

# Reporter

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## From the DG's Desk

Dear Readers,

Realizing the importance of global and regional alliances to share knowledge and the genetic diversity for food security and sustainability, India has been making concerted efforts to develop close linkages with other countries and internationally renowned agriculture research institutions. The Department of Agricultural Research and Education, set up in 1973 in the Ministry of Agriculture, facilitates linkages of ICAR for international cooperation in the field of agricultural research and education. The Department liaises with other countries, United Nations, CGIAR and other multilateral agencies for cooperation in various areas of agricultural research through bilateral research projects, Memoranda of Understandings and Work Plans. Today, India is a leading donor amongst the developing country members and is on the newly created Fund Council at CGIAR headquarters and so we have say in the new decision making process. India is also represented on the Boards of several CG institutions.



Green Revolution in India is a well recognized example of international cooperation in agricultural research. The introduction and improvement of high-yielding varieties of rice and wheat in India during 1960s, transformed Indian agriculture. More recently, the check on the advance of Ug99 strain of wheat rust, screening of rust-resistant cultivars and consequent development of rust-resistant wheat varieties; decoding the rice genome; development of Resource Conservation Technologies; transfer of improved genetic materials for varietal and breed improvement; and Human Resource Development are some of the successful examples of international cooperation. The ICAR is also cooperating with the National Agricultural Research System of several developing countries in capacity building, institutional and human. At present,

the Department has over 40 Memoranda of Understandings/Work Plans of cooperation with different countries/agencies/institutes.

Globally, agriculture in general and in particular the developing countries is faced with new challenges in form of resource degradation, genetic erosion, biotic and abiotic stress and likely impacts of global climate change, energy and price volatility. Some of these issues are also trans-boundary in nature and therefore need international cooperation.

The technological solutions to these diverse problems are often capital and knowledge intensive and would need stronger international collaboration and joint investments for addressing these new and complex global challenges. The trans-boundary flow of information and sharing of research capacities can deliver the innovations needed to achieve sustainable increases in agricultural productivity, benefiting the rural poor, while conserving natural resources.

To share knowledge and the genetic diversity, our scientists contributed significantly in an international project on rice genome. India was an active partner in the Global Rinder-pest Eradication Programme of the Food and Agriculture Organization that resulted in making the world free from Rinder-pest disease. The development of Resource Conservation Technologies for the Indo-Gangetic Plains is an example of multinational and multi-institutional collaboration in consortium mode facilitated by the CGIAR. These technologies have enabled in improving input use efficiency, saving resources and crop diversification. India values the power of cooperation amongst communities, countries and institutions in agricultural development.

The National Agricultural Innovation Project (NAIP), a mega project of the ICAR, has capacity building and strengthening of partnerships as major element in all

its Components which is considered critical to make ICAR a catalyzing agent for management of change in the Indian National Agricultural Research System. Under the NAIP about 350 scientists have received training in advanced laboratories and institutions abroad. Institutional capacity building remains a major landmark of international cooperation.

The DARE coordinates admissions of foreign students especially from the SAARC region, other Asian countries

and Africa in various Indian agriculture universities/ ICAR Institutes. As ICAR offers quality education at a low cost, the number of foreign students in India studying agriculture and allied subjects is growing at a fast pace. India-Africa Fellowship and India-Afghanistan Fellowship Programmes both have been started in 2010-

11, with provision of 75 and 115 fellowships, respectively, for Agricultural Human Resource Development in Africa and Afghanistan through formal education.

In the ensuing XII Five-Year Plan, the ICAR is set to launch research platforms in the areas of natural resource management, crops, livestock, fisheries, secondary agriculture, agricultural extension and education calling for enhanced application of science and technology. The efforts may call for fostering appropriate partnerships, multi-disciplinary, multi-institutional, both at national and international level. We intend to enhance the level of international cooperation in coming years to ensure seamless bilateral and multilateral dissemination of information and knowledge and capacity building for a global approach to challenges and holistic solutions in agriculture.



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## ICAR Reporter

*Wishes its reader*

*a wonderful, joyful, healthy, wealthy &  
prosperous New Year 2012*

# WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES

## Innovative Approaches for Agricultural Knowledge Management: Global Extension/Experience

New Delhi, 12 November 2011. Her Excellency President of India, Shrimati Pratibha Devi Singh Patil, inaugurated 4-day International Conference on 'Innovative Approaches for Agricultural Knowledge Management: Global Extension/Experiences', jointly organized by the International Society of Extension Education and the ICAR with the primary objective to facilitate sharing and developing innovative knowledge management sharing for agricultural development on 9 November 2011 at Vigyan Bhawan, New Delhi.



She suggested three basic considerations for knowledge management strategies such as share experiences gained in a project or extension practice to avoid duplication and reduce the repetitive cost of research or practice; help farmers interact with scientists and agricultural experts, and explain their practical difficulties at the ground level, to enrich their knowledge base; and ensure availability of location specific agricultural knowledge for application at the right time. Lab to the farmer journey has to be smooth flowing and timely for it to be useful and productive. She also complimented the Indian Council of Agricultural Research and the National Agricultural Research System for their catalytic role in supporting the improvements in agriculture.

The Union Minister of Agriculture and Food Processing



Industries, Shri Sharad Pawar, emphasized the knowledge and innovations as a major input for agriculture and suggested that efforts for knowledge sharing must be intensified to face the global changes and challenges in agriculture. ICT-based interventions are the need of hour, as they provide last-mile connectivity for knowledge transfer to end-users. He called upon corporate sector to implement and support the knowledge sharing initiatives as corporate social responsibility. It will trigger higher productivity and higher income to farmers promoting the overall growth in agriculture. Public-Private-Partnership can make knowledge delivery system more effective for various stakeholders in agriculture.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) was Chief Patron of the Conference who elaborated the various knowledge management and knowledge sharing initiatives of the ICAR such as ICT-tools, extension mechanisms and multi-institutional strategies. In an era of science-based and knowledge-driven agriculture, efforts are on in different forms with farmers' first approach and quality enhancement in knowledge products, he added. Sharing of knowledge management experiences on multi-institutional platforms is important in the wake of emerging challenges which require innovative transfer of knowledge.

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# Interaction Meet of Union Minister of Agriculture with NARS Scientists of Animal Sciences and Fisheries

New Delhi, 8 November 2011. Shri Sharad Pawar, Union Minister of Agriculture and Food Processing Industries, inaugurated the 'Interaction Meet of Union Minister with NARS Scientists of Animal Sciences and Fisheries'. He focused on a road-map that categorizes issues for the short-, medium- and long-term, and to understand the way forward and actionable strategies for development of capture fisheries and aquaculture. He also desired to develop carp culture to increase production as millions of people can be motivated, and suggested emphasis on new exotic species with faster growth and better qualities, if required, to increase the production rates. He remembered the seed production and demonstration of fast growing species like *Cobia* and *Tilapia* on a limited-scale in recent years, and desired it to be intensified for up-scaling production. He was concerned about the near vacuum in health or disease management. He identified few important issues, viz. healthy broodstock, ecosystem-based fisheries management, integrated fish farming, technology for culture of high value resources, and need for good quality feed and seed. In the livestock sector, Shri Sharad Pawar emphasized for enhancing animal productivity and reproductive efficiency, the issue of fodder scarcity, feed quality and safety, and the large scope in processing, value-addition and marketing dimensions. Stressing on the very critical issue of genetic resource management, he desired to develop strategies to maintain genetic diversity without compromising on animal production. He stated that issues like impact of climate change on production, reproduction and health needs more focus.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) said that Animal Husbandry, Dairy and Fisheries components although contribute up to 30% of agriculture gross domestic products; it has higher potential to contribute towards food and nutrition security in India. He referred to the regular interactions between DADF and ICAR on various issues like feed and fodder, animal health, vaccines and diagnostics, milk, meat and livestock production; and both inland and marine fisheries; which is leading to synergy and convergence between the two Departments. He added that though technologies are available there are no takers in the field; the participation of private sector is minimal, and stressed for a huge effort towards capacity development in livestock, poultry and fisheries improvement and production. The DG, ICAR mentioned that policy research in animal and fisheries sciences needs to be strengthened. The fact that Indian fisheries is more a livelihood fisheries and not exclusively commercial was mentioned for consideration in policy research. Focus on human resource development, robust extension with programmes in skill development, and involvement of private entrepreneurs for up-scaling technologies was particularly pointed out. In livestock



sector, clarification was sought on specific issues, like the practical utility of sex sorting, progeny testing programme, export of beef from male buffalo calves, assisted reproductive technologies, reasons for failure of artificial insemination in sheep, etc. He emphasized that more attention is needed on proper breeding policy, conservation and improvement of indigenous genetic resources, feed and fodder production and utilization, reproductive efficiency and value-addition of animal products with functional attributes. It emerged that fisheries management is more required besides the requirements in fisheries science. It was noted that use of genomic and biotechnology tools was essential for harnessing the potential in livestock, poultry and fisheries sectors. He added that both livestock and fisheries sectors are changing fast and the demand is changing, so our approach has to take up demand-driven research.

Shri Rudhra Gangadharan (Secretary, DADF) desired availability of swine fever vaccine to north-eastern states, and stressed for vigorous efforts in animal husbandry, dairy and fisheries sectors. He offered the DADF resources for any researchable issues and cautioned for making statements of administrative nature.

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## Protection of Plant Varieties and Farmers' Rights Act, 2001

Kullu, 29 December 2011. The Protection of Plant Varieties and Farmers' Rights Authority, Ministry of Agriculture, Government of India, New Delhi sponsored one-day Training-cum-Awareness Programme on "Protection of Plant Varieties and Farmers' Rights Act, 2001" at Krishi Vigyan Kendra, Kullu (Bajaura), Himachal Pradesh with the assistance of Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya (CSKHPKV), Palampur. The scientists of Department of Crop Improvement, CSKHPKV, Palampur; National Bureau of Plant Genetic Resources, Regional Station, Shimla; and Krishi Vigyan Kendra, Kullu educated the farmers and provided information on different aspects of Protection of Plant Varieties and Farmers' Rights Act, 2001. For details visit [www.zpdzone1.org](http://www.zpdzone1.org)

# Climate Change and Coastal Aquaculture : Impacts, Adaptations and Mitigation for Resilience

Undi, 24 October 2011. A Stakeholders' Workshop on "Climate Change and Coastal Aquaculture: Impacts, Adaptations and Mitigations for Resilience", organized by the Central Institute of Brackishwater Aquaculture, was inaugurated by the Chief Guest, Dr B. Venkateswarlu (Director, CRIDA, Hyderabad and National Coordinator, NICRA) under the project "National Initiative on Climate Resilient Agriculture" at Krishi Vigyan Kendra, Undi, West Godavari District, Andhra Pradesh. Dr Venkateswarlu focused on NICRA project.



