applications of probiotics and major culture practices in finfishes were released in Gujarati and English, and distributed the same to the farmers.

Group discussion was conducted for assessing the information needs of tribal- and aqua-farmers, and officials in brackishwater aquaculture for disseminating the information through ICT, under four groups: shrimp culture farmers, fish culture farmers,

women farmers and Government officials. As a result the identified areas were: shrimp culture, fish culture, cage farming, women development programmes, government schemes for women and tribal community, aquaculture/fisheries databases and extension materials/programmes. Other highlights of the interaction meet included demonstration of e-learning module on 'Banana shrimp: a potential diversified species for culture in low temperature coastal areas', ICT-based extension services through Agropedia (http://agropedia.iitk.ac.in) and initiatives of 'Fishpedia—a dedicated knowledge model portal for fishing sector' implemented by ICRISAT and IIT Kanpur in partnership with ICAR and DAHDF, Ministry of Agriculture, Government of India.

e mail : director@ciba.res.in

43rd AGM of All-India Coordinated Sorghum Improvement Project

Hyderabad, 21 April 2013. Dr Swapan Kumar Datta (DDG, Crop Science) inaugurated the 43rd Annual Group Meeting (AGM) of All-India Coordinated Sorghum Improvement Project at the Directorate of Sorghum Research, Rajendranagar, Hyderabad. He said that sorghum (*Sorghum bicolor*) is now widely accepted as health food in urban areas and felt it would invariably find place in the food menu of coming generations. Dr A Padma Raju (Vice Chancellor, ANGRAU) advised on the marketability of sorghum and its food products while maintaining the conventional values. There were more than 200 participants.

Dr J.V. Patil (Director, Directorate of Sorghum Research) said that the national sorghum programme is well geared to meet the challenges and cater to the needs of sorghum farmers and sorghum-based industries.

e mail : dsrhyd.ap@nic.in

State level meeting held at CSWCRT&I

Dehra Dun, 13 May 2013. H E Governor of Uttarakhand, Dr Aziz Qureshi, Chaired first State Level joint meeting of the ICAR Regional Committee No. 1. It was jointly organized by Uttarakhand University of Horticulture and Forestry, Bharsar, and Central Soil and Water Conservation Research and Training Institute (CSWCRT&I), Dehra Dun.

Dr Qureshi stressed that along with academic research, we should also focus on need-based research for the farmers, espeialy marginal and small ones. Dr Alok Sikka, Deputy Director General (NRM), highlighted the dire need of collaboration among the various Research and Development organizations and State-Line Development Departments to reduce gap between research and farmers' problems through convergence of their resources and thoughts for efficient land use planning covering all the aspects leading to sustainability with higher productivity. Several researchable, developmental and policy issues were flagged out during the course of discussions.

e mail : pkmbellary@gmail.com

Brainstorming Session in agricultural extension

New Delhi, 26 April 2013. The Brainstorming Sessions were convened to improve research in agricultural extension by 8 ICAR institutes including 6 Zonal Project Directorates and 15 agricultural universities at different places at 23 locations in the country involving extension professionals of National Agricultural Research System engaged in research, teaching and extension with an objective to take

stock of research scenario in extension. The major areas of deliberation during the Brainstorming Sessions included research competency identification of research training needs and prioritization of thrust areas. The recommendations include need for initiating Network Research Projects like yield gap analyses and impact assessment of frontline extension programmes and other developmental schemes in agriculture.

Dr K.D. Kokate (Deputy Director General, Agricultural Extension) stated that the Brainstorming Sessions had offered a platform to the extension scientists for sharing their current concerns related to researches in extension education and also to think over important researchable issues and how their research competency can be improved.

e mail : kdkokate@rediffmail.com

International Linkages

IX Fund Council Meet of CGIAR

New Delhi, 26 April 2013. Dr S. Ayyappan (Secretary DARE and Director General, ICAR) inaugurated a 2-day IX Fund Council Meeting of the CGIAR (Consultative Group on International Agricultural Research) on 25 April 2013 at NASC Complex. This Meeting of the CGIAR was organized by the Department of Agricultural Research and Education, Ministry of Agriculture, Government of India. Prior to IX Fund Council Meeting a CGIAR Workshop on 'System Level Theory of Change' was held on 24 April at NASC Complex. During the IX Fund Council Meeting several issues were deliberated, amongst them Independent reviews of Window III of CGIAR Fund Proposal for a performance Scheme to Promote Gender Integration into CGIAR Research, were also included.

Request for CGIAR Fund Commitment to System-wide capacity strengthening activities, Proposal on Window I/Window II Share of CRP 3.7 budget figured prominently. There was also an Interactive Forum on 'Partnering for Impact with CGIAR researchers and their collaborators'. This new approach brings together strengths around the world and spurs new thinking about agricultural research for development, including innovative ways to pursue scientific work and the funding it requires. The CGIAR is bringing donors together for better results and enabling scientists to focus more on the research through which they develop and deliver big ideas for big impact. Fund Council meetings are held to discuss the strategies to be worked on to bring on their new challenges.

e mail : icarreporter@rediffmail.com

Thornless cacti can be developed as feeder nursery of camel

Bikaner, 10 April 2013.Dr Ashutosh Sarkar (Co-ordinator, South Asia and China Regional Programme, ICARDA) observed thornless cacti (*Opuntia ficus indica*) fields at the National Research Centre on Camel, Bikaner. He discussed with the scientists of NRC on Camel, Bikaner; Central Arid Zone Research Institute, Jodhpur; Central Sheep and Wool Research Institute, Avikanagar; and Central Institute of Arid Horticulture, Bikaner about project to undertake work in consortia mode to improve rangelands in the extreme arid villages and develop the model of plant-livestock integrated system to improve productivity of both components and thereby support the livelihood of farmers in arid region. Dr Sarkar informed that the various fodder type and edible cacti accessions are being imported from Syria, Tunisia, Brazil, Egypt by the ICARDA and can be utilized for developing feeder nursery of cacti at NRC on Camel, and the villages of hyper-arid region of Bikaner may be suitable area to be considered for cacti cultivation. Expertise of various ICAR institutes having expertise of the cacti breeding, cultivation and tissue culture can be utilized. Proposal on integrated farming system project can be developed on the lines, as proposed by Dr N.V. Patil (Director, NRC on Camel), for which ICARDA is eager to collaborate. It was also proposed to prepare a concept note for ICARDA through ICAR defining role

of each institute and area where such project will be implemented.

