



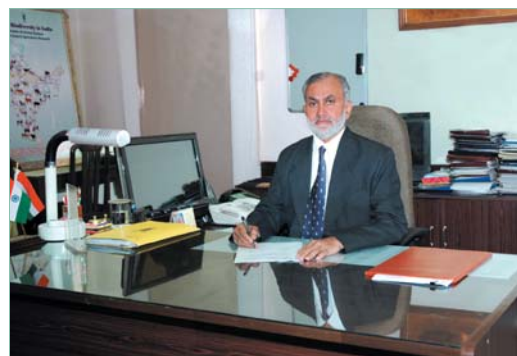
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From the DG's Desk

Dear Readers,

The ICAR and the State Agricultural Universities (SAUs), vested with the major responsibility of planning and imparting higher agricultural education, research and front-line extension, have contributed significantly towards growth of agriculture. Presently, there are 53 SAUs, five Deemed-to-be Universities (four of them are constituent Institutes of ICAR), four Central Universities (CUs) with constituent agricultural faculties and one Central Agricultural University (CAU) providing education in 13 disciplines at under-graduate level and more than 95 subjects at post-graduate level. The universities and other institutions, annually admit about 40,000 students with an outturn of 28,000 graduates, post-graduates and doctorates in agriculture and allied sciences in the country. About 55% students in agricultural universities are from rural background and, on an average, 36% are girl students.



The public sector educational and research institutions and promotional agencies have been traditionally the main source of employment for agricultural professionals. However, the private and services sectors are now also aggressively employing the graduates. Food processing, value-addition, storage and marketing have become increasingly important to agriculture producers, and thus, for agricultural education. The ever-growing requirements of food, nutrition, environment and livelihood security; changing consumer preference of food, advances in technology, globalization etc., further reinforce the need for a greater role of the SAUs in new technology and competent human resource development.

A study by the National Academy of Agricultural Research Management, Hyderabad (2011), reveals the substantial gaps



between the demand (2020) and supply (2010) of manpower in agriculture and allied sectors to the tune of 50%. The shortfall could be higher in the case of rapidly growing sectors such as horticulture, dairy, veterinary and fisheries and that would require substantial trained manpower to achieve targeted growth. In terms of annual flows from the educational system, the current levels of graduate, post-graduate and Ph.D. output need to be increased by 2.3, 1.9 and 3.0 times respectively.

In its continued efforts towards improving the quality of education, the ICAR has contemplated renewal of agricultural education through a comprehensive National Agricultural Education Project. The project has twin objectives of: (i) achieving excellence and enhanced relevance and efficiency in the agricultural education system; and (ii) the agricultural universities to offer enhanced services to benefit farmers, rural women and other stakeholders. Major emphasis of the project would be on introducing systemic reforms in all institutions for improving internal efficiency, governance, quality assurance and establishing of priority setting, monitoring and evaluation mechanisms. The institutional development which will be implemented in agricultural universities on competitive basis, would focus on promotion of academic excellence through faculty and students development, centres of excellence and model colleges for rural development, networking of educational institutions and research organizations,

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and enhancing effectiveness of institutional extension services to farmers, rural women and agri-business.

In order to attract talent in higher agricultural education and research, an innovative ASPIRE (Agriculture Sciences Pursuit for Inspired Research Excellence) scheme merits consideration. The meritorious 10+2 pass outs from colleges will be selected and provided scholarship for undertaking bachelor and master level education in agriculture and allied sciences. The agricultural education will need to be enriched with more of practical content for enabling the students to address the concerns of stakeholders, primarily the farmers and consumers. Universities should also plan on non-formal education especially in respect of knowledge and technological empowerment of vast section of work force in rural areas. This will expand the opportunities for off-farm employment and lead to total transformation in rural areas.

To improve the curriculum further, a one-year composite programme has been recommended with the name 'Rural Entrepreneurship and Awareness Development Yojana' (READY). READY will have three components: Experiential learning (EL), Rural Agricultural Work Experience (RAWE) and in-plant training/industrial attachment. Experiential learning will thus, provide the students an excellent opportunity to develop analytical and entrepreneurial skills and knowledge and confidence in their ability to design and execute the project work through meaningful hands on experience.

In the changing scenario of limited availability of public financial resources, a policy to encourage private-participation in agricultural education is imminent for which some models may be developed and tried with education quality being the uppermost consideration. Thus, there is a greater need for a multifaceted strengthening of the higher agricultural education system. Our efforts must ensure that a competent and skilled manpower is developed for sustained growth of agriculture in the country.