Shri M.V.S. Nagireddy (Member, Governing Body, ICAR) stressed the ICAR's motto of 'Farmers First' and importance of collaboration of scientists directly with farmers to understand and fulfill their requirements in a better way. Dr K. Suryanarayana (Associate Director of Research, RARS, Maruteru) mentioned about the

Green House Gases emission and exchange of gases by  $C_3$  and  $C_4$  plants and aquaculture systems. He added the importance and need for studying effect of climate change on agriculture as well as aquaculture. In Dharbarevu and Akivedu villages farmers expressed that seasonal variations, rise in temperature, heavy and uneven rainfall patterns and cyclones are the major CC events as perceived by them. The impact of these events on aquaculture, possible solutions and time frame for solving the problems expressed by farmers were presented.

## Recommendations

- On-line monitoring of weather conditions and providing timely information to farmers on weather reports through voice SMS (responsible agency : IMD)
- Educating the farmers to adopt BMPs such as water topping, stocking density, sludge removal and depth of the water.
- Farmers require information on the occurrence of diseases in the changing climate scenario and remedial measures (responsible agencies: DoF and ICAR Institutes/SAUs)
- Species diversification studies and identifying species which can tolerate abiotic stress such as salinity and temperature variations.
- Studies on tidal amplitude and changes in source water quality parameters.
- Fertilizer requirements from aquaculture sector should be worked out by the State Department of Fisheries to avoid conflict with agriculture sector.

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## Brackishwater Aqua-Farmers' Meet, 2011

Kakdwip, 21 October 2011. With the objective to provide technological solutions to farmers in issues related to different aspects of Brackishwater Aquaculture, the Kakdwip Research Centre of Central Institute of Brackishwater Aquaculture (CIBA) organized the Brackishwater Aqua-Farmers' Meet, 2011 with financial assistance from National Fisheries Development Board, Hyderabad at Kakdwip, West Bengal. The discussions were focused on importance of sustainable coastal aquaculture, species diversification and on the improvement of aquaculture productivity specifically to the Sunderban region. The discussion included the prospects of western white shrimp, *Lates vannamei*, aquaculture in West Bengal and the related regulation and guidelines.

Dr A. G. Ponniah (Director, CIBA) elaborated on the

new techniques evolved from the NAIP project operated at Kakdwip Research Centre (KRC), demonstrating how brackishwater aquaculture activities along with agricultural activities would be helpful to farmers for their socio-economic upliftment. He also suggested that *L. vannamei* aquaculture can be taken up in West Bengal in lower stocking densities. The fish seed of Asian seabass were distributed to the project beneficiaries, under National Fisheries Development Board funded project on "Demonstration of Asian seabass, *Lates calcarifer* farming in pond culture system". The fish farmers and delegates were familiarized with the on-going fish and shrimp farming activities at the KRC Farm to witness the tiger shrimp harvest with a productivity of 2.4 tonnes/ha/crop from the pond maintained with zero water exchange management.

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## National Symposia on “Bioinformatics and drug designing” and “Challenges and opportunities in veterinary drug development”

Izatnagar, 19 November 2011. The XI Annual Conference of the Indian Society of Veterinary Pharmacology and Toxicology and the National Symposia on “Bioinformatics in drug designing” and “Challenges and opportunities in veterinary drug development” were held at Indian Veterinary Research Institute. A three-day Conference was organized by the Division of Pharmacology and Toxicology from 17 to 19 November 2011 and about 200 scientists, academicians and students attended.

The Chief Guest, Prof. Amresh Kumar (Director General, Khandelwal College of Management Science and Technology, Bareilly) inaugurated the symposia and said that animals play an extremely important part in the lives of human beings. However, various infectious and non-infectious diseases are still a great threat to their well-being. The major challenge for the veterinarians is to make available cheap and effective drugs for the treatment of various diseases and ailments. Bioinformatics is playing an increasingly important role in nearly all aspects of drug discovery, drug assessment and drug development. This growing importance lies not only in the role that bioinformatics plays in handling large volumes of data, but also in the utility of bioinformatics tools to predict, analyze, or help interpret clinical and preclinical findings.

Prof. M.C. Sharma (Director, IVRI) said that health care management is essential for better health and it has positive impact on overall national economy. However, there are several challenges in veterinary drug development. He added that bioinformatics is the new buzzword, which has seen a flurry of applications in drug development research. A successful and reliable drug design process could reduce the time and cost of developing useful pharmacological agents. He hoped that the symposia would focus on the challenges in veterinary drug development and application of bioinformatics in drug discovery as well as highlight the power of multi-disciplinary and integrative approaches for understanding and manipulating the fundamental biological processes for discovery of new drugs.

Dr A.K. Srivastava (Director, NDRI, Karnal), delivered the Chellapa Memorial Lecture on “Bioactive milk components derived from colostral and milk proteins, with pharmacological attributes”. Application genomics and proteomics in identification of potential drug targets and system biology approach to drug discovery were also highlighted. The scientists also pointed out and discussed the various challenges faced by the veterinary drug development professionals and industry.

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## Fifth Annual Review Meeting on Integrated Agro-met Advisory Services

Agartala, 20 October 2011. The Minister for Science and Technology and Environment, Shri Joy Gobinda Deb Roy, Government of Tripura inaugurated a 3-day Fifth Annual Review Meeting on Integrated Agro-met Advisory Services, jointly organized by the ICAR Research Complex for North-Eastern Hills Region, Tripura Centre, Lembucherra, and Indian Meteorological Department, Ministry of Earth Sciences, Government of India, New Delhi at Pragna Bhavan, Agartala, Tripura on 18 October 2011. About 200 representatives of Agro-met Field Units and IMD officials took part in the three days Review meeting.



### Recommendations

1. Special emphasis should be given to use the Research and Development products in agro-met advisories.
2. For dissemination of advisories to more number of farmers and to increase the outreach, Public-Private-Partnership should be given more emphasis. More efforts should be required to increase the number of subscribers through establishment of PPP model. There is need for more collaboration for the public and private players in dissemination and also on development of personalized AAS.
3. Special programme on capacity building of rural communities for coping strategies under extreme weather conditions should be taken up in collaboration with participatory organizations.
4. Economic assessment of Agro-met Advisories in quantitative terms should be carried out to understand the real value of the service.

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## Rashtriya Krishi Vikas Yojana launched

Rahuri, 17 October 2011. The Minister of Agriculture and Marketing, Maharashtra, Shri Radhakrishna Vikhe Patil, launched four projects, viz. Promotion of seeds of improved varieties developed by Mahatma Phule Krishi Vidyapeeth (MPKV) (₹ 8.62 crore), Transfer of integrated crop management technologies developed by MPKV (₹ 7.31 crore), Promotion and large-scale production of biopesticides and biofertilizers developed by MPKV (₹ 3.00 crore) and Establishment of farm machinery testing, training and production centre at MPKV (₹ 4.35 crore) under the *Rashtriya Krishi Vikas Yojana* at Mahatma Phule Krishi Vidyapeeth, Rahuri for 2011-2014 which were sanctioned by the Government of Maharashtra.

Shri Patil stated that the State Agricultural Universities have a pivotal role to play for confronting the challenges before agriculture and hoped that this initiative would certainly benefit the farmers. The quality inputs will bring expected outcome through increased crop productivity.

The Vice-Chancellor, Dr T.A. More, made a lucid presentation of the sanctioned projects of all State Agricultural Universities of Maharashtra and assured that the universities will come forward for the cause of agriculture and the farmers.

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## DG, ICAR chairs Administration and Finance Divisions meet

New Delhi, 22 November 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) Chairman of the Meeting, emphasized the important role of administration and finance divisions in the ICAR system for strengthening agricultural research in the country. He appreciated the supportive services provided by these divisions and called for

enhancement in efficiency and overall performance in delivery of requisite back-up. He was addressing meeting of Heads of the administrations and the finance divisions of ICAR institutes at NASC Complex.

Shri Rajiv Mehrishi (Additional Secretary, DARE and Secretary, ICAR) called for a balanced role by the administrative and finance officers so that research work should progress along with adherence to laid down rules and procedures. Shri Chaman Kumar (Financial Advisor, ICAR) reminded the vital role of administrative and finance officials in smooth functioning of the research institutes as per laid down norms. The Director (Administration) presented the agenda items for discussion and deliberations which included various issues of vital importance. Administrative and Financial issues pertaining to planning for XII Five-Year Plan were also discussed.

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## International Linkages

### CGIAR celebrated 40th anniversary

Rome, 2 December 2011. The Consultative Group on International Agricultural Research (CGIAR) celebrated its 40th anniversary. Established in 1971, the collaborative work of the CGIAR and its partners has resulted in improved crop varieties and livestock breeds, better cropping and crop-livestock farming methods, pro-poor policy shifts and associated new knowledge.

The objectives of the celebration include creating awareness of the CGIAR achievements and reforms, F.A.O. and International Fund of Agricultural Development (I.F.A.D.) involvement in the CGIAR reform and support to the CGIAR system for a wider F.A.O. member audience.

Dr Jacques Diouf (Director General, F.A.O.), Kanayo F Nwane (President, I.F.A.D.) and Rachel Kyte (Vice-President, World Bank, CGIAR Fund Council), Jimmy Smith (Director General, International Livestock Research Institute), Dr M.S. Swaminathan (Chairman, M.S. Swaminathan Research Foundation, Chennai) and Kenneth Cassman (Chairman, Independent Science and Partnership Council) were the distinguished speakers at the celebration. Anniversary programme included a video presentation on the journey of CGIAR, theme presentation on 'More Meat, Milk and Fish for the Poor' and expert discussion on current and emerging issues of agriculture.

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## Maiden ASEAN-India Ministers Meet on Agriculture

Jakarta, 8 October 2011. The maiden ASEAN-India Ministerial Meeting on Agriculture was held at Jakarta, Indonesia. The Ministers of Agriculture of Brunei Darussalam, Lao PDR, Myanmar and Vietnam; Secretary of State, Ministry of Agriculture, Forestry and Fisheries, Cambodia; Deputy Secretary-General, Ministry of Agriculture and Agro-based Industry, Malaysia; Under-Secretary, Department of Agriculture, Philippines; Senior Parliamentary Secretary, Ministry of National Development and Defence, Singapore; Permanent Secretary, Ministry of Agriculture and Co-operatives, Thailand; Deputy Secretary-General of ASEAN for ASEAN Economic Community, ASEAN Secretariat, Jakarta and their respective delegations including Shri Biren Nanda, Ambassador of India in Indonesia have participated. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) from India also attended the maiden ASEAN-India meeting.