e mail : nvpatil61@gmail.com

African Stakeholders visit CSSRI

Karnal. 9 May 2013. A team of sixteen stakeholders from four African countries, namely Tanzania, Kenya, Ethopia and Zimbabwe visited Central Soil Salinity Research Institute (CSSRI). The visit was organized under the auspices of South-South collaboration stood by Australian Council of International Agricultural Research. Dr D.K. Sharma (Director, CSSRI) informed that 1.85 m ha land has been reclaimed by this institute and 12 to 15 million tonnes of additional foodgrains are being produced from this land. He apprised the stakeholders that direct-seeded rice saves about 20% water than transplanting of rice. Dr Sharma apprised the stakeholders about natural resources in view of climate change pattern; development of salt tolerant high-yielding varieties of rice, wheat and mustard. Dr S.K. Kamra (Head, Division of Irrigation and Drainage Engineering) explained the visitors about the technologies on sub-

surface drainage for reclamation of waterlogged saline soils and artificial groundwater recharge techniques for arresting groundwater decline/dilution of poor quality groundwater. He informed the African team that 50, 000 ha saline land has been reclaimed through sub-surface technology developed by the institute.The African stakeholders appreciated the technologies and hoped for collaboration with the research institutes and mechanization industries in India.

e mail : dksharma@cssri.ernet.in

Success Story

Floricure: Herbal formulation to ameliorate fluoride toxicity

Singrur. The ICAR has developed a drug Floricure under Outreach Programme on Ethno-veterinary Medicine. The results of field-testing of the drug formulation (Fluoricure) have documented the ameliorative potential of this formulation in fluorotic cattle and buffalo reared in high-risk environment of repeated F exposure without any side effect. In India people suffer from fluorosis due to natural and industrial sources. Clinically, fluoride toxicity is manifested mainly by overt bony and dental lesions. The predominant site of fluoride accumulation is bone and teeth. However, soft tissues like liver, kidney, heart and lung also accumulate fluoride in the body (WHO,2002). Therefore, vital organs like liver and kidney are also susceptible to its toxic effects and pathological changes occur even before the development of overt clinical signs of fluoride toxicity and toxic effects of F can occur at exposure far lower than those producing clinical symptoms. Amelioration of toxic effects of fluoride in man and animal remained unresolved and controversial till date due to lack of safe-effective ameliorative agents that can remove F from the body and can ameliorate toxic effects as well. Chemical compounds such as aluminum sulphate, ascorbic acid and boron have been reported effective in experimental fluoride exposure with variable success. These agents are generally not indicated for prolong use due to their toxic side effects, which underlines need for evaluating a nontoxic-safe agent that can reduce F burden in body and ameliorate toxic effects of F (WHO, 2002). Conventionally ethno-veterinary practitioners consider tamarind (*Tamarindus indica*) fruit as an excellent natural product that has immense therapeutic potential in many pathological conditions. In this endeavor the laboratory of comparative system of medicine tried to develop an herbal amelioration for fluorosis.

Development of a formulation for ameliorating toxic effects of Fluoride

Being encouraged by the beneficial results of the medicinal herbs, ICAR tried to develop some herbal formulation in ameliorating fluorosis. Among eight different formulations, Fluoricure (Coded under act of secrecy for Intellectual Property Rights) gave excellent results in *in vivo* experimental rat model without any side effects. The formulation is therefore chosen for testing of its efficacy under field condition. During last 3 years, ICAR has studied exhaustively two medicinal plants: *Tamarindus indica* fruit pulp and *Moringa oleifera* pods and scientifically validated their *in vivo* efficacy and safety in experimental condition. Being encouraged by the beneficial results, ICAR tried to develop some herbal formulation in ameliorating fluorosis. The study site

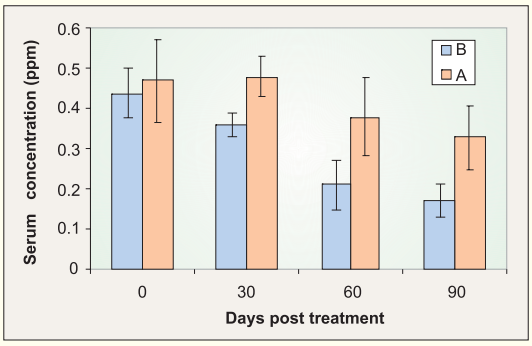

Fig. 1. Effect of test drug on serum Floride concentration (ppm) in cattle and buffalo

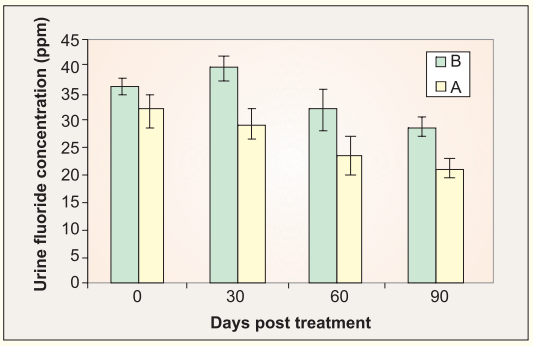

Fig. 2. Effect of test drug on urine Floride concentration (ppm) in cattle and buffalo

Fig. 3. Before treatment

Fig. 4. After treatment

was located at Singpur area of Rajasthan 30 km south-west of Chitorgargh. A through cross sectional study was performed to ascertain clinical cases of fluorosis. Both biotic and abiotic samples were collected from 2 km radius of the phosphate fertilizer plant (source of F pollution). Sixteen cattle and buffaloes having visible clinical lesions and elevated fluoride levels in blood (e"0.40ppm) and urine ((e"6.0 ppm) were selected for this study. The animals were divided into two unequal groups (A and B) comprising 6 and 36 animals respectively (Table 1).

Table 1. Treatment schedule given to Fluorotic cattle and buffalo

Group	Number of Animals	Observation period (days)	Treatment
A	6	90	Nil
B	36	90	Drug formulation @ 200 mg/kg/day orally

The animals of Group A served as untreated control while cattle and buffaloes of group B were given the test Drug formulation Fluoricure @ of 200 mg/kg/ day orally for 90 days. The efficacy of the test drug was assessed based on F concentration in blood and urine as well as improvement in quality of life of treated animals.The concentration of F in serum and urine of different groups is presented in Figs 1 and 2. On day 0 the fluoride concentration in serum and urine of animals of Gr A (control) was estimated as 0.47 ± 0.10 and 31.95 ± 3.04 ppm respectively and in animals of Gr B (Treated) 0.44 ± 0.06 and 36 .36 ± 1.48 ppm respectively. Cattle and buffalo received test drug formulation (Gr B), showed significantly (pd"0.01) lower serum F concentration from day 30 onwards and lowest values recorded on day 90 (0.17 ± 0.04 ppm) almost the values recorded in healthy cattle and buffalo. Results were analysed statistically and expressed in ppm.