Required annual outturn by education level in 2010 and 2020

Disciplines	UG		PG		Ph.D.		All	
	2010	2020	2010	2020	2010	2020	2010	2020
Crop Science	11,852	18,659	3,514	5,422	583	1,203	15,949	25,284
Horticulture	1,001	7,295	409	993	55	930	1,465	8,618
Veterinary	1,761	5,332	797	1,854	125	486	2,683	7,672
Fisheries	285	2,096	109	418	30	100	424	2,614
Dairy	255	2,605	30	503	25	207	310	3,315
Agribiotech	558	582	156	323	20	134	734	1,039
Agri. Engg	1,218	2,359	262	709	27	189	1,507	3,256
Forestry	386	1,260	275	416	55	156	716	1,832
Total	17,316	40,188	5,553	10,638	920	2,805	23,788	53,630

Source: Report on Human Capital Requirements in Agriculture and Allied Sectors, 2011.

UG, Under-graduate; PG, Post-graduate

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WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

99th Annual Session of the Indian Science Congress

Bhubaneswar, 3 January 2012. Hon'ble Prime Minister of India, Dr Manmohan Singh, inaugurated the 99th Annual Session of the Indian Science Congress at KIIT Stadium, and said, "increasing food production and nutritional security are critically important and our agricultural scientists should therefore work towards scientific breakthroughs that can enable a second Green Revolution to become a living reality". He added, "over the last few years, the number of scientific publications by the Indian scientists have increased at more than 12% per annum against the global average of 4%. India has moved from the 15th rank in 2003 to the 9th rank in 2010 with respect to the number of publications in peer-valued journals. Hon'ble Prime Minister of India opined that we must aim to increase the total research and development (R&D) spending as a percentage of GDP to at least 2% by the end of the XII Five-Year Plan from the current level of about 1%. This can only be achieved if industry, which contributes about one-third of the total R&D expenditure, increases its contribution significantly. Dr Manmohan Singh also gave away awards to the scientists for their achievements and to the tribal of Koraput region for the global recognition they received for conservation of biodiversity and developing climate resilient farming systems.

The theme of 99th Indian Science Congress is Science and Technology for Inclusive Innovation—Role of Women. The Indian Council of Agricultural Research along with Directorate of Research on Women in Agriculture, exhibited the implements and other exhibits related to women farmers. The achievements of the Council and institute were also highlighted in the exhibition, namely Pride of India at KIIT Stadium. The visitors were also showing their keen interest in the publications of the Directorate of Knowledge Management in Agriculture, ICAR. The Pride of India displayed the strengths and achievements of government, corporate, PSUs, academics and research and development institutes, innovators and entrepreneurs from all across the country.

The inaugural function of 99th Indian Science Congress, presided over by Prof Geetha Bali, Vice Chancellor of the Karnataka State Women's University, Bijapur, was attended by over 15,000 delegates, including 500 foreign scientists and several Nobel laureates. The Indian Science Congress Association, which will be celebrating its centenary in 2013, has been playing an important role in popularizing and shaping Indian Science. The next Indian Science Congress will be held at Kolkata from 3 to 7 January 2013.



Hon'ble Dr Manmohan Singh (Prime Minister of India), inaugurated the 99th Annual session of the Indian Science Congress. H.E. Muralidhar Chandrakant Bhandare (Governor of Odisha), Shri Vilasrao Deshmukh (Union Minister of Science and Technology and Earth Sciences), Shri Ashwani Kumar (Union Minister of State of Planning, Science and Technology and Earth Sciences), Shri Naveen Patnaik (Chief Minister of Odisha) graced the occasion

Stakeholders' meeting for prioritization of research programmes

Cochin, 5 January 2012. A stakeholders' meeting for prioritization of research programmes of the Central Institute of Fisheries Technology (CIFT) for the XII Five-Year Plan was held at CIFT, Cochin. Dr T.K. Srinivasa Gopal (Director, CIFT) gave an overview of the activities of the CIFT as well as the purpose of the Meeting. Shri Anwar Hashim (Seafood Exporter and Former National President, Seafood Exporters Association of India) emphasized that water usage in processing units and the shortage of labour in the peeling sector are to be addressed on priority basis. In value addition methods like Japanese breeding can be thought of. Effective waste disposal mechanisms and studies on antibiotics in aquaculture are also equally important issues that need to be researched for suitable solutions. There were 20 invited participants representing the fishing and fish processing industries, state fisheries department, MPEDA, input manufacturers, partners in commercialization and academia participated.