Indian Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, co-chaired the meeting and emphasized on the need to closely elaborate the strengths and dynamics of agriculture sector both in India and ASEAN for its advancement

and continued development. He added for the implementation and integration of agriculture co-operation for the mutual advantage and benefit of both regions.

The Terms of Reference and Medium-Term Plan (2011-2015) developed in the First Meeting of the ASEAN-India Working Group on Agriculture were adopted in the meeting.

Progress in the activities such as publication of *ASEAN-India Newsletter on Agriculture*; institution of ASEAN-India Fellowships for higher education in Agriculture and allied sciences; holding of a Conference of Heads of Agricultural Universities in India; exchange visits of farmers; workshop on adaptation/mitigation technologies for climate change; training programmes and the ASEAN-India Agri-Expo were reviewed.

The second Meeting of ASEAN-India Ministers of Agriculture was decided to be held in India, tentatively in the first week of November 2012, back-to-back with the ASEAN-India Agricultural-Expo.

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## ICAR-ICARDA day for enhancing food and nutritional security

New Delhi, 31 October 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR), Chief Guest on ICAR-ICARDA Day, highlighted the important role of ICAR-ICARDA (International Center for Agricultural Research in the Dryland Areas) partnership in addressing various issues related to dryland farming and farming systems research. However, greater collaboration in research activities is desired in view of the impending challenges, such as climate change, germplasm erosion and aggravating biotic and abiotic stresses, he added. The ICAR has made many milestones in collaboration with ICARDA, but many more are to be crossed, he said.

Mr Henri Carsalade (Chair, Board of Trustees, ICARDA) recalled the 30-year long partnership and desired to have more intense collaboration with ICAR network for the cause of food security in the region. He presented coveted ICARDA-shield to Dr S. Ayyappan for support and encouragement to ICARDA programmes in the country.

Dr Mahmoud Solh (Director General, ICARDA) expressed sincere gratitude to Government of India and ICAR for active support and collaboration for development of sustainable agriculture in the region. In the technical programme, pulses research and development were discussed at length as India and ICARDA are working together for production



enhancement of lentil, *kabuli chana*, grasspea (*khesari dal*), faba bean, etc. In India, about 11.65 million ha is rice-fallow, where only one crop is grown, which is the potential area where production of pulses like lentil, chickpea, pea and grasspea fits to the existing cropping pattern with appropriate varieties and improved production technologies exchange with ICARDA. Presently, ICARDA with its South Asia and China regional programme and National Agricultural Research System collaborators in India has developed some varieties for this area so that at least 2.0 million ha can be brought under these pulses to increase cropping intensity in this area and production of pulses in the country.

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## Borlaug Institute for South Asia at Ludhiana, Pusa and Jabalpur

New Delhi, 30 October 2011. The Union Cabinet has approved the proposal of Ministry of Agriculture and Department of Agricultural Research and Education (DARE) to accept the proposal of International Maize and Wheat Improvement Centre (CIMMYT) to establish an international institute, i.e. Borlaug Institute for South Asia (BISA) in India with centres at Ludhiana in Punjab, Pusa (Samastipur) in Bihar and Jabalpur in Madhya Pradesh on 30 October 2011. The CIMMYT is authorized to establish BISA at the three centres, which would be conferred an international status as contemplated in clause 3 of United Nations (Privileges



and Immunities) Act, 1947. The DARE on behalf of Government of India will be authorized in all matters regarding establishment of the institute. The DARE will be authorized to conclude the agreement/Memorandum of Understanding between the Government of India in the DARE and CIMMYT.

The Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, launched the establishment of Borlaug Institute for South Asia and he underlined the genesis, relevance and importance of the BISA in the South Asian region while acclaiming the mighty role of *Padma Vibhushan* and Nobel laureate Dr Norman E. Borlaug in the food self-sufficiency of India. Elaborating the emerging challenges before agriculture, especially in the South Asian region, he said, 'though mankind has historically organized itself on the basis of nation states, the fact is that we are environmentally,

ecologically, climatically, one world. That being so, it is appropriate and heartening that international collaboration in agricultural research has worked successfully for over five decades now, and that an international effort is now to be made, through BISA, to look at the emerging problems of wheat and maize production in South Asia.'

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) said that this joint initiative of ICAR and CIMMYT is opening a new era of partnership between two world class agricultural research



organizations. Dr Thomas A. Lumpkin, (Director General, CIMMYT) and Dr S. Ayyappan signed MoU on behalf of respective organizations and called it a momentous affair and hoped that synergies between ICAR and CIMMYT will address the emerging challenges before agriculture and help ensure food security in future. The establishment of BISA in India with centres at Ludhiana in Punjab, Pusa (Samastipur) in Bihar and Jabalpur in Madhya Pradesh will enable the country to harness the best of international sciences, in meeting food security challenges. Collaboration between two organizations will be intensified and defined through five-year Work Plans for 'Scientific and Technical Partnership on Maize and Wheat Systems'. Funding and in-kind support will come from the Government of India and a consortium of international and regional, public and private investors.

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## Global knowledge sharing initiative of ICAR

New Delhi, 19 October 2011. The Open Access policy of ICAR for Agricultural Research Information gets international compliments as a motivational success story of agriculture information exchange at global level. Asia-Pacific Association for Agricultural Research Institutions and Global Forum on Agricultural Research has short listed the initiative as a success story, 'Open Access of Research in ICAR makes Indian Research Global', to improve ICT/ICM for knowledge sharing. With four research journals (*The Indian*

*Journal of Agricultural Sciences*, *The Indian Journal of Animal Sciences*, *Indian Journal of Fisheries* and *Journal of Medicinal and Aromatic Plants*) on the open access platform, the articles are being downloaded/ viewed in 181 countries across the globe and received articles for publication from over 50 countries. This global visibility has come through a project on "E-Publishing and Knowledge Management in Agricultural Research" under NAIP at Directorate of Knowledge Management in Agriculture, ICAR.

## ICAR-CABI Expert Consultation on Veterinary Profession in India

New Delhi, 26 November 2011. The ICAR-CABI launched a two-day Expert Consultation on 'Strengthening the Veterinary Profession in India' on 25 November 2011 at NASC Complex. Organized by the Animal Science Division, ICAR, and CABI, the University of Edinburgh, and WikiVet, and supported by Pfizer Animal Health, the workshop examined the main issues facing the profession in its role to improve food security and protect public health in India.



Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) appreciated the role of livestock in livelihood and trade of the country. India has a long and old tradition of veterinary medicine but strengthening of the veterinary profession is demand of the day, he said and expressed concern over shortage of veterinary professionals and suggested increase in the number of veterinary universities for capacity building in the sector.

The workshop has been designed to bring together the key organizations in the Indian veterinary profession to gain their insights and support in both strengthening the veterinary curriculum and

improving the accessibility of information resources in practice. It will lead to a greater understanding of the continuing educational needs of practising veterinarians in India and will identify any gaps in current information provision.

Shri Rudhra Gangadharan (Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India), the Chief Guest, called upon veterinary professionals of the country to

focus more on the precaution a part of cure of the livestock diseases.

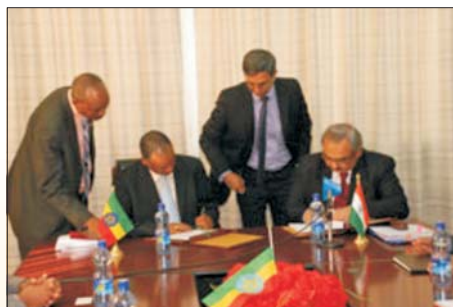
More than 100 participants participated from the International and National Veterinary Community from University, College, Association, Industry, Vet-Hospitals, and Ministries etc.

The outcomes of the meeting included recommendations for practical steps and mechanisms of working together to develop joint proposals to strengthen standards of veterinary practice in India.

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## ICAR signed MoU with the Ethiopian Institute for Agricultural Research

Addis Ababa, Ethiopia, 12 December 2011. Shri Rajiv Mehrishi, Additional Secretary, DARE and Secretary, ICAR on behalf of the Indian Council of Agricultural Research and Dr Solomon Assefa, Director General of Ethiopian Institute of Agricultural Research (EIAR) signed a Memorandum of Understanding for cooperation in the field of agricultural research and education on 12 December 2011 at Addis Ababa, Ethiopia. Shri Wondirad Mandefro, Hon'ble State Minister for Agriculture of Ethiopia graced the occasion.



The priority areas of cooperation include agricultural research in Horticulture, Crop Science, Fisheries, Animal Science, Agricultural Engineering and Natural Resource Management, Agricultural Extension and Agricultural Education. The cooperation will be implemented through exchange of scientists, scholars, technologies, literature, information and germplasm and collaborative research projects. Precise areas of collaboration were also discussed and a draft biennial workplan was developed and shared.

The Indian delegation led by Shri Mehrishi comprised Dr Arvind Kumar, DDG (Education); Dr K.M.L. Pathak, DDG (Animal Science) and Dr R.K.Mittal, ADG (EQR), ICAR. The delegation also called on Shri Tefera Derbew, Hon'ble Minister of Agriculture of Ethiopia who appreciated the science-led agricultural growth in India and desired to have greater

cooperation with Indian Agricultural Research and Education System for development of Ethiopian agriculture leading to food security and sustainability.

The delegation had detailed discussions with the Commissioner for Human Resources, Science and Technology at the African Union Headquarters in Addis Ababa. Various issues related to on-going India-Africa Fellowship Programme and setting up a Centre on Life and Earth Sciences by India under India-Africa Forum Summit were discussed. The Team also visited the International Livestock Research Institute, Addis Ababa; Holetta Agricultural Research Centre of EIAR and the Karuturi farms.

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## Technical Cooperation in Agriculture strengthened

Dominica, 17 October 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) visited Commonwealth of Dominica and Trinidad and Tobago leading a two-member delegation with Shri Rajiv Mehrishi (Additional Secretary, DARE and Secretary, ICAR) from 14 to 17 October, 2011, coinciding with the Caribbean Week of Agriculture, organized in Dominica. The Delegation briefed the Prime Minister of Government of Commonwealth of Dominica on 14 October 2011, about the potential collaborative aspects in the field of research, education and capacity development with regard to banana, citrus, coconut, root crops, medicinal plants, vegetables, goat farming and fisheries. The main concerns are with regard to leaf spot virus of banana; red palm mite; invasive pests and diseases; low productivity of tuber crops; farm mechanization; primary processing of horticultural produce; soil testing facilities; diagnostics; and quality planting materials.