The detail clinical examination of the cattle and buffaloes showed an overall improvement of general health, performance (milk production and work efficiency) and welfare (pain, and agony) of animals received the drug formulation.

Animal owners reported improvement of work efficiency and reduction of fatigue and symptoms of pain in cattle and buffalo receiving the drug formulation. A comparatine study of treatment is shown in Figs 3 and 4.

e mail: jmisri.icar@gmail.com

MoUs

- A Memorandum of Understanding was signed between Indian Council of Agricultural Research, New Delhi, India and Purdue University, West Lafayette, Indiana, USA through exchange of letters, between the two sides on 1 May 2013.

- Dr K. D. Kokate (Deputy Director General, Agriculture Extension) and Dr Tej Partap (Vice Chancellor, Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar) signed a Memorandum of Understanding on 29 May 2013 for establishment of Krishi Vigyan Kendras at Nyoma, Leh and Budgam districts in Jammu and Kashmir at Srinagar. Newly established Krishi Vigyan Kendra located at Nyoma in Leh, is highest altitude (13, 900 feet above sea level) in the country. The Budgam is the central district in Jammu and Kashmir covering 1% area of whole state and 6 % of the total population of the State.

e mail: icarreporter@rediffmail.com

'Flexi Check Dam' for watershed application

Mumbai, 30 May 2013. The Zonal Technology Management and Business Planning and Development (ZTM-BPD) Unit organized a one-day pre-commercialization workshop on 'Flexi Check Dam', popularly known as rubber dam, made of textile-rubber composite for watershed application at Central Institute for Research on Cotton Technology.

The workshop aimed at sensitizing the textile and allied manufacturing industry about the technology for manufacturing the textile-rubber composite and its conversion into a suitable water-proof and wrinkle free check dam as per the required dimension for watershed application. The Technology is developed under the National Agricultural Innovation Project (NAIP)-Component-IV project, 'Design and Development of Rubber Dams for Watersheds'. It was also intended to sensitize the potential clients about the technology commercialization protocol followed in the ICAR system.

Several informative topics like use of 'Flexi Check Dam' for agricultural purposes, requirements for making rubber textile composites used for the flexi check dam, importance of check dam for enhancing agricultural productivity etc. were covered in the technical session.

e mail: drskchattopadhyay@gmail.com

Watermelon cultivation at Brahmani river bank improved livelihood of farmers

Dhenkanal. The watermelon (*Citrullus, lanatus*) cultivation in the Brahmani river bank dates back to 2004-05 in the vicinity of Dhenkanal Sadar cluster of Dhenkanal district of Odisha. Only four farmers were cultivating watermelon in an area of 1.6 ha with a very low productivity of 8.75 tonne/ha. They used low-yielding and low quality varieties.

During 2011-12, under NAIP component 3 sub- project 'Sustainable Rural Livelihood and Food Security to Rainfed Farmers of Odisha', the OUAT, Bhubaneshwar and the consortium partners attempted to improve livelihood of watermelon growing farmers through cultivation of good quality, high-yielding varieties like BSS BejoSeetal, Sugar Baby, Madhubala, Karan, Agasta and Poonam with improved management practices. Training on cultivation practices and critical input support were provided for cultivation of the crop in an area of 14.8 ha involving 40 households. The productivity of the crop was enhanced to 25 tonne/ha. During 2011-12, the farmer realized total production of 370 tonne from an area of 14.8 ha and net income ₹ 65,000/ha. During 2012-13, more farmers came forward for watermelon cultivation. They removed *kans* grass (*Saccharum spontaneum*) from land and brought more area under cultivation. Each farmer has taken up watermelon crop in an area of 0.8 ha. The farmers were organized into groups for better management of crop production, watching and marketing. The project provided critical inputs to 72 households for an area of 28.8 ha (0.4 ha each) and each household cultivated the crop in additional area of 0.4 ha each. Besides, 78 new households adopted river bank watermelon cultivation in an area of 0.8 ha each. The area under watermelon cultivation has increased from 14.8 ha in 2011-12 to 120 ha during 2012-13 showing an unprecedented increase of 711%. The farmers realized net return of ₹ 27,27,000/@ ₹ 9,5000/ ha. Out of the total production from area supported by the sub-project, fruits amounting to 765 tonne valued at ₹ 44,55,000/- was sent to cities of Odisha, neighbouring states (Table 1).

Table 1. Quantity and values of watermelon marketed during 2012-13 in neighbouring states and Odisha

City	Produce (tonne)	Value (₹)
Neighbouring states of Odisha		
Kolkata (West Bengal)	290	16,81,000
Shillong (Meghalaya)	67	3,77,400
Silcher (Asom)	80	4,43,000
Vijayawada (Andhra Pradesh)	55	3,14,500
Deoghar (Bihar)	48	2,78,400
Sub total (A)	**540**	**30,94,300**
Odisha		
Angul	40	2,38,500
Bhubaneshwar	76	4,67,800
Bhadrak	5	29,000
Cuttack	31	1,84,200
Dhenkanal	10	60,600
Khurda	21	1,26,200
Kendrapada	28	1,70,400
Patamudai	14	84,000
Sub total (B)	**225**	**13,60,700**
Grand total (A+B)	**765**	**44,55,000**

Besides, domestic consumption of about 9 tonnes. Linkage was established with private firm for marketing of the produce in the distant markets. Watermelon cultivation in the area has become a source of livelihood not only for farmers, but also wage earning for women from surrounding villages.

e mail : bdbehera1@gmail.com

Review-cum-Action Planning Workshop of KVK

Zone I

Bhatinda, 9 May 2013.Dr A.M. Narula (Zonal Project Director) chaired a Review-cum-Action Planning Workshop of Krishi Vigyan Kendras (KVKs) of Zone I, organized by the Zonal Project Directorate, Zone I, Ludhiana, under National Initiative on Climate Resilient Agriculture (NICRA) to review the physical and financial progress of Technology Demonstration Component of the Project during 2012-13 and to formulate Annual Action Plan (2013-14) at KVK, Bhathinda. Dr Narula informed the house about permission of Competent Authority for recruiting B.Sc. (Agriculture) graduate as Project Fellow in the NICRA Project and advised the Director of Extension Education and Project Co-ordinators to recruit agriculture graduates as project fellows in non-availability of postgraduates from agriculture and allied disciplines for the position of Senior Research Fellows. He emphasized that the interventions under this project must commensurate with some climatic challenges as basic goal of the project is to reduce the loss of production in agriculture and allied sectors from climatic vulnerability like drought, frost, flood, temperature etc.