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High Powered Committee Guidelines on KVK

Jodhpur, 16 January 2012. Shri Rajiv Mehrishi (Additional Secretary, DARE and Secretary, ICAR) chaired a Meeting of High Powered Committee on Krishi Vigyan Kendras' Guidelines, held at Zonal Project Directorate, Zone-VI, Jodhpur. Dr K D Kokate (Deputy Director General, Agricultural Extension) and members expressed their views and gave valuable suggestions for improving the KVK's functioning and to finalize the guidelines. The Secretary, ICAR expressed his views about overall performance of Krishi Vigyan Kendras (KVKs) and suggested to further strengthening of the KVK network in the XII Five-Year Plan. Shri Chaman Kumar (erstwhile Additional Secretary, DARE and Financial Advisor, ICAR) also



Shri Rajiv Mehrishi, Additional Secretary, DARE and Secretary, ICAR chairing the high powered committee on KVKs

added some of the useful suggestions regarding financial matters to be included in the XII Five-Year Plan. Dr A.K. Singh (Zonal Project Director, Zone-IV) presented compiled technical programme agenda and XII Five-Year Plan initiatives for Krishi Vigyan Kendras in this meeting. There was a detailed discussion on existing activities, responsibilities and difficulties being faced for effective monitoring by the Zonal Project Directorates. The Chairman suggested suitable solutions on improving the efficiency of KVKs through effective monitoring by Zonal Project Directorates and Directorates of Extension Education in respective zone which would be incorporated in the final guidelines being prepared for the KVKs.

Recommendations

Some of the salient points of the proceedings are:

1. The Committee suggested to increase the number of SMS in KVK in the XII Plan document.
2. To pursue the SAUs to fill up the vacant positions in all the KVKs at the earliest.
3. To increase the budget provisions under contingencies for effective implementation of KVK mandate.
4. To improve the linkages of KVKs with line departments for increasing the outreach of KVK in disseminating the improved technologies.
5. To focus on the development of instructional farm of KVKs for proper demonstration of improved technologies for the farmers.

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National Meet on Rapeseed-Mustard

Bharatpur, 16 January 2012. To develop strategies for enhancing rapeseed-mustard productivity during XII Five-Year Plan, one-day national meet of stakeholders was organized at Directorate of Rapeseed Mustard Research (DRMR). Dr B. Gangawar (Director, Directorate of Farming Systems Research, Modipuram) emphasized that, in spite of low average rapeseed (*Brassica napus*)-mustard productivity (12.0 q/ha) against the potential of 30 to 35 q/ha, mustard (*Brassica juncea*) is more economic when compared with wheat under marginal resource conditions. Rapeseed-mustard also has great potential under intercropping. Timely sowing and proper fertilization especially sulphur (S) are critical for its higher productivity. Dr J.S. Chauhan (Director, DRMR) informed that enhancing production, productivity and quality of rapeseed-mustard crop under changing climate and WTO regimes are major priorities of this Directorate. The productivity of the crop needs to be raised from existing 11.8 q/ha to 18 q/ha by the end of the XII Five-Year Plan. During the meeting, many issues viz., genetic improvements; development of hybrid technology; biotechnology for biotic stress management; improved agronomic practices; etc. were discussed at length.

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Agri-business Development Camp

Izatnagar, 21 January 2012. To promote private investment in setting up of agri-business projects for increasing rural income and employment, a one-day 'Agri-business Development Camp', organized by the Zonal Technology Management-Business Planning and Development Unit of IVRI in association with Small Farmers' Agri-business Consortium, New Delhi and Agri-business Incubation Programme, International Crop Research Institute for the Semi-Arid Tropics, Hyderabad was held at the IVRI, Izatnagar.

Prof. M.C. Sharma (Director, IVRI) emphasized the importance of the 'Agri-business Development Camp' and stressed the need of collaborative linkage and understandings among farmers, scientists, bankers/financers and insurance persons for getting maximum support to start new ventures in agriculture and allied sectors. He added that this camp will offer a unique opportunity of interaction and participation in agri-business entrepreneurs, startups and agri-innovators. Shri R.P. Sharma (General Manager, SFAC, New Delhi) said that the scheme of Small Farmers' Agri-business Consortium (SFAC) envisages a single window approach for extending venture capital along with bank term loan/working capital to the beneficiaries. The SFAC will implement scheme in close association with nationalized and private banks.