The Delegation met the Minister of Food Production, Land and Marine Affairs, Government of Trinidad and Tobago; Director General, CARDI and other senior officials and discussed issues relating to germplasm exchange, crop improvement, crop protection and diagnostics, biosecurity and quarantine, farm mechanization, primary processing, testing and referral facilities, policy research, farmers' visits,

agro-advisories and capacity building.

Areas identified for collaboration were: visit of experts in disease management in banana in Dominica; faculty competence building in agriculture in Dominica; germplasm exchange and invasive pests in the caribbean countries with CARDI; visit of experts in rice, coconut, citrus and pest-management to Trinidad; integrated models of cultivation to processing in sugarcane, citrus, coconut and mango in Trinidad; capacity building and farmers' exchange visits. Two Memoranda of Agreements for Technical Cooperation in agriculture were signed with Caribbean Agricultural Research and Development Institute (CARDI); and the Government of Commonwealth of Dominica. Discussions were held with the Agriculture Minister of Dominica and the President of the Dominica Science College with regard to the above aspects, as also deputation of experts and capacity building.

Dr S. Ayyappan delivered a lecture on 'Agricultural Research for Development and Food Security' under the aegis of the CARDI, covering aspects of potential collaboration among Trinidad and Tobago, CARDI and the ICAR. An agreement was signed with the Ministry of Food Production, Land and Marine Affairs, Government of Trinidad and Tobago.

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## Success stories

### Castor seed production fetches better returns under farmers' participatory mode

Hyderabad. The Seed section has taken a lead in organizing large-scale hybrid seed production of castor at farmers' fields through participatory mode during *rabi* 2010-11 to meet the large and increasing requirement of quality seeds of hybrid castor at the Directorate of Oilseeds Research (DOR). Under farmers' participatory seed production, farmers of

Cherkur, Peddapur and Veldanda villages of Mahabubnagar district of Andhra Pradesh were selected after thorough assessment of their farm land, irrigation facilities and capability to undertake hybrid seed production programme which is highly-skilled oriented. The farmers were trained about the identification of female and male parents, rogues,





clean cultivation and other important post-harvest operations apart from the seed crop management in the hybrid seed production plots. The crop was infested by *Botrytis* gray rot in the early stages but was well protected from all insect pests by following Integrated Pest Management. The seeds were harvested, cleaned, graded and tested for physical and genetic purity. All the processed hybrid seeds passing the standards have been procured by DOR from the farmers under buy-back arrangement. The 81 q of quality hybrid seeds of DCH 177 castor and 35 q of DCH 519 castor were produced. The farmers could get back the total cost of cultivation just by

selling the bulk seed of male parent left in the field as farm produce in the open market. Hence, the amount received from Directorate of Oilseeds Research as procurement cost fetched better returns and the farmers were able to get on an average about ₹ 45,000/acre (0.4 ha) as profit by growing the seed crop for 6 to 7 months. The quality seeds were made available to the farmers well ahead of the crop season for commercial cultivation. The farmers who received seeds belonged Andhra Pradesh, Tamil Nadu, Karnataka, Haryana, Rajasthan and Gujarat.

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## Ornamental bird rearing empowers rural women in West Bengal

Nimpith, South 24 Parganas. Sundarban is known to the farmers with extremes of climate and low production in agriculture. Considering the geographical situation as well as the untapped human resources, Ramkrishna Ashram Krishi Vigyan Kendra (RAKVK), Nimpith, South 24 Parganas entered into a new venture of promoting ornamental bird rearing at riverine blocks of Sundarban in particular and district as a whole in general. The new enterprise offers the potential of contributing to more resilient and diverse rural economies by fetching a steady income for the rural family along with risk coverage from crop failure. The RAKVK has developed a unit of ornamental birds consisting of budgerigar, cockatiels, love birds, finches both in cage and in-house system from where hands-on training programme for the rural womenfolk of remote Sundarban areas are

imparted. Within the span of one year, the KVK imparted training to 105 numbers of womenfolk and out of them 84 have started their farms with an average monthly income of ₹ 1,900. Besides, KVK through NAIP programme developed a village-Damkal as ornamental bird village where more than 50 number of households have been engaged in this income generating avenue and already 6 of them have established themselves as entrepreneur. In this village, the rural womenfolk are earning ₹ 1,800-2,650 per month from 6th month onwards with initial bird strength of 10 pairs. The RAKVK has also developed the doorstep marketing channel for selling the birds with continuous monitoring to prevent farmers exploitation from the unscrupulous middleman.

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## Commercial vegetable production – a profitable venture

Dehra Dun. To ensure food security and upliftment of socio-economic status of farmers, a farmer Shri Santram was selected from Asan Bag village in Vikas Nagar under the Horticulture Technology Mission. The KVK, Dehra Dun conducted demonstrations and also imparted training on commercial vegetable cultivation in the farmers' field to enhance the vegetable production. The vegetable crops are :

In okra, Sonal and Sarika genotypes resistant against yellow vein mosaic even during rainy season were selected. Insecticides like indoxacarb and spinosad were provided to control the shoot and fruit borer. Results of the demonstrations envisaged that both the hybrids were promising and performed extremely well when compared with the local varieties grown earlier. The recorded average yield was found 204 q/ha which was 54.54% higher than that of earlier varieties grown by the farmers, and received ₹ 204,000/ha on an average.

In brinjal, high-yielding hybrids Anamika and Chayya, were introduced along with *Trichoderma*, *Pseudomonas* (Pant Bio-agent 3) for effective control

of wilt complex. The seed treatment and crop drenching was done with these biopesticides provided effective management of *Fusarium* wilt. It was found that 2 to 3 applications of spinosad and indoxacarb at the interval of 15 days gave effective control of shoot and fruit borer in brinjal. The demonstration showed overwhelming results and farmer got 685 q/ha yield which was 64% higher than that of the earlier varieties grown by the farmer.

In cauliflower, NUN 2801, Snow crown and Madhuri were new hybrids and average yield was found 455 to 509 q/ha.

In cabbage, Varun and Alisha hybrids were used and 604 q/ha yield was observed which was quite higher as compared to yield of local variety, i.e. 455 to 500 q/ha.

In chilly, Dushera and Indu hybrids gave on an average yield of 152 q/ha which was higher than the yield of the local varieties.

In cucumber, Malini and improved Noori hybrids showed productivity of 225 q/ha in short duration,

quite higher than that of the local varieties grown earlier. With the introduction of hybrids in vegetable and their scientific methods of pest and disease management enabled the farmer to get up to ₹ 2.40 lakh from 1.5 acre of land from one year.

The impact of demonstrations conducted in the fields of Sri Santram has become a boon for other farmers, attracting the attention of the farmers in many villages. Shri Santram is supplying vegetables in local

as well as in Dehra Dun markets which resulted in his socio-economic upliftment. The transformation from subsistence to a market economy is evident in the increased cultivation of vegetables on a commercial basis (as against previously for local market consumption alone). Now, he is increasingly sells cash crops at a remunerative price and buys staples at a low price.

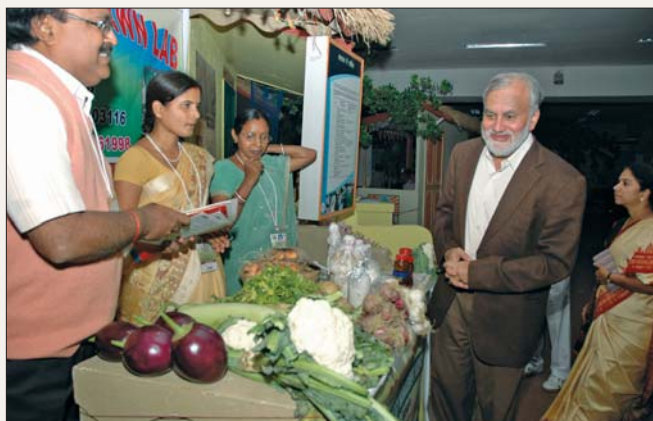
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## Celebrations

### Small is Bountiful : theme of IITF 2011

New Delhi, 27 November 2011. A 15-day 31<sup>st</sup> India International Trade Fair, 2011—the largest International Trade Fair with both Business to Business, and Business to Consumer components — was started on 13 November 2011 at Pragati Maidan, New Delhi. The Union Minister for Agriculture and Food Processing Industries, Shri Sharad Pawar, appreciated the stall of Indian Council of Agricultural Research, at the Ministry of Agriculture Pavilion. The theme of agricultural exhibition was 'Small is Bountiful.' The Indian Council of Agricultural Research along with its institutes, namely Indian Agricultural Research Institute (New Delhi), Directorate of Maize Research (New Delhi), Central Institute of Agricultural Engineering (Bhopal), Central Institute for Research on Goats (Mathura), Central Institute of Post-harvest Engineering and Technology (Ludhiana), Directorate of Rapeseed-Mustard Research (Bharatpur) and Central Potato Research Station (Modipuram) showcased the new varieties and technologies of their respective institutes.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) appreciated the display of various institutes at the IITF 2011. The demonstration of crop DNA finger printing and ICAR publications were the other main attractions. The progressive farmers and entrepreneurs trained by the ICAR institutes displayed their machine, products, etc. and shared



the experiences with visitors in the fair. The National Agricultural Science Museum (New Delhi) also participated in the exhibition for enhancing public awareness and wider publicity of the museum.

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### Think India released

New Delhi, 22 November 2011. The Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, released the special issue of *Think India* (quarterly) on Indian Agriculture. The *Think India* is an initiative of Vichar Nyas Foundation which is a modest attempt to re-emphasize the value of ideas in both understanding and changing society, culture and politics. The Union Minister of Agriculture reminded the contribution of stalwarts such as Dr C. Subramaniam, Shri Jagjivan Ram ji, Dr B.P. Pal etc., who made significant contributions in accelerating agricultural growth in India which ultimately led to globally acclaimed Green Revolution. Shri Pawar reiterated the need to make Indian Agriculture more profitable through processing and marketing initiatives and offering remunerative prices to farmers.

Dr M.S. Swaminathan (Member of Parliament) highlighted the enormous employment potential of the agricultural sector despite the slow growth while presiding over the function. He advocated a judicious blending of technology with policy intervention to make a difference in the Indian agriculture. He pointed out the huge untapped potential of agricultural growth in eastern part of the country which can be developed as an asset in the food security of the nation.

Dr (Ms) Syeda Hameed, Member (Health Group, Gender and Equity Group), Planning Commission, emphasized the important role of *Mahila Sashaktikaran Yojana* in agriculture and rural development of the country, which needs to be extended to far and wide areas across social groups.