The major suggestions included demonstrations on mulching with crop residues, multiple usages of water and round-the-year fodder production by all Krishi Vigyan Kendras; and demonstrations on ridge furrow method of planting, skip-furrow irrigation and drip irrigation in cotton by Krishi Vigyan Kendras in cotton growing districts, namely Bathinda, Faridkot and Sirsa.

e mail : zcu1ldh@gmailcom

Zone II

Samastipur, 22 April 2013. Dr R. K. Mittal (Vice Chancellor, Rajendra Agricultural University, Pusa) inaugurated a 3-day Zonal Workshop of Zonal Project Directorate, Zone-II on 20 April 2013 at Rajendra Agricultural University, Pusa. The zonal workshop was aimed for reviewing the progress of Krishi Vigyan Kendras during 2012-13, and for preparing the Action Plan for 2013-14.

Dr Mittal emphasized that Krishi Vigyan Kendras should develop technology modules suited to district-specific agro-ecological situation.

Dr A.K. Singh (Zonal Project Director, Zone-II, Kolkata) informed about the enhanced budgetary outlay during current Plan Period and emphasized that the infrastructural facilities at Krishi Vigyan Kendra level should be further strengthened, and urged all the Krishi Vigyan Kendras for proper documentation of their activities.

e mail : ajoyasingh@gmail.com

Farmers earn more through KVK intervention

Dhar, 20 April 2013. Dr K.D. Kokate (DDG, Agricultural Extension) visited demonstration fields of watermelon, muskmelon, onion and sponge-gourd crops, grown in guidance of Krishi Vigyan Kendra, under NAIP Component-III. He interacted with farmers and learnt that convergence with the horticulture department has enhanced their income almost 6-to10-fold. Dr Kokate advised farmers to

make Self-Help Groups for better market linkage and higher income of the produce. Looking to high aroma in local ginger and turmeric grown by the farmers, he advised farmers to improve livelihood security from hi-tech vegetable and spices cultivation. At KVK, the team, led by Dr Kokate, also interacted with the farmers, Women Self-Help Groups and Ex-trainees.

The DDG, (Agricultural Extension), Dr K.D. Kokate, inaugurated the Free KMA Service of NIC for 25,000 farmers and remarked that farmers should give emphasis on post-harvest processing and value addition and brand name for their products for increasing the profitability.

e mail : kvkdhar@rediffmail.com

KVK building inaugurated at IISR

Lucknow, 28 May 2013. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated Krishi Vigyan Kendra (KVK) building in the premise of Indian Institute of Sugarcane Research (IISR). He also visited exhibition stalls, organized by Krishi Vigyan Kendras and focused the efforts of IISR in extending technology to the farmers. On this occasion Dr Ayyappan also coined the slogan *'Sukhi Kisan, Bharat Mahan'* and appealed for working hard for realization of this slogan in true sense.

Dr Ayyappan also inaugurated research and development prototype of three new sugarcane machines, namely Sugarcane trench planter, Plant residue shredder, and Stubble shaver-cum-fertilizer applicator, developed by the Institute. The DG, ICAR visited *Ikshu* Hub and congratulated IISR for making available a cool drink in the form of fresh cane juice to the public. At this Hub the Institute is making available juice, chemical free jaggery, vinegar, syrup, jaggery granules and other value-added products of sugarcane juice for general public.

e mail : directoriisrlko@gmail.com

Administrative Building of KVK, Bageshwar inaugurated

Bageshwar 1 June 2013. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurated the Administrative Building at KVK, Kafligair, district Bageshwar. Dr Ayyappan visited demonstration unit, mushroom unit, polyhouse, post-harvest technological equipment, dairy unit and released fish in the pond for fish culture at the KVK. He also planted multipurpose tree saplings.

Dr Ayyappan urged the farmers for adopting recent technologies for integrated agriculture, such as protected cultivation, mushroom cultivation, off-season vegetable cultivation, animal husbandry for sustainability and economic profitability of hill farmers. He assured the farmers that ICAR is ready

to give any type of scientific knowledge regarding agriculture through its KVKs and urged the farmers to come to KVKs with their problems. He appreciated the efforts of the farmers of Tribal Sub-Plan operating in the high altitude of Uttarakhand hills particularly the Munsiari and Dharchula clusters of Pithoragarh district. He also appreciated the available infrastructural facilities and working in unfavourable geographical conditions. Dr Ayyappan released *Krishi Darpan-Bageshwar* and leaflets covering different aspects of hill agriculture at KVK, Kafligair.

Dr K.D. Kokate (Deputy Director General, Agricultural Extension) emphasized that there is need to adopt high-tech agriculture technologies by the farmers. He added that farmers will soon be benefited by the SMS mobile agro-advisory in future.

e mail : mukeshk@icar.org.in

Value Addition of Fruits and Vegetables

Bathinda,11 June 2013. Eighteen trainees from different villages namely Rampura, Bagha, KotShamir, Deep Nagar, Harbans Nagar and Bathinda participated in vocational training course on 'Value addition of fruits and vegetables', held at KVK, Bathinda from 3 to 11 June 2013.During the course, trainees were made aware of value addition to seasonal fruits and vegetables through different principles of preservation, causes of spoilage of preserved food, prevention measures and care and dietary use of food products. Besides, trainees learnt by doing practically preparation of preserved farm-based products like *Karela,* and sweet and sour green chiily pickle, Pumpkin *chutney,* Tomato *puree* and *chuteny*, gingerale (Lemon and ginger squash), *panna* (Raw mango squash) mango squash and jam, Rose *sharbat*, Papaya *chuteny* etc. An exposure visit for the trainees has been organized for awareness about the preserved food items available in the market and the cost thereof so that they can compare the cost of preserved food items prepared by them at home with the market cost of the same products.

e mail: kvkbtd@gmail.com

Ex-trainee *Sammelan* on Pig Farming

Bhathinda, 6 June 2013. With the aim to discuss the problems faced by the pig farmers such as in marketing and the new inventions in the piggery and access the impact of the training course, held at Bathinda the Krishi Vigyan Kendra, Bathinda organized an ex-trainee *sammelan* on Pig-farming. Shri P. N. Garg (Consultant in RBI model scheme) was the chief guest. He informed pig farmers about the funding by the banks on Piggery and also provides training with regard to preparation of project reports. The trainees were motivated to from Self-Help Group and adopt subsidiary occupation for increasing profitability and efficient marketing. The production and protection technologies related to pig-farming was provided by resource officials and the new trainees interacted with the farmers already adopted the occupation.