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XVth Meeting of the Research Advisory Committee of DRMR

Bharatpur, 1 February 2012. The XV Meeting of Research Advisory Committee of the Directorate of Rapeseed-Mustard Research (DRMR) was held from 31 January to 1 February 2012. Dr D. P. Singh, Chairman, emphasized the need to develop agro-technological packages by combining suitable varieties/hybrids along with suitable resource conservation technology to reduce the cost of cultivation and water use. The Research Advisory Committee (RAC) members visited at the laboratories and museum for in-depth interaction with the scientists and had an interaction with the farmers of Front-Line Demonstration model village Unchagaon, Bharatpur. The committee also visited front-line demonstrations in progress with mustard varieties and hybrids. The Chairman and Members addressed the farmers and had interaction with more than 100 farmers gathered at the occasion.

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Innovative and Progressive Farmers' Meet

Adugodi, 15 February 2012. An Innovative and Progressive Farmers' meet was organized by the National Institute of Animal Nutrition and Physiology

(NIANP) at Adugodi, Bengaluru, with the objective to invite 10 to 12 innovative/progressive livestock farmers of Karnataka to share their ideas, experiences, innovations and to motivate other fellow farmers to benefit the larger farming community. Dr Venkataramu (Managing Director, Karnataka Milk Federation) was the Chief Guest, who inaugurated this Meet and highlighted the role of agriculture and animal husbandry in Indian economy.

Dr K.T. Sampath (erstwhile Director, NIANP, Bengaluru) presided over the function during the inaugural function. He stressed that the ICAR has been working with the motto "Farmer First" and emphasized that research should emanate from farmers perspective. Nine progressive farmers were felicitated on this occasion and each one of them shared their experiences and innovations with the fellow farmers. A book, *Farmers Profile*, was released during the Meet. A feed inventory management and total mixed ration formulation software developed by the scientists of the NIANP were also released during the event. More than 100 farmers attended the meet and visited the exhibition, especially arranged for them showcasing various feed ingredients, area specific mineral mixture, *Azolla*, silage, *Areca* sheath utilization, etc. During the Scientist-Farmer Interaction Session, a panel discussion was held, wherein questions of farmers pertaining to livestock farming were answered by the experts.

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Conference of Vice Chancellors of Agricultural Universities and ICAR Directors

New Delhi, 17 February 2012. The Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, inaugurated a two-day Conference of Vice Chancellors of Agricultural Universities and ICAR Directors and appreciated the efforts of scientists who have decoded the pigeonpea genome. Starch based films with nano-cellulose from cotton waste, linseed bio-village concept, buffalo genomics and breeding of the marine fish, Silver Pompano are some



of the other accomplishments. The Union Minister of State for Agriculture and Food Processing Industries, Dr Charan Das Mahant, conferred the first prize to the Kerala Agricultural University, Thrissur and Second prize to the Central Agricultural University, Imphal. The Govind Bhallabh Pant University of Agriculture and Technology, Pantnagar and Dr Panjab Rao Deshmukh Krishi Vidyapeeth, Akola were joint winners of third prize.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) briefed various initiatives taken by the Council. Enhanced production coupled with productivity spurts has led the country to witness a record production of foodgrains during the year.

Recommendations

During the discussion following points emerged:

- The Director General said that emphasis should be given on the 'Mission Mode' projects. An annual two days interface may be held with state government officials in the ICAR - Hub - location with invited presentations, farm- industry, interactions, exhibitions, Press meet, and related events. For visibility of the ICAR System, Farmers' Day, Industries Day, Agriculture Education Day may be organized.
- A database should be prepared regarding absolutely ready technologies, technologies in the pipeline, and also technologies to be developed in the next five years.
- Guidelines for the students of other institutions to conduct research for their degree programme as trainee at the ICAR institutes need to be formulated.
- The State Agricultural Universities may be invited to develop mutually beneficial research programmes.
- Regarding Annual Reports, it was decided that these should be of about 150 pages for the big institutes and of 100 pages for the small institutes. The paper quality should be 100 to 110 GSM with good quality photographs. The Director General emphasized that only thematic, technological and clear photographs be included in the annual report which should be brought out in Hindi and English.