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## Punjab KVKs stall adjudged first in Kisan Mela

Ludhiana, 23 September 2011. Shri Sucha Singh Langha (Agriculture Minister, Punjab) was the Chief Guest at the *Kisan Mela* of Punjab Agricultural University (PAU). He appreciated the activities exhibited at the Krishi Vigyana Kendras' stall. A two-day *Kisan Mela* of PAU for *rabi* crops was started on 22 September 2011. An agro-industrial exhibition was also organized in *Kisan Mela* in which 270 different Entrepreneurs / Companies / Government organizations / University departments put up their activities. The stall of Krishi Vigyan Kendras (KVKs) was adjudged as First among the various stalls. The Chief Guest, Dr Arvind Kumar (Deputy Director General, Education, ICAR), gave away the Certificate and Trophy to the Programme Coordinators of Punjab KVKs.

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## IVRI Kisan Mela 2011

Izatnagar, 20 October 2011. A three-day *Kisan Mela* 2011 under the theme of "Entrepreneurship in livestock" was organized from 18 to 20 October 2011 at IVRI campus, wherein 148 stalls were placed by various organizations including ICAR institutes, livestock feed suppliers, seed suppliers, state development departments, small-scale industries, educational institutes, automobiles/tractor agencies, handicraft sellers, banks, insurance agencies and domestic appliances.



Inaugurating the *Kisan Mela*, 'Padmashri' Dr Anil Prakash Joshi (Executive Director, Himalayan Environmental Studies on Conservation Organization, Dehra Dun), stressed on the need of modern and climate resilient animal husbandry as well as application of appropriate technologies in growing fodder for feeding the farm livestock in all seasons. Dr Joshi further called upon the scientists of IVRI to adopt some villages by a group of 2 to 3 scientists to deliver the veterinary services at the doorsteps of the farmers and to have a realistic assessment of the farmers' need.

Delivering the presidential address, the Director, IVRI, Prof. M.C. Sharma highlighted glimpses of achievements of the Institute. He added that Institute has developed more than 100 need-based and user-friendly technologies for livestock health, production and products. He further informed that the institute has also adopted 15 villages so far for three years with a view to transfer the need-based technologies developed by the Institute at the doorsteps of the farmers.

Shri Subhash Chandra Sharma (District Magistrate, Bareilly), Chief Guest, gave away prizes to the winners.

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## 122<sup>nd</sup> Foundation Day Celebrations of IVRI

Izatnagar, 10 December 2011. The Indian Veterinary Research Institute celebrated its 3-day celebration (IVRI) on 122<sup>nd</sup> Foundation Day on 8 December 2011 with grandeur and high spirits.

As a part of Foundation Day Celebrations, a three-day Games & Sports Meet-2011 was inaugurated by the Director, IVRI, Prof. M.C. Sharma. He highlighted the glorious achievements of the Institute and informed about the significant contributions of this Institute in eradicating the dreaded viral disease of livestock, i.e. rinderpest (popularly known as cattle plague), from this country and the Institute has been honoured by the FAO and OIE. Dr Ashok Kumar (Officer-in-charge, Games and Sports and Head, Division of Veterinary Public Health) provided the activities and achievements of Games and Sports Cell of the Institute.

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## XVIII Foundation day celebrated

Bharatpur, 20 October 2011. The Directorate of Rapeseed-Mustard Research started two-day function of its XVIII Foundation Day on 19 October 2011, in which Dr J.S. Sandhu, ADG (Seeds), ICAR, was Chief Guest. He emphasized the need to increase the production of rapeseed-mustard crop in present situation of climate change and degraded resources. Dr J.S. Chauhan (Director, DRMR) presented the highlights of the progress made by the Directorate during the last 18 years. The publications—*Sidhartha- Sarson Sandesh* (2<sup>nd</sup> issue), *Sarson se adhik utapadan ke liye unnatsheel krishi vidhiya* and *Sarson Anusandhan Nidheshalaya: Ek drishiti mein* — were released. Besides, Chief Guest also gave away prizes to the best performing personnel in scientific, administrative, technical and supporting staff categories.

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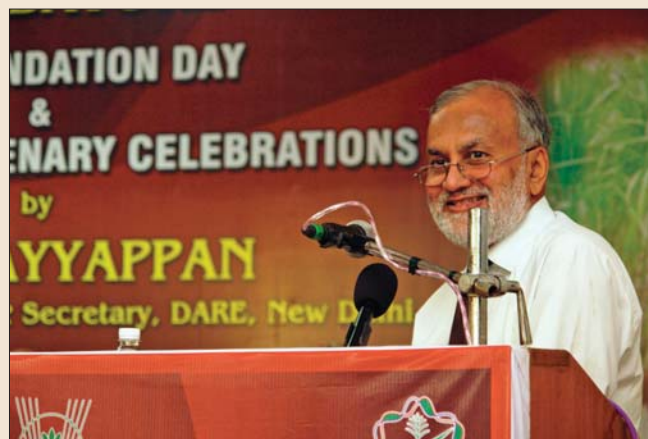


## Centenary celebrated by Sugarcane Breeding Institute



Coimbatore, 24 October 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) launched the Centenary celebrations of Sugarcane Breeding Institute, Coimbatore on its 99th Foundation day. He recalled the contributions made by visionaries like Dr C. A. Barber and Sir T. S. Venkataraman to sugarcane research. He said, 'there is an inevitable need for Public-Private-Partnership in research for effective technology management'.

Cautioning the scientists on issues such climate change, which can have serious impact on productivity, Dr S. Ayyappan, emphasized the need for mechanization of sugarcane cultivation. He assured that all necessary support would be extended



by the ICAR for strengthening the infrastructural facilities of this 100-year-old Institute. He also inaugurated the Centralized Biotechnology Laboratory and the Transgenic Glasshouse during the occasion.

Dr N. Vijayan Nair (Director, Sugarcane Breeding Institute) mentioned that the Institute has developed about 2,900 'Co' varieties so far, many of which have become popular sugarcane varieties across the country. He added that the institute was the first to initiate transgenic research in sugarcane in the country and maintains the largest world collection of sugarcane germplasm.

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## 52<sup>nd</sup> Foundation Day celebrated at G.B. Pant University of Agriculture and Technology

Pantnagar, 17 November 2011. 'It is essential that commerce is, infused into agriculture for its development in real-term and make its profitable', said Dr Mangala Rai (Agriculture Advisor to Chief Minister of Bihar), Chief Guest of the inaugural function of 52<sup>nd</sup> Foundation Day of Govind Ballabh Pant University of Agriculture and Technology, at 2-day event that was held at Ratan Singh Auditorium



of the University. He emphasized upon agro-based industry and removal of supply side constraints for saving the losses of perishable agriculture produce. He cautioned scientists to take lessons from ill-effects of first Green Revolution and work upon water-use efficiency, water harvesting, fertilizer and pesticide-use efficiency and conservation agriculture to have maximum production from minimal use of resources. Dr Mangala Rai also advised to integrate satellite-based knowledge, information and communication technology and computer technology to evolve further programmes in agriculture. The Vice-Chancellor, Dr B.S. Bisht, presented the historical perspective, achievements of 51 glorious years of the University and future aspects.

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## Silver Jubilee celebrated at CIRCOT

Nagpur, 11 December 2011. Dr S. Ayyappan, (Secretary, DARE and Director General, ICAR ), Chief Guest, lauded the achievements of the Centre over the years at the Silver Jubilee celebrations of the Ginning Training Centre, Central Institute for Research on Cotton Technology (CIRCOT). He said that the Centre has



become global by organizing international training programmes for Afro-Asian countries and by offering consultancy in the field of ginning and value-addition of cotton plant by-product. The efforts of CIRCOT in the area of Secondary Agriculture were known much before the agricultural community thought about this issue, and the Public-Private-Partnership programme existing at CIRCOT were admired.

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## Celebration of World Food Day

New Delhi, 17 October 2011. To commemorate the World Food Day a round-table discussion, chaired by Professor Abhijit Sen (Member, Planning Commission) on the theme 'Food Prices: from Crisis to Stability', organized by National Centre for Agricultural Economics and Policy Research (NCAP) in collaboration with Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India and Food and Agriculture Organization-India, was held at NCAP. The discussion was mainly focused on the spiraling prices of food and agricultural commodities both in the domestic and international markets and the role of economic policy measures and technology options to manage such high prices of essential commodities. The discussants emphasized that, apart from exploring economic policy solutions to address the problem of food prices, it is equally important to harness the opportunities offered by frontier technologies like biotechnology, bioinformatics, precision agriculture, etc. A number of pressing issues like the need for bridging the yield gaps in major food crops, reinvigorating the



agricultural inputs production and delivery system, modernizing the agricultural extension system, renewed emphasis on water and soil management practices, creation of world class centres for advanced research and education were also flagged and debated upon.

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## Rice Day celebrated

Barapani, 17 October 2011. 'Improved rice production technologies available to farmers' was the theme on 'Rice Day 2011' at the ICAR Research Complex for North-Eastern Hills Region. "Due to climatic aberrations across the country farming is affected. Therefore technological solutions to farmers of this region were discussed. "The 'Rice Day 2011' is an attempt to make you aware about quality seeds, improved technologies and balanced nutrients for making productivity higher", said Dr S.V. Nagchan (Director, ICAR Research Complex, Barapani, Meghalaya) to farmers. The 'Rice Day 2011' prominently focused on adaptation and mitigation measures to climate change, management practices like system of rice intensification, integrated crop management, direct seeding, and conservation agricultural approach (reduced tillage, residual management and crop diversification) in rice.

Swingkom, a farmer from Kyrдем village, enquired about appearances of crops perceived differently at farmers' fields and ICAR fields during showcasing of various rice varieties at ICAR Agronomy Division's fields, Barapani, RI-Bhoi district.

The weather in the region is showing aberrant conditions in the recent past; especially rainfall patterns have witnessed remarkable changes, for example the drought remarkable of 2009 and excess rainfall of 2010-11. Explaining suitable varieties under various altitudinal areas, scientists informed that suitable short duration upland rice varieties are IURON 514, Bhalum 1-2-3-4, whereas Vivek Dhan 82, VL Dhan 61 are effective for lowland in the region. To fight against the early season drought, modified nursery mat followed by system of rice intensification is found to be effective; mid-season drought needs rain-water harvesting schemes such as *jalkund* at farmers' fields.

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## Hindi Chetan Mass

Bharatpur, 13 October 2011. The Directorate of Rapeseed-Mustard Research organized *Hindi Chetna Mass* from 14 September to 13 October 2011. During this meeting, a *Rajbhasha* workshop was also organized. The winners of *Shrutilekh*, *Imla* (dictation), *patra lekhan* (letter writing), *nibandh lekhan* (essay writing), *anubad* (translation) of English to Hindi language etc.



were also rewarded. Two personnel of Directorate of Rapeseed–Mustard Research were honoured for the maximum use of *Rajbhasha* in day-to-day official work. Dr J.S. Chauhan, Director, congratulated all the winners and called for more efforts on use of *Rajbhasha* at the Directorate.