e mail: kvkbtd@gmail.com

Celebrations

40th Foundation Day of CSWCR&TI

Dehra Dun, 2 April 2013. Dr R.C. Jain (Regional Director, Central Ground Water Board) inaugurated the 40th Foundation Day of the Central Soil and Water Conservation Research and Training Institute, and

proposed to initiate a project on 'Spring rejuvenation in the Himalayan Region' in collaboration with CSWCR&TI, Dehra Dun and Central Ground Water Board. The efforts of the CSWCR&TI in the field of development and dissemination of technologies for conservation of soil, water and other natural resources were observed. Dr P.K. Mishra, (Director, CSWCR&TI) focused on the importance and relevance of the event and also called for collaborative programmes between CSWCRT & I and Central Ground Water Board.

e mail : pkmbellary@gmail.com

56th Foundation Day of CIFT

Cochin, 29 April 2013. The Central Institute of Fisheries Technology (CIFT) celebrated its 56th Foundation Day as Agricultural Education Day. The Institute organized an 'Open House' in the forenoon during which it remained open for the public to get acquainted with the activities and achievements of the premier Institute. Shri Hibi Eden (an MLA, Ernakulam Constituency) emphasized on the need for a separate Ministry of Fisheries at the Central level. He also reiterated that the interests of the people in the fisheries sector should be taken care of when development in a city like Cochin is considered. The technologies developed by the CIFT have a great role in bringing out a sea change in the prosperity of fishermen as well as fish-based industrialists.

e mail : tksgopal@gmail.com

67th Foundation Day of CRRI

Cuttack, 23 April 2013. Dr Mangala Rai (Agriculture Advisor to the Chief Minister,Bihar) inaugurated 67th Foundation Day and *Dhan Diwas* at the Central Rice Research Institute and delivered a Foundation Day Lecture on 'Accelerating agricultural growth in India in the light of recent success in Bihar' and emphasized on robust policy intervention and incentives for the farm sector to vigorously promote inclusive agricultural development. Dr S.K. Datta (Deputy Director General, Crop Science) focused on the importance of rice crop in the socio-cultural, economic and food security context. Dr T. Mohapatra (Director, CRRI) highlighted the significant achievements of the Institute specially the recently released varieties and their suitability for different ecologies. He also elaborated on the thrust areas and vision particularly for attaining yield target of 14 to 15 tonne/ha in the forthcoming years. An exhibition showcasing technologies of the Central Rice Research Institute and other institutes was also inaugurated.

e mail : directorcrri@sify.com

International Labour Day celebrated

Fatehabad, 1 May 2013. The Krishi Vigyan Kendra (KVK) celebrated 'International Labour Day' by organizing method demonstrations on 'drudgery reduction of farm-women labours protective garments' in Majra and Bisla villages of the district.

Picking of vegetables, namely okra, brinjal, etc. cause itching, bleeding and blister in hands. Scientists of CCSHAU have collaboratively developed protective garments (protective gloves and picking bag) to avoid these problems. The orators emphasized use and benefits of these garments and urged the farm-women to wear these garments for increasing their efficiency. The District Extension Specialist (Home Science) of this KVK, demonstrated the use of these drudgery reducing tools and distributed protective gloves and picking bag to 20 farm-women. The District Extension Specialist elaborated that these protective gloves were scientifically designed to reduce itching, bleeding and blister in hands resulting in enhancing working efficiency.

e mail : goel_kvk@yahoo.co.in

World Veterinary Day 2013

Karnal, 27 April 2013. Dr K.S. Danni (Director General, Department of Animal Husbandry and Dairying, Government of Haryana) inaugurated the World Veterinary Day 2013 having theme on 'Vaccination to Prevent and Protect' at the National Dairy Research Institute (NDRI). Dr Dangi called upon the farmers to pay special attention to regular vaccination of animals for the double benefit of profitable animal production as well as safe human health. Dr Rameshwar Singh (Director, DKMA) said that several livestock improvement technologies are available at the NDRI and farmers must take full benefit of it.

Dr A. K. Srivastava (Director, NDRI) said that bird flu is manageable with proper vaccination plan and it is absolutely safe to consume poultry eggs and meat handled hygienically.

e mail : dir.ndri@gmail.com

World Veterinary Day at NIANP

Bengaluru, 27 April 2013. The National Institute of Animal Nutrition and Physiology celebrated World Veterinary Day and organized an animal health camp with the help of the staff of Veterinary hospital, Sanikere, Chitradurga district, Karnataka.

Over 100 farmers attended the camp. PPR vaccinations and deworming were carried out in small ruminants in the villages. Sheep and goat mineral mixture and medicines for control of ticks were distributed, and the general health check up was also done for the livestock. The field staff from GKVK, Bengaluru and Myrada, and NGO also participated.

e mail : cadaba_prasad@yahoo.co.in

Capacity Building

Sorghum Gene Bank and Conference Hall inaugurated

Hyderabad, 20 April, 2013. The Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, inaugurated the sorghum gene bank and conference hall at the Directorate of Sorghum Research. The gene bank is equipped with four medium-term storage modules with a capacity to conserve 40,000 germplasm accessions. He addressed the sorghum researchers and appreciated the efforts made for the development of new hybrids and varieties suitable for various agro-climatic zones. He

said that good yield levels were being maintained despite reduction in sorghum area. He further stressed that there is a need to integrate research efforts for the major millet crops viz. sorghum, pearl millet and small millets at one national institute, namely Indian Institute of Millets Research to have a research and development support. It should have a broad focus of developing technologies to solve production and processing constraints of millet farmers. Shri Pawar also visited the Centre of Excellence, State-of-the-Art Food Processing Technology Park, and an Exhibition of Sorghum Products organized by public and private sector research and food industries.

e mail : dsrhyd.ap@nic.in

Administrative Building of ZPD, Zone II inaugurated

Kolkata, 14 April 2013. Dr Mangala Rai (Agriculture Advisor to the Chief Minister of Bihar) inaugurated Administrative Building of Zonal Project Directorate, Zone-II, and emphasized upon the need for all-round support to the farming community for their development. Considering the Krishi Vigyan Kendras as the catalyst of change, Dr Rai urged upon the scientists of Krishi Vigyan Kendras to find out the root cause behind slow pace of technological advancement in this part of country and resort to appropriate measures in converting weaknesses into the strengths.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) expressed his satisfaction for completion of the administrative building within a stipulated time. Dr K.D. Kokate (Deputy Director General, Agricultural Extension) highlighted various steps taken up by the ICAR in strengthening Zonal Project Directorate, Directorates of Extension Education and Krishi Vigyan Kendras with the penultimate goal of improving the farming community.