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AgrIP 2012 – Annual Meeting-cum-Workshop

Cochin, 25 February 2012. Dr A.S. Saroja inaugurated a two-day Annual Meeting-cum-Workshop on 'Evaluation of Agricultural Technologies for Commercialization' on 24 February 2012 at the Central Institute of Fisheries Technology (CIFT), Cochin. The AgrIP2012 workshop was aimed at equipping the scientific community from 20 ICAR Research Institutions in South India, for the evaluation and pro-active systematic management of

technologies and IP assets which will lead to income generation through consultancy, technology transfer and commercialization. An on-line resource titled 'I P Channel', dedicated to disseminate information regarding Intellectual Property Rights and Technology Management, was released at the function. The Theme talk on 'Evaluation of Agricultural Technologies for Commercialization' were given by Shri Karthikeyan Iyer, (Founder Director, Craffiti Consulting Pvt. Ltd.) on 'Technology evaluation and valuation frameworks' that covered topics like key dimensions of technology evaluation, technology potential, assessment of business potential etc.

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Diagnosis and Management of Leaf Spot Diseases of Field and Horticultural Crops

Bengaluru, 4 March 2012. A two-day Review Meeting of ALCOCERA, held at the Indian Institute of Horticultural Research, was inaugurated by Dr H. P. Singh (Deputy Director General, Horticulture), on 3 March 2012. The Peer Review Team members were Dr A. N. Mukhopadhyay (former Vice Chancellor, Assam Agricultural University, Asom) and Dr J. Kumar (Dean, College of Agriculture and the Registrar, G.B.Pant University of Agriculture and Technology, Pantnagar).

ALCOCERA is an initiative of the ICAR in an outreach made to develop integrated management strategies for three major leaf spot pathogens *Alternaria*, *Colletotrichum* and *Cercospora* under the changing climatic conditions across the crops and geographical regions.

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Interface Meeting

Bengaluru, 7 March 2012. Dr Amrik Singh Sidhu (Director, Institute of Horticultural Research) and other scientists presented the promising technologies that were made commercial by the Institute. The important collaborations that have to be taken up between the ICAR institutes and State Agricultural Universities, Development Departments, various ICAR Institutes in Karnataka, Input Agencies and Farmers' Organizations were discussed at the IIHR. The detailed deliberations were held in the areas on which the important collaborations have to be taken up between ICAR Institutes and State Agricultural Universities and Development Departments.

Dr Narayana Gowda (Vice Chancellor, University of Agricultural Sciences, Bengaluru) suggested that in future meetings, Zonal Project Director, senior representatives of Departments of Agriculture, Horticulture etc., should participate, so that meaningful deliberations and action points can be drawn. Dr R.R.Hanchinal (Vice Chancellor, University

83rd Annual General Meeting of the ICAR Society

New Delhi, 6 March 2012. The Union Minister of Agriculture and Food Processing Industries and President of the ICAR Society, Shri Sharad Pawar, urged agricultural scientists to explore practical solutions to the problems being faced by the farmers in fields on the occasion of 83rd Annual General Meeting of the ICAR Society at NASC complex. He emphasized on the degrading natural resources such as deteriorating soil-health, availability of water resources, changing climate and called upon scientists to undertake innovative research to address these issues.

The Union Minister of Agriculture also focussed on the rainfed areas of the country having potential to substantially contribute in the food security of the nation, on development of quality human resources for agricultural research in which State Agricultural Universities and ICAR must act in collaboration. Dr Charan Das Mahant (Minister of State for Agriculture and Food Processing Industries) launched Cadalmin Green Algal Extract (GAe) nutraceutical developed from seaweeds to combat joint pain and arthritic condition, *Listeria monocytogenes* Detection Kit (for detection in food and clinical samples), Little Millet Flakes (rich in fibre, protein and minerals) and *Darbar-e-Rang* (herbal eco-colours for *Holi*).