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## Destination Bihar – Expo 2011 inaugurated

Patna, 14 December 2011. The Deputy Chief Minister, Bihar, Shri Sushil Kumar Modi inaugurated the 'Destination Bihar – Expo 2011' at Bihar Veterinary College Campus. He said, "Urbanization and industrialization are key ingredients to any growing economy. With industrialization and urbanization, Bihar could further help its agricultural sector that provides livelihood to millions of people in the state". He added that, the Public-Private-Partnership mode is also encouraged to promote the industrialization in the state. He said "Industrial development also results in rapid urbanization that remains slow in Bihar. Therefore several proposals on Food Processing under PPP mode are in consideration. The rate of urbanization in Maharashtra and Gujarat stood at 40% whereas Bihar was barely crawling @ 11%. This needs to be changed by rapid industrial development in the state, through the new industrial policy. Numbers of the facilities are given to the entrepreneurs of the state for the development of agriculture-based industries".

Shri K P Jhunjhunwala (Chairman, Organizing Committee, Destination Bihar-Expo 2011) said that Bihar's rich natural and human resources could be utilized to enhance its present Gross Domestic Products growth rate. The Expo showcased the huge potential of Bihar, which is endowed with rich natural resources and huge human resources.

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## DFR celebrated Foundation Day 2011

New Delhi, 9 December 2011. Dr Gurbachan Singh (Chairman, Agricultural Scientists' Recruitment Board, New Delhi) was the Chief Guest on the second foundation day of the Directorate of Floricultural Research (DFR) that was celebrated at IARI. The Chief Guest emphasized that the immediate priority is to create awareness among farmers about the benefits of practising floriculture and to transfer the technologies developed to the needy and also the role of Institutions like Directorate of Floricultural Research. He suggested the expansion of commercial floriculture trade from cut and loose flowers to seed and nursery business including potted plants and several value-added products.

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## Capacity Building

### Post-entry quarantine laboratory, poly-houses inaugurated

Rahuri, 27 October 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated the Post-entry Quarantine Laboratory and two advanced poly-houses at Mahatma Phule Krishi Vidyapeeth. He also visited the state level biotechnology laboratory and reviewed the research work.

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### Foundation stone of Administrative Building laid at ZPD, Zone-I

Ludhiana, 23 November 2011. Foundation Stone of Administrative Building of Zonal Project Directorate, Zone-I (ICAR) was laid by the Secretary (DARE) and Director General (ICAR), Dr S. Ayyappan, at Punjab Agricultural University. He informed about new initiatives of the ICAR with regard to Student Ready, Farmer First and also restoration of AP Cess Fund Scheme. An exhibition was organized by the KVKs of Punjab,



and it was inaugurated by Dr S. Ayyappan. The exhibition depicted different activities carried out by the KVKs. Many value added agricultural products were also displayed in the exhibition. Some innovative farmers from Punjab displayed their products also.

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### Shri Sharad Pawar inaugurated Annexe Administrative Building of ZPD Zone-VII

Jabalpur, 3 December 2011. The Union Minister of Agriculture and Food Processing Industry, Shri Sharad Pawar inaugurated Annexe Administrative Building of Zonal Project Directorate, Zone VII. The Minister for Farmer Welfare and Agriculture Development, Government of Madhya Pradesh, Dr Ramakrishna



Kusmaria; an M P(Lok Sabha, Jabalpur) Shri Rakesh Singh; the Secretary, (DARE) and Director General (ICAR) Dr S. Ayyappan; the Deputy Director General (Agricultural Extension), ICAR, Dr K.D. Kokate and other dignitaries were also among the august gathering.

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## Workshop-cum-SAS installation training programme

Izatnagar, 29 October 2011. A two-day second Workshop-cum SAS installation training programme for Nodal Officers (under the NAIP) on “Strengthening Statistical Computing for National Agricultural Research System” was started on 28 October 2011 at IVRI. The workshop was organized by the Division of Livestock Economics, Statistics and Information Technology (LES & IT), wherein 22 participants including Nodal Officers from 12 Nodal Centres under IVRI Statistical Computing hub participated.

The Chief Guest, Prof. M.C. Sharma (Director, IVRI) emphasized the importance of Statistical Analysis System (SAS), statistical software package to increase the quality of research and publications. He informed that the statistical software package can be installed on multiple official machines both in standalone as well as internet mode.

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## Sustainable farming system for livelihood improvement and empowerment of rural poor in NEH Region

Dhalai, 29 October 2011. The ICAR Research Complex for North-Eastern Hills Region has undertaken a project on “Livelihood Improvement and Empowerment of Rural Poor through Sustainable Farming System in North-Eastern Hills Region” from

NAIP. The district of Dhalai is one of the sites in NEH Region for implementation of this project. Dr Bangali Baboo (National Director, NAIP) reviewed the development of this project at Tripura Centre, College of Fisheries, Central Agricultural University, Tripura and Dhalai *Zilla Parishad*. He also reviewed two clusters, namely Balaram (200 ha of land) and Maracherra (525 ha of land) where a total number of 1,100 farm-families are brought under this livelihood programme.

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## ATIC-Kisan Club Entrepreneurship Development Workshop

Izatnagar. Prof. M.C. Sharma, Director (IVRI), inaugurated the workshop and said that it has a special significance being the first of its kind in the country wherein efforts are being made to directly link the farmers with IVRI to boost the level of their lifestyle and income through animal husbandry related entrepreneurship development. It is aimed at providing the need based training to the livestock owners in dairying, goat, pig and poultry farming, depending upon their interest and thereby directly linking them with IVRI for training, Banks for loan and Insurance Agencies for risk cover. Prof. Sharma underlined the necessity of persuading the farmers to join ATIC- *Kisan Club* for extending maximum benefits to them through livestock entrepreneurship.

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## MoU

### IIPR New Regional Research Centre in Karnataka

Dharwad. The Indian Institute of Pulses Research, Kanpur has signed a Memorandum of Understanding (MoU) with University of Agricultural Sciences, Dharwad for the establishment of a Regional Research Centre -cum- Off-Season Nursery of the Institute at Dharwad in Karnataka. Dr N. Nadarajan (Director, IIPR



on behalf of Secretary, DARE and Director General, ICAR) and Dr H.S. Vijay Kumar (Registrar, UAS, Dharwad) signed an MoU in presence of the Vice-Chancellor, Dr R.R. Hanchinal. At present, the centre will function from Sericulture building of University. It will cater the research and extension needs of pulse crops like blackgram, greengram, chickpea and pigeonpea grown in Karnataka. Besides, the centre will also act as an Off-Season Nursery during summer for advancing breeding material of chickpea, lentil and peas to hasten breeding cycle. Besides, centre will develop location specific technologies for pulses and would contribute to capacity building of line department officials and impart need-based training to pulse growing farmers in association with UAS, Dharwad. Generating breeding material for pulses grown in southern Indian states would also be the thrust area of research of this centre.

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## World Food Day observed

Bud Bud, 16 October 2011. The World Food Day was observed at KVK, Burdwan at its campus. The main objective of this day is that everyone in this globe should think over those people who are suffering from poverty.

Dr F.H. Rahman (Programme Coordinator, KVK, Burdwan), stressed on the issue of swing in food prices jeopardizing livelihood security of people. He added that F.A.O. selected "Food Prices: from Crisis to Stability" as this year's theme. As to mitigate the effect of price volatility he pointed out that national or regional safety nets, possibly featuring emergency food reserves, can help assure food supplies to needy and vulnerable population groups during crises.

The scientists elaborated the need of scientific fish culture towards sustained fish productivity in the region. They maintained that the recent techniques of fish cultivation not only can augment fish production enormously but also is a thoroughly profitable entrepreneurship, and exemplified the issue by citing various cases of farmers. Seventy farmers took part in this programme.

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## Agriculture Technology Festival organized

Ahmednagar, 16 November 2011. To give the exposure to the recent technical advances and developments in the field of agriculture and allied sector, Krishi Vigyan Kendra (PIRENS), Babhaleshwar (Maharashtra) organized a 3-day Agriculture Technology Festival in collaboration with ATMA, Ahmednagar. It was inaugurated by Minister of Agriculture and Marketing, Government of Maharashtra, on 14 November 2011.

There was a separate dome of crop festival where more than 150 farmers displayed their products related to agriculture, horticulture, dairy etc. To display the new agriculture inputs, stalls of State Agricultural University, Agriculture Department, Private Companies and Entrepreneurs exhibited their technologies through 60 stalls in the exhibition centre.

Special emphasis was given on-farm mechanization where small tools and implements were also exhibited. Similarly, separate dome was prepared to impart the important skills required by the farmers during their day-to-day activity in the agriculture. During Agriculture Technology Festival different field trials and demonstrations laid out on the KVK

instructional farm were also shown to the visiting farmers. The KVK organized four seminars on important and emerging issues in the district like protective cultivation in agriculture, cultivation and processing of turmeric and ginger, loose house system for dairy management and marketing system to enhance the profitability in agriculture. About 9,000 farmers visited in this festival.

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## Video conferencing started

Rahuri, 29 September 2011. A video conferencing facility has been launched by the Vice-Chancellor, Dr T. A. More, at Mahatama Phule Krishi Vidyapeeth.

This facility has been established at three places in central campus and 8 centres (College of Agriculture, Kolhapur, Pune and Dhule; ZARS, Igatpuri and Solapur; ARS, Kasbe Digraj, Dist. Sangli; CSRS, Padegaon, Dist. Satara; and Oilseeds Research Station, Jalgaon).

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## KVK launched in Longleng, Nagaland

Longleng, 10 December 2011. The ICAR Research Complex for North-Eastern Hills Region (Nagaland Centre) launched its third and state's ninth Krishi Vigyan Kendra (on a plot of 20 ha area, donated by the villagers) at Longleng (remote district of Nagaland). Mr Phom (Parliamentary Secretary for RD and REPA, Government of Nagaland) laid the foundation stone and appealed all the farmers of the district to come forward for getting the facility from this newly launched Krishi Vigyan Kendra. He consented to distribute 1,000 chicks of Vanaraja and Gramapriya breeds to 100 beneficiaries of Hukphang village on 17 December 2011 at farmers' training on backyard poultry.