Dr K.D. Kokate inaugurated Zonal Farm Innovators Meet at Zonal Project Directorate, Zone-II as a co-event. Ninety innovators from the zone-II comprising about 50 Krishi Vigyan Kendras participated in the meet and displayed 53 interventions in the field of crop production, water management, water lifting, vegetable cultivation, farm tools and implements, animal rearing, fish seed rearing and other areas. Dr Kokate suggested for creation of innovators fund at ICAR (Hq) for providing assistmence to innovations. He added about patenting few outcomes while interacting with the farmers and Zonal Project Directorate personnel. He pointed out that Krishi Vigyan Kendras have emerged as a unique system which is also being replicated in foreign countries.

e mail : zpd2kokata@gmail.com

DG inaugurates Silver Jubilee Laboratory Building and Rural Technology Centre

Kakdwip, 15 May 2013. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated Silver Jubilee Laboratory Building, and Rural Technology Centre (RTC) at Kakdwip Research Centre, Central Institute of Brackishwater Aquaculture. He emphasized that ICAR 'Farmers' First' approach to address the problems faced by the farmers; and urged the importance of close tie-up between farmers and scientists to discuss and deliberate various issues for sustainable development of brackishwater fish and shrimp culture in India. He added that ICAR will come out with mega-seed bank

and village level cold storage facilities to help farming communities in Sundarbans and requested the farming communities to make use of the technologies available.

Silver Jubilee Laboratory Building is well equipped with sophisticated equipment like PCR, gel documentation system, fluorescent microscopy, and will cater the need of farmers in rapid disease diagnosis and development of brackishwater shrimp and fish culture. Rural Technology Centre (RTC) developed under National Agricultural Innovation Project (NAIP) aims to promote the technical know-how and skills farmers. This will also develop a better tie-up between the Kakdwip Research Centre and the farming communities in Sundarbans.

e mail : director@ciba.res.in

DG inaugurates State-of-the-Art Marine finfish brood bank...

Mandapam. A national marine finfish brood bank where the brooders of high value marine fishes can be developed for breeding and seed production was designed and built at Regional Centre of CMFRI, Mandapam and commissioned by the Director General of ICAR, Dr S. Ayyappan. The system will serve to develop the broodstocks into spawners. The safety of the spawners and year-round controlled spawning are ensured in this system. The RAS facility is the first of its kind in the fisheries scenario of India.Massive infrastructure for broodstock development is needed for developing the broodstocks of larger species such as yellow fin tuna. The large-scale fingerling rearing also requires extensive facilities. To meet these requirements, a mariculture complex consisting of high volume concrete tanks were established in Mandapam Regional Centre of CMFRI. This facility would support standardizing the technologies for broodstock development, grow-out culture and on-farm trials.

An International Trainees' hostel consisting of 13 well furnished one-room apartments to accommodate overseas trainees deputed to the Centre to acquire technical knowledge on the various technologies were also inaugurated. The DG, ICAR also inaugurated a small-scale marine ornamental fish production unit run by all women self-help group established within the premises of the Mandapam Regional Centre of CMFRI.The harvest of cobia farmed by Self-Help Groups under the technology demonstration component of the NICRA project was flagged off by the Director General. A total of 4 tonne of cobia about ₹ 10 lakh were harvested.

e mail: mandapam@cmfri.org.in

Potato Processing Plant and Potato Park inaugurated

Kufri, 8 April, 2013. Dr N. K. Krishna Kumar (Deputy Director General, Horticulture) inaugurated first plant established by the Central Potato Research Institute, namely 'Potato Processing Plant' and 'Potato Park' (sales outlet) at Research Station of Central Potato Research Institute. This plant is established with the aim of increasing the visibility

of the ICAR among consumers. The products such as chips will be prepared from the processing varieties of potato, viz. Kufri Chipsona 1, Kufri Chipsona 3; and French Fries is prepared from variety Kufri Frysona. Freshly prepared french fries and chips with the name 'Golden Chips' will be sold at Potato Park which is near Cheeni Bangla, Kufri.

e mail : vinodkapoorcpri@gmail.com

Logo launched, and MoU signed at NRC on Meat

Hyderabad, 26 April 2013. Dr S.L Goswami (Director, NAARM) released a newly developed logo of National Research Centre on Meat. Dr V.V. Kulkarni (Director, NRC on Meat) focused on the activities of the centre and its role in collaboration with private sector, and informed that NRC on Meat has also launched a programme on 'Green Initiatives to ensure Green Campus' in the forthcoming years. On this occasion, Director, NRC on Meat signed a Memorandum of Understanding with KANCOR Ingredients Limited, Ernakulum, Kerala and PrARAS Bio-Sciences Pvt. Ltd., Bengaluru, Karnataka to undertake sponsored research projects.

e mail : nrcmeat_director@yahoo.co.in

Visits

Farmers reap benefits of *in situ* moisture conservation for cultivation of *rabi* sorghum

Baramati. The Union Minister for Agriculture and Food Processing Industries, Shri Sharad Pawar, visited Baramati, Maharashtra, and appreciated the spectacular results achieved by the farmers who were trained by Krishi Vigyan Kendra, Baramati on *in situ* soil moisture conservation technology. Under this practice, moisture is conserved uniformly in the field due to small flat beds. It also reduces runoff losses of water and soil erosion. The moisture thus conserved reduces the water stress during critical growth period and ultimately results in assured yield of rainfed crops like sorghum and pearl millet. The Krishi Vigyan Kendra, Baramati conducted a campaign in 36 villages of Baramati, Indapur, Purandhar and Daund from August to September 2012 during *rabi* for *in situ* soil moisture conservation technology developed by the Mahatama Phule Krishi Vidyapeeth, Rahuri. About 600 acres (242.4 ha) of land was covered under this technique in rainfed area. Farmers could harvest sorghum 4 to 7 q/acre (0.404 ha) with scanty rainfall and 8 to 14 q/acre (0.404 ha), with one protected irrigation resulting in 60 to 70% increase in the yield. Where the moisture conservation technology was not adopted, farmers could not even get fodder. As farmers experienced the advantages of adopting the technology, more area is expected to be covered during *rabi* 2013.

e mail : takadarbhai@yahoo.com

Union Minister of State for Agriculture and Food Processing visits NIANP, Bengaluru

Bengaluru, 29 May 2013. Hon'ble Union Minister of State for Agriculture and Food Processing Industries, Shri Tariq Anwar, visited in the various faculties of the National Institute of Animal Nutrition and Physiology and appreciated the State-of-the Art-faculties and infrastructure created as well as the quality of work being done at the institute. He called upon the scientists to bring out more number of feasible technologies to meet the expectations of farming community and industries. Dr C S Prasad (Director, NIANP) briefed about the activities and the technologies developed by the institute.

e mail : cadaba_prasad@yaho.co.in

Chief Minister of Kerala visits CPCRI

Kasaragod, 18 April 2013. Shri Oommen Chandy (Chief Minister, Kerala) inaugurated a training programme and delivered valedictory address on 'Enterprise diversification in coconut sector' at Central Plantation Crops Research Institute (CPCRI).