Dr A.K. Singh (Deputy Director General, NRM, ICAR) emphasized on the requirement of soil and water management strategy, improved methods of cultivation, climate change resilient agriculture and improvement of jhum in the State. Dr S.V. Ngachan (Director, ICAR Research Complex for NEH Region, Umiam) informed that the Krishi Vigyan Kendra at Longleng will provide all the new techniques of agriculture to the farmers of the district at their doorsteps through field level demonstration and field trials.

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## Awards

Faizabad, 4 November 2011. Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya bagged First Prize for the stall exhibited in North State Regional Fair 2011, organized at Narendra Deva University of Agriculture and Technology (Uttar Pradesh). Dr Anand Singh (Programme Coordinator, Krishi Vigyan Kendra, Hamirpur) and Dr Surinder Thakur, (Programme Coordinator, Krishi Vigyan Kendra, Mandi) represented the University and familiarized the farmers of Uttar Pradesh about the cultivation of Red and Yellow capsicum.

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Bhubaneswar, 16 October 2011. Odisha *Krushak Samaj*, a unit of *Bharat Krushak Samaj*, New Delhi, a non-government organization, involved in championing farmers' cause observed World Food Day in collaboration with Central Institute of Freshwater



Aquaculture. The farmers' forum commended the contribution of scientists and bestowed "Krushakbandhu Team Award" on the CIFA led consortium. Dr Saroj K. Swain (Principal Scientist) received the award.

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Pantnagar, 26 November, 2011. The Vice-Chancellor of G.B.P.U.A.&T., Dr B.S. Bisht, was bestowed by XIX Dewang Mehta Excellence Award 2011 for his outstanding contribution to education at Dewang Mehta Business School Awards ceremony, Mumbai on 26 November 2011.

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## Visits

### Director General, ICAR visits NRCB, Tiruchirapalli

Tiruchirapalli, 23 October 2011. Dr S. Ayyappan (Director General- ICAR and Secretary- DARE, Government of India), visited National Research Centre for Banana and inaugurated the newly constructed administrative building at NRCB, Trichy. Dr S. Ayyappan informed that the Indian Council of Agricultural Research has introduced a new programme for the farmers called "Farmer's First" in which priority will be given to find solutions to the problems faced by the farming community by the research organizations and a special fund will be provided to carry out the research programme. The fund will be to the tune of 3% of the total outlay of the each research institute in India. In addition to primary agriculture, more emphasis will be given to "Secondary agriculture" which involves processing, storage, business incubators and value-addition of the

produce. He encouraged the scientists to go for more patenting of the technologies. In this endeavour, ICAR has identified 27 research platforms covering agriculture, horticulture, animal husbandry, fisheries and allied sectors in the 12<sup>th</sup> Five-Year Plan projections.

Dr S. Ayyappan visited the NRCB research farm, all laboratories and exhibition. He reviewed all the ongoing projects of the institute and advised the





scientist to give more emphasis for the team work and work on a "Consortia mode" to find solutions of the farmer's problems and also to give priority for the waste utilization in banana. Dr S. Ayyappan also appreciated the technologies developed at NRC for banana for the benefit of the farmers and also the infrastructure developed for carrying out the frontline research activities to solve the problems of the banana farmers by which, the productivity and production of banana could be achieved to the target of 36 million tonnes set for 2020.

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## Australian High Commission visited Punjab Agricultural University

Ludhiana, 5 October 2011. A three-member delegation from Australian High Commission visited Punjab Agricultural University (PAU) and held a meeting with the various departments.

Ms S. Hooper (Counselor, Political), lauding the contribution of PAU to the nations' food kitty, said, "As more than 60% of Indian population is dependent on agriculture for the livelihood, we want to acquaint the Australian Government with the understanding of Punjab with prime focus on challenges and priorities in Punjab agriculture." She also highlighted, "Australia produces wheat for the whole world."



Mr C. King (First Secretary, Trade and Economics, and Senior Analyst) and M. Loynd said that their visit aims at studying economic and political priorities in Punjab, impact of the Punjab economy on India and how the agriculture sector is evolving. Besides, the other emphasis is on studying the environmental concerns, modern farming and latest technologies in the field of agriculture and its allied sectors.

Dr D.S. Cheema (Dean, PAU) mentioned that with the industrious work of PAU scientists, Punjab is contributing 60% wheat, 40% rice, 50% mushroom, 25% honey and 10% cotton to the central pool. He familiarized the delegation with research, teaching and extension. He also stated that the farming community has taken innovative steps in the farm sector as designed by the University.

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## Rural poultry production – training and distribution in Tripura

Lembucherra, 21 November 2011. Dr S. K. Panda (Chief Secretary, Government of Tripura) visited the ICAR Research Complex for North-Eastern Hills Region to attend a programme on Rural Poultry Production - Training and Distribution among some members of Self-Help Group and Farmers' Club of Tripura'. Dr M. Datta (Joint Director, ICAR Research Complex for NEH Region, Tripura Centre) informed that Tripura has achieved the per caput meat availability around 6.5 kg/annum which is near by ICMR requirement (7.6 kg/annum). But per caput egg availability in Tripura is only 42/annum whereas ICMR requirement is 182/annum. The reason behind the reduced rearing of layer poultry birds by the farmers is the high cost of poultry feed and moreover farmers can easily get a return from broiler poultry within 8 weeks. Scientists are attempting to produce a poultry breed by crossing a Delham red poultry bird with Tripura local poultry germplasm (Black or Brown) and a breed having 25% blood from Tripura local who is quite capable to survive effectively under Tripura condition, he added. The mortality of such bird remains very low. About 900 six-week-old poultry birds were distributed to Tripura farmers belonging to Bagma (South Tripura), Balaram in Dhalai and Lembucherra.

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## USA scientist visited Krishi Vigyan Kendra

Karda, 28 September 2011. Dr Robin R. Bellinder (Professor, Weed Scientist) and Dr Sudha Narayanan (Research Associate, College of Agriculture and Life Sciences, Cornell University, New York) visited Krishi Vigyan Kendra, Karda. Dr Robin R. Bellinder briefly appraised the update of College of Agriculture and Life Sciences, Cornell University, New York and expected to study the socio-economic and technological needs of the farmers from KVK operational area.

Dignitaries visited Integrated duck-cum-fish farming, quail farming and Giriraja poultry farming demonstration unit. How the demonstration of integrated farming system approach is beneficial to the farmers as subsidiary enterprise was shown which is the need of KVK operational area. Processing and value-addition is the need of the present era. The dignitaries visited cashew processing, soy- processing, pulse processing and feed mill units and discussed with Mr P. P. Shelke (SMS, Agriculture Engineering), and expressed the satisfaction towards the demonstrated activities which is the most essential needs in end to end concept for socio-economic upliftment of farmers.

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# Trainings

- New Delhi. International training on 'In vitro and cryopreservation techniques for conservation of plant genetic resources' was organized by the NBPGR, New Delhi, from 14 to 26 November 2011.  
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- Tenali. To make farmers aware of the modern protection, production technologies, value addition and utilization of sorghum products, a farmers' rally-cum-training programme was organized by Directorate of Sorghum Research, Hyderabad in collaboration with De V Gen Seed and Crop Technology Private Ltd. Company on 4 November 2011 at Agricultural Market Committee Yard, Sultanabad, Tenali.  
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- Jodhpur. Eight-day Model Training programme on 'Integrated Farming System for Drylands', sponsored by Directorate of Extension, New Delhi, was organized by Division of Transfer of Technology and Production Economics at the CAZRI, Jodhpur from 10 to 17 October 2011.  
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- Bharatpur, 8 December 2011. An eight-day Model Training Course on 'Advances in seed production, processing and certification of *rabi* field crops (mustard, wheat, lentil, gram)', sponsored by the Directorate of Extension, Ministry of Agriculture was inaugurated by Sri Deshraj Singh (Joint Director, Department of Agriculture, Bharatpur) was organized on 1 December 2011 at the Directorate of Rapeseed-Mustard Research, Bharatpur. The 23 research/ extension personnel from the state agricultural departments of Asom, Odisha, Gujarat, Chhattisgarh, Haryana, Uttar Pradesh and Rajasthan participated in the training.  
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- Valsad. A training programme on 'Cottage level food processing entrepreneurship for farmers' was jointly organized by Indian Institute of Crop Processing Technology, Thanjuvar (Ministry of Food Processing Industries) and Gujarat Vidyapeeth Krishi Vigyan Kendra, Valsad - Gujarat. The training programme comprised minimal processing techniques, post-harvest handling and processing of food crops, wastes minimization, cold storage, value addition, food business and supply chain management.  
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- Bharatpur, 15 December 2011. To empower tribal farmers for rapeseed-mustard production under resource constraints, three training programmes, each of three days were organized at Directorate of Rapeseed-Mustard Research, Bharatpur from 13 to 15 December 2011. Sixty participants from 15 villages of Sirohi and Udaipur districts were imparted training on latest know-how of rapeseed-mustard production, appropriate high-yielding varieties, quality seed production and storage.  
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- Bharatpur, 11 October 2011. In its endeavour of "Towards Villages" Directorate of Rapeseed-Mustard Research, Bharatpur, adopted Unchagaon village of Sewar *Panchayat Samiti* of Bharatpur district, to develop it into a model village specially for mustard cultivation by converging various government agencies to synergizes our efforts. In view of this, NABARD sponsored farmers' club namely, *Pragatishil Kisan Club* with around 100 men and women farmers. To assess the improved technology 35 frontline demonstrations were also laid out in this village.  
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- Rahuri, 22 November 2011. A seven-day Model training course on 'Enhancing agricultural productivity through pressurized irrigation systems', sponsored by Ministry of Agriculture, Government of India, was inaugurated by Vice-Chancellor, Dr T. A. More at Inter-Faculty Department of Irrigation Water Management, Mahatma Phule Krishi Vidyapeeth.  
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- New Delhi, 31 October 2011. A training programme on Forecast techniques in agriculture was organized for officers of Department of Census and Statistics, Sri Lanka at Indian Agricultural Statistical Research Institute, New Delhi from 17 to 31 October 2011.
- New Delhi. The National Academy of Statistical Administration (NASA) conducted six weeks training programme on Official statistics and related methodology for the participants of Afghanistan, Mongolia, Gambia and Tanzania at IASRI, New Delhi.

## ICAR Vichar Manch

New Delhi, 3 October 2011. Dr D.S. Rathore (Chairman, Biotechnological Programme Promotion Committee) shared his vast and enriched experience on 'Wisdom and Scientific Temperament for Healthy Life' at NASC Complex for the welfare of everyone.



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## Protocol Activities

### VVIP delegation

- Shri Sharad Pawar (Union Minister of Agriculture and Food Processing Industries) led a delegation to participate in the First Association of South-East Asian Nations-India Ministerial Meeting on Agriculture Cooperation on 8 October 2011 at Jakarta, Indonesia.