He said State Government will take all measures to support coconut farmers as well as coconut-based enterprises. During the interaction with the farmers, the Chief Minister responded that State Government has submitted proposals for linking MGNREGA with agriculture especially the dairy sector. The possible assistance will be provided to women who were trained in coconut climbing for enhancing their job efficiency, he added. Among the participants there were farmers and entrepreneurs and the staff of CPCRI. Shri Chandy visited different laboratories and field experiments, mainly the experiment on neera collection and the Agro-Processing Complex.

e mail : directorcpcri@gmail.com

DDG (Agricultural Extension) visits VPKAS

Almora, 31 May 2013. Dr K. D. Kokate (Deputy Director General, Agricultural Extension) participated in an on-going training programme for farmers particularly from the remote villages, namely Munsyari, Sarmoli, Bunga, Dharchula, Pangu. Sirkha

and Gunji (higher mountain areas of Uttarakhand) from Indo-Tibet borders under the Tribal Sub-Plan. Farmers expressed that they were highly benefited by the technologies, developed by the Vivekanand Parvatiya Krishi Anusandhanshala (VPKAS), like improved seeds of crops and vegetables and agricultural implements which can be helpful in improving their livelihood. They also said about poor marketing infrastructure and poor transport facilities in the areas which are the constraints in the agricultural development of the area. He indicated need for support to the farmers from scientists through the Krishi Vigyan Kendras at Pithoragarh and Bageshwar (Uttarakhand). Dr K.D. Kokate emphasized that the sustainability and livelihood security of hill farmers are the key for their development.

e mail: vpkas@nic.in

MoA (S) and an MP of Rajya Sabha visits Visakhapatnam Research Centre of CIFT, CMFRI

Visakhapatnam, 11 May 2013. Shri Tariq Anwar,Union Minister of State for Agriculture and Food Processing, and Shri T. Subba Rami Reddy (an M. P. of Rajya Sabha) visited Regional Centres of Central Institute of Fisheries Technology, and Central Marine Fisheries

Research Institute, Visakhapatnam on 11 May 2013. He appreciated the development of cage culture and successful captive breeding of Grouper fish for the first time in the country.Shri T.Subba Rami Reddy commended the scientists for the technologies developed at these two Regional Centres and their usefulness to the fishers, especially of Andhra Pradesh region.

e mail: cmfrivsp@gmail.com

DDG (Animal Sciences) visits NARI and BAIF

Phaltan, 26 April 2013. Prof. (Dr) K.M.L. Pathak, Deputy Director General (Animal Sciences) visited Nimbkar Agriculture Research Institute (NARI) to

discuss progress of various activities like performance recording, semen technology, artificial insemination and biotechnology with Dr Chanda Nimbkar. Professor Pathak appreciated the work on semen technology at NARI, and felt need for development of software on data management of AICRP on Goat Improvement.

Professor Pathak visited BAIF (Headquarters), Urulikanchan to discuss about collaborations after recent signing of Memorandum of Understanding on 26 April 2013.

e mail : icarreporter@rediffmail.com

ICAR Vichar Manch

New Delhi, 23 May 2013. Dr Vishwas Mehta (Joint Secretary, Union Ministry of Health and Family Welfare) delivered a lecture on 'Golden Era of Hindi Film Music' at NASC Complex. Dr Mehta focused on cultural activities and said that this year we are celebrating '100-Year of Hindi Cinema'. The Hindi film music was based on *ragas* and folk traditions, and was richly influenced by poetry written by Lyricists, weaved into melodious compositions by Music Directors.

e mail: icarreporter@rediffmail.com

Award

Farmers' Rights: India shows the world a unique way to reward and recognise agro-biodiversity conservers

New Delhi, 22 May 2013. The Minister of State for Agriculture and Food Processing Industries, Shri Tariq Anwar, conferred the Plant Genome Saviour Community Award for 2011-12 to four farming communities at A P Shinde Memorial Hall, NASC Complex. The communities are: Seed Saver Farmers' Group, Maharashtra; Rice Farming Communities of Pallakad, Kerala; Sanjeevini Rural Development Society, Andhra Pradesh; and Deepa Oli Women's Self-Help Group, Tamil Nadu, engaged in conservation and improvement of plant genetic resources, in agro-biodiversity hotspots in India. The award is instituted by Protection of Plant Varieties and Farmers' Rights Authority, Ministry of Agriculture and carries a cash reward of ₹10 lakhs drawn from the National Gene Fund, citation and memento. On this occasion, 10 individual farmers were also given a cash award of ₹1 lakhs each and another 15 farmers were also recognized for their commendable work for conservation of traditional/ landraces/farmers' varieties of crops and bringing awareness among the rural communities about agro-biodiversity and conservation.

An exhibition, consisting of genetic resources conserved by the awardees was also organised and inaugurated by the Chief Guest, Minister of State for Agriculture and Food Processing Industries, Shri Tariq Anwar, who interacted with the farmers and expressed keen interest in the activities undertaken by the farmers/farming community.

e mail: ppvfra-agri@nic.in

XI Convocation at CIFE

Mumbai, 27 May 2013. Dr R.S. Paroda, the chief guest at the XIth Convocation of Central Institute of Fisheries Education, highlighted the crucial role of fisheries and aquaculture in meeting both food and nutritional requirements of our ever growing population and the need for highly trained human resources to achieve this goal. He commended the exemplary contribution of CIFE in producing quality human resources in fisheries and allied disciplines and for having acquired the status of a global leader in the field. Dr Paroda also stated that considering the substantial contribution of fisheries sector to the agriculture GDP, ICAR need to double its allocation to fisheries in the XII Five-Year Plan.

Dr S. Ayyappan (Secretary, DARE and DG, ICAR) presided over the function and complimented the students and faculty for achieving global standard in fisheries education and underlined the fact that CIFE has marked a significant place in the world fisheries education map. He emphasized that although there is tremendous improvement in the fish production and fisheries is occupying the centre stage, large percentage of our population still remains malnourished. He further underscored the importance of an formulating an enabling policy on higher agricultural education, international co-operation and long-term vision for next 50 years and other important initiatives of the ICAR. During the convocation, 142 M. F. Sc. and 37 Ph.D. degrees were awarded besides presenting 24 Gold Medal Awards to meritorious students.

e mail : wslakra@cife.edu.in

Announcement

3rd Dr S Ramanujam Award 2011

(for the block year 2008-11)

Dear reader,

Dr S Ramanujam was the first Director of Central Potato Research Institute. In his honour, Dr S Ramanujam Award for outstanding research / leadership under potato improvement / productivity is sponsored by Mrs Vedam Ramanujam and family and is administered by CPRI, Shimla. This award is given once in every 4 years.

The objectives of this award are:

(i) To recognize outstanding research and /or proven leadership for promotion of potato.

(ii) To provide incentives for excellence in potato research.

(iii) To promote greater research /development effort in areas of potato R&D.

The scientists engaged in research and developmentof potato in India are eligible for this award. Award carries ₹ 40,000/- in cash and a citation. If the award is won by a team of scientists working together, the award money is to be shared by all members of the team with the provision that the share of team leader would not be less than 50% of the total prize money. Each member of team will however, receive separate citation. TA/DA to the awardees will be paid by CPRI and to be restricted to single to and fro IInd AC rail fare.

The prescribed format for applying for this award is enclosed herewith. Six copies of the application with complete documents are requested to be sent to the Director, CPRI, Shimla (Himachal Pradesh) 171001 so as to reach him on or before 1 August, 2013. The last date for candidates in the Andaman and Nicobar Islands, Lakshdeep, States / Union Territory in the North Eastern Region, Ladakh Division of J&K State and Sikkim is 8 August, 2013. The candidates must submit 6 copies of applications/documents complete in all respects, failing which applications will not be considered. The nomination form may be downloaded from http://cpri.ernet.in.

Each application will be judged on the basis of the originality and applied value of the investigations. In all matters relating to the award, the decision of Central Potato Research Institute, Shimla shall be final and no correspondence on this account will be entertained.

This may please be brought to the notice of all concerned.

Dr B.P. Singh
Director
Central Potato Research Institute
Shimla (Himachal Pradesh) 171 001

Personnel

Delegation abroad

- Dr Ravinder Kaur (Project Director, Water Technology Centre, IARI,New Delhi) visited Robert B. Daugherty Water for Food Institute, University of Nebraska, to attend a conference on 'Too Hot Too Wet Too Dry: Water for food global conference' from 5 to 11 May, 2013.
- Dr H.S. Gupta (Director, IARI, New Delhi) and Dr R.K. Jain (Head, Plant Pathology, IARI, New Delhi) visited Afghanistan from 6 to 7 May, 2013 on deputation, as members of a Task Force set up under the chairmanship of Prof. M.S. Swaminathan for establishment of an agricultural university in Kabul, Afghanistan.

VIP visits

- His Excellency Mr Mohammad Salman Al-Sady (Minister of Water Resources, Iraq) accompanied delegation visited Indian Agricultural Research Institute, New Delhi on 20 May 2013.

Delegations hosted

- Dr Mohammed Bhagat Moustafa (Head, Dairy Research Department, Animal Production Research Institute, Agricultural Research Centre, Egypt) visited NDRI, Karnal under the Work Plan 2012-13 in 'Quality Control and Assurance of Livestock Products' from 7 to 20 April 2013.
- Dr (Mrs) Hoda Moustafa Elghra Bawy and Dr Khaled Ibrahim Mohamed Gad (Researchers from Wheat Research Department of Field Crops Research Institute, Agricultural Research Centre, Egypt) visited Directorate of Wheat Research, Karnal from 1 to 14 June, 2013, for training in 'Use of molecular markers for wheat aphid resistance, Ug 99, effective yellow and brown rust resistant genes'. under the Indo-Egypt Work Plan for 2012-13.

Trainings

- The Central Institute of Agricultural Engineering (CIAE), Bhopal organized a Training-cum-Study Tour on Farm Mechanization for the African Stakeholders, jointly organized by the Indian Council of Agricultural Research and the International Maize and Wheat Improvement Centre, New Delhi from 29 April to 4 May 2013.
- A three-day review-cum-training was organized at NBFGR, Lucknow from 14 to 16 May 2013 with the aim to review the progress made in the identified projects and undertake capacity development programme for the collaborators from the north-eastern region.

e mail : jkjena2@rediffmail.com

Appointments

Name	joined Council as	on
Dr Abraham Verghese	Director, NBAII, Bengaluru	04 April 2013
Dr S.K. Malhotra	ADG (Hort-I), ICAR (Hq), New Delhi	16 April 2013
Dr Jagmohan Kataria	Director, CARI, Izatnagar	19 April 2013
Dr Debasis Nag	Director, NIRJAFT, Kolkata	22 April 2013
Dr Inderjeet Singh	Director, CIRB, Hisar	30 April 2013
Dr Suresh Sangappa Honnapagol	ADG (EQA&R), New Delhi	15 May 2013
Dr Sanjay Dina Nath Sawant	Director, NRC for Grapes, Pune	01 June 2013

Superannuations

Name and Designation	Institution	superannuated on
Dr D.K. Agarwal, Principal Scientst	DKMA, ICAR (Hq) New Delhi	30 April 2013
Dr P.G. Adsule, Director	NRC for Grapes, Pune	31 May 2013
Dr M.M. Pandey, DDG (Agril. Engineering)	ICAR (Hq), New Delhi	30 June 2013
Dr C. Devakumar, ADG(EP&D)	ICAR (Hq), New Delhi	30 June 2013
Dr S.C. Gupta, ADG(AP&B)	ICAR (Hq), New Delhi	30 June 2013
Dr B.S. Bisht Principal Scientist	ICAR (Hq), New Delhi	30 June 2013

Published by Dr Rameshwar Singh, Project Director (DKMA), Indian Council of Agricultural Research, Krishi Anusandhan Bhavan I, Pusa, New Delhi 110 012, Lasertypeset by Xpedite Computer Systems, D-20, 2nd Floor, Ranjit Nagar Commercial Complex, New Delhi 110 008 and printed at Royal Offset Printers, A-89/1, Naraina Industrial Area, Phase I, New Delhi 110 028.

Editing: **Dr Sudhir Pradhan** • ***Production:*** **Dr V.K. Bharti and Kul Bhushan Gupta**