### Study visits

- Dr M. Madhu (Head, Research Centre, CSWCR&TI, Korapur, Odisha) visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011, to participate in the 2011 Global Research Alliance (GRA Fellowship Programme) at Iowa State University, USA from 19 September to 22 December 2011.
- Dr K.V.R. (Senior Scientist, CIAE, Bhopal) visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011 for undergoing training on 'Input minimization strategies for sustainable agriculture' for 12 weeks beginning from last week of September to last week of December 2011 at Cornell University, Ithaca, New York, USA.
- Dr Richa Sood [Scientist (SS), HSADL, IVRI, Bhopal] visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011 for undergoing training on 'Antivirals for influenza viruses including avian influenza' at South Dakota University, USA from 30 September to 30 December 2011.
- Dr A.K. Thakur (Senior Scientist, DWM, Bhubaneswar) visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011 for undergoing training on 'Plant Physiology' at Cornell University, Ithaca, New York for 12 weeks (between 1 October and 23 December 2011).
- Dr N.K. Lenka (Senior Scientist, IISS, Bhopal) visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011 for training on 'Interactive effect of CO<sub>2</sub> and temperature on soil water balance' at Ohio State University, USA for 12 weeks (from 10 October 2011 to January 2012).
- Dr R.N. Chatterjee (Acting Project Director, PDP, Hyderabad) and Dr S.D. Kharche (Senior Scientist, CIRG, Makhdoom) visited Golden Valley Agricultural Research Trust, Zambia from 5 November to 16 November 2011 (excluding journey time) to advise Livestock Development Centre in Southern Province of Zambia on Goat Improvement (Artificial Insemination and Goat Management) and Rural Poultry.
- Dr Gauri Sankar Laha (Senior Scientist, DRR, Hyderabad) visited the Norman E. Borlaug International Agricultural Science Technology Fellowship Programme 2011 for training on 'Molecular Plant Pathology' accrued at Iowa State University, USA for three months (tentatively from November, 2011 to January, 2012).
- Dr B.K. Garg (Principal Scientist, Prototype Production Centre), Dr A. C. Saxena (Incharge, Prototype Production Centre), and Dr S.K. Annamalai (Head, Industrial Extension Project, CIAE, Bhopal) visited Benin on 5 December 2011 for field visit and to discuss feasibility study report for establishment of farm equipment assembly plant under US\$10 million Line of Credit (LoC).
- Dr R.K. Pal [Head (Horticulture), IARI, New Delhi] and Shri Amit Mittal [Executive Engineer (Civil), IARI, MEU] visited Myanmar from 19 to 23 December 2011.

## Symposia, Workshops, Meetings

- Dr Ravindra Kumar [Assistant Director General (Coordination), ICAR, New Delhi] visited Panama City from 1 to 8 October 2011 as a member of the Indian delegation led by Secretary (Environment and Forests), Ministry of Environment and Forests to participate in the United Nations Climate Change talks.
- Dr Swapan K. Datta [Deputy Director General, Crop Sciences), ICAR, New Delhi] visited USA from 3 to 7 October 2011 as a member of the Indian delegation led by Secretary (Agriculture and Cooperation), Ministry of Agriculture to participate in the symposium on 'Opportunities for Innovation in Indian Agriculture Sector' organized by Consulate General of India, Chicago and to have discussion with USDA Officials at Washington.
- Dr Arvind Kumar [Deputy Director General (Education), ICAR] participated in the Fifth Meeting of IBSA, Agriculture Joint Working Group held at Pretoria, South Africa from 12 to 13 October 2011 as a member of the Indian delegation led by Secretary (Agriculture and Cooperation), Ministry of Agriculture, Govt of India.
- Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) and Shri Rajiv Mehrishi, (Additional Secretary, DARE and Secretary, ICAR) visited Trinidad and Tobago and the Commonwealth of Dominica from 14 to 18 October 2011 (excluding journey time) to meet the Minister of Food Production; Secretary (DARE and DG, ICAR) to deliver a lecture to scientific audience and sign a General Agreement for Technical Cooperation between ICAR and the Caribbean Agricultural Research and Development Institute.
- Sh. Rajesh Ranjan (Director, DARE, New Delhi) visited as a member of the delegation led by Shri R.K. Tiwari [Joint Secretary (Marketing), Department of Agriculture and Cooperation] for attending the Second India-Canada Joint Working Group meeting held from 14 to 17 November 2011 in Ottawa, Canada.
- Dr R.K. Gupta (Director, Central Institute of Post-harvest Engineering and Technology, Ludhiana) visited as a member of the delegation led by Shri G.C. Pati (Additional Secretary, Department of Agriculture and Cooperation) for attending the Third Indo-German Joint Working Group meeting from 15 November 2011.
- Shri Rajiv Mehrishi (Additional Secretary, DARE and Secretary, ICAR) led a delegation along with Dr Arvind Kumar (Deputy Director General, Education, ICAR) Dr K.M.L. Pathak (Deputy Director General, Animal Sciences, ICAR) and Dr R. K. Mittal (ADG, EQR) to Addis Ababa, Ethiopia from 12 to 13 December 2011 for discussion with the African Union Commissioner for Human Resources, Sciences and Technology and also to discuss India-Ethiopia bilateral issues.

## Appointments

- Dr Gurbachan Singh has joined as Chairman, Agricultural Scientists' Recruitment Board on 13 October 2011.

## Retirements

- Dr S. Ramani took voluntary retirement from the post of Project Coordinator (Honey Bee and Pollinators), CCS-HAU, Hisar on 24 November 2011.
- Dr R.L. Yadav is retired from the post of Director, IISR, Lucknow on 30 November 2011.
- Dr. A.K. Mehta is relieved from the post of ADG (Agriculture Extension), ICAR, Hqrs, New Delhi on 31 December 2011.



## 2011 — Glimpses of ICAR

### Productivity enhancement

- Released Fortyeight varieties/hybrids of major food crops of rice, wheat, maize and pulses for different agro-climatic regions of the country. For the first time, a long-duration rice hybrid CR Dhan 701 developed for irrigated-and-shallow lowlands.
- Released eight hybrids/varieties, viz. Maize Hybrid 39, Vivek Maize Hybrid 43, VL Matar 47, VL Masoor 514, VL Masoor 133, Vivek Matar 11, VL Tamatar 4 and VL Shimla Mirch 2, for hilly regions.
- Released four high-yielding pulses, viz. Ujjawala of *kabuli* chickpea for the central zone; IPM 02-3 of mungbean for spring in the north-western plains zone; IPM 02-14 for summer in the south zone; and IPF 4-9 of field pea for Uttar Pradesh.
- Three groundnut varieties viz. Girnar 3, Kadiri Harit and GPBD 5, notified for Andhra Pradesh and GJG-HPS 1 for Gujarat.
- Developed a new strain of pig for the North-Eastern Hills Region.
- Produced triplet lambs through selective breeding in Muzaffarnagari sheep and improved twinning rate to around 14%, for the first time.
- Bred the Silver pompano, one of the high-value marine tropical finfishes, and larval production accomplished.
- Developed a probiotic-based shrimp seed production technique.

### Cutting Edge Science

- Decoded genome of pigeonpea, one of the most important pulse crops of India, being the first such endeavour by an entirely Indian group of scientists. A total of 47,004 protein-coding genes were identified in the pigeonpea genome, of which 1,213 are for disease resistance and 152 are for tolerance to drought, heat and salinity.
- Accomplished transformation of sunflower for conferring resistance to sunflower necrosis disease through deployment of *TSV-CP* and *CP-AS* gene(s) via *Agrobacterium-mediated* transformation of cotyledons.
- Whole genome sequencing of one female Murrah buffalo (NDRI 5620) was undertaken, and the buffalo assembly integrated into a publicly available genome browser (<http://210.212.93.84/cgibin/gb2/gbrowse/bovinel>).
- Prepared positive marker vaccine for FMD virus by incorporating GFP epitope and tested in 12 crossbred female calves. A novel FMD virus Asia 1 (Indian Vaccine strain) replicon based viral vector developed for vaccine research and development.

### Natural Resource Management

- Identified Rice-potato+wheat-greengram intensive cropping for irrigated medium land of Jharkhand, which enhanced production four times, employment by 174% and cropping intensity by 300%.
- Recorded new genera of mushrooms, viz. *Humidicutis*, *Leucoagaricus*, *Leucopaxillus*, *Micromphalea*, *Otidea*, *Schizostoma*, *Tulostoma* and *Vascellum*.

### Agricultural Mechanization and Energy Management

- Developed twin-row power weeder with float and rotary cutting blade for SRI cultivation, being now manufactured under the brand name, *Garuda*.
- Developed *in situ* jute retting technique to extract quality jute fibre using low volumes of water.
- Developed a power-operated unit of *Aloe vera* gel extractor to improve the gel extraction.

### Post-harvest Management and Value-addition

- Digital radiography, CT and MRI imaging techniques could detect the presence of seed weevil in mango samples, which is extremely difficult to judge by means of simple

visual observation.

- Developed value chains for banana pseudostem and Oceanic tuna.
- Developed Eco-holi and textile colours from vegetable sources and process for production of safe, low-cost *holi* powder from cassava (tapioca) flour.

### Capacity Building

- Added 19 new Experimental Learning Units to the existing 264 units in 51 universities, to provide experience-based and skill-oriented hands-on-training to the students and revised the guidelines for ELUs.

### Technology Assessment, Refinement and Transfer

- The number of KVKs in the country is now 605.
- Assessed 2,659 technologies by conducting 26,590 trials on farmers' fields in 4,286 locations on various crops and animals.
- Refined 208 technological interventions in case of crops and animals under different thematic areas in 283 locations.

### IP Portfolio Management

- Received one international and three national patents and 198 extant varieties were registered and granted protection.

### Partnership and Linkages

- ICAR-CIMMYT initiative for Borlaug Institute for South Asia (BISA) in Ludhiana, Pusa and Jabalpur.
- India Chairing the Asia-Pacific Association of Agricultural Research Institutions (APAARI) for 2011-12.

### O and M Reforms

- Revised Guidelines for ARS and KVK being formulated.
- Revised format of Regional Committees with KVK interactions.

### Information, Communication and Publicity Services

- The E-Publishing Knowledge System in Agricultural Research, has increased public awareness as 125,135 abstracts in *The Indian Journal of Agricultural Sciences* and 133,007 in *The Indian Journal of Animal Sciences* were viewed on-line. The 32,562 research papers were down loaded in first journal and 31,729 in last journal.
- The users of research journals of the ICAR are in 181 countries and there is enhancement in the number of foreign authors for the research journals

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