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) hoped that the efforts of the Council would enable farming and empower farmers to achieve higher levels of efficiency and prosperity. He said that ICAR led the decoding of the pigeonpea genome, a first time accomplishment by an entirely Indian group of scientists. A long felt need of the Council to have a corporate platform was met, with the approval of the Union Cabinet for 'AgrInnovateIndia Ltd', for technology commercialization and consultancy services at home and abroad. International cooperation took a new dimension with the launching of the Borlaug Institute for South Asia (BISA) with the CIMMYT during the year. A Knowledge Initiative Repository in Agriculture for North-East (KIRAN) and Rice Management Portal were launched, while the National Agro-Biodiversity Management Board was reconstituted. The ICT efforts in agricultural research and education got a boost with more e-Courses in agriculture taking shape, along with the National Bioinformatics Grid and mobile extension services for a comprehensive approach from 'seed-to-market'. We are increasingly



Shri Harish Rawat, MoA(S) releasing publication during 83rd AGM of the ICAR Society

getting engaged with international agencies, the CGIAR Institutions and Overseas Universities, with appreciable efforts in capacity building in Africa, in terms of both receiving students through Fellowships as well as the visits of our colleagues to different countries. Responding to the changing needs, we are revisiting formats of 'Recruitments to Rewards' in terms of ARS guidelines, modified training programme for scientists, KVK guidelines, nomenclature of the Institutes and Divisions, All India Co-ordinated Research Projects and All India Network Projects, Research Project Proformae, Research Advisory Committees, Revised score-cards and Performance indicators and ICAR awards. It is also heartening that the Principal Secretary to the Prime Minister has constituted an Inter-Departmental Committee for formulation of a comprehensive policy for research and education in agriculture and allied sectors with DARE/ICAR as the Nodal Point. This provides us an opportunity for chartering a long-term path for individual as well as institutional excellence in the cause of the Indian farming community. As we move further, we are embarking on two missions, 'Farmer FIRST' and 'Student READY', as also the consortia platforms for bringing greater partnerships. Two major projects, such as National Agricultural Education Project and National Agricultural Entrepreneurship Project, are being formulated. In our efforts to do things differently, mechanisms are being developed for Extramural funding, Post-Doctoral Fellowships, Agri-Innovation fund, Agri-Incubation fund, Regional implements fabrication and Processing hubs and Referral facilities. Upgradation of some of the Institutes as Deemed-to-be Universities is also on the anvil.

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of Agricultural Sciences, Dharwad) agreed for collaboration of the University of Agricultural Sciences, Dharwad in conduct of multi-location testing of vegetable crops, fruit crops, etc. He also agreed to extend SAU facility to multiply seeds of various varieties in seed village concept mode, for which MoU may also be entered into. He requested the help IIHR for accreditation of Tissue Culture

Laboratory and also in refinement and demonstration of nodal blight management in pomegranate. He was also of the opinion that in transgenic work collaboration can be developed between UAS and IIHR. Dr S. B. Dandin suggested that one more such meeting may be held by the end of April 2012.

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Rapeseed-Mustard Production for Sustainable Livelihood Security of Tribal Farmers

Bharatpur, 20 March 2012. Dr S. N. Puri (Vice Chancellor, Central Agricultural University, Imphal) chaired the inaugural session of a mini workshop, 'Augmenting Rapeseed-Mustard Production for Sustainable Livelihood Security of Tribal Farmers' under Tribal Sub-Plan (2011-12) at ICAR, New Delhi on 19 March 2012. There were 30 participants. Progress report was presented and future programme was also discussed. The participants later visited Division of Genetics, IARI, New Delhi and also the rapeseed-mustard experiments including seed production programme.

On 20 March 2012, the participants held meeting at DRMR, Bharatpur and finalized the action plan for 2012-13. The DRMR has been implementing TSP project with 4 Collaborative centres (AAU, Jorhat, CAU, Imphal, BAU, Kanke and MPUA&T, Udaipur) with an outlay of over ₹ 93.0 lakh.

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Frugal Innovations for Sustainable Solutions in Fisheries, Agricultural Sectors'

Lucknow, 24 March 2012. With the aim to bridge farmers, researchers (NBFGR), policy makers (IIM), corporate (TCS), NGO (Innoaction) and utilizing their expertise for sustainable solutions a one-day National Workshop on 'Frugal Innovations for Sustainable Solutions in Fisheries and Agricultural Sectors' took place at the National Bureau of Fish Genetic Resources. Dr S. Mauria (ADG, IP and TM) said that IPR issues should be taken care in a positive spirit for



Mr T J James, Director, Innoaction, Thrissur addressing the audience during the inaugural session of the Workshop

helping the grass-root innovators and proper documentation of innovations is need of the day. Dr T.P. Trivedi (Project Director, Directorate of Knowledge Management in Agriculture) said that mass media should take active role in diffusion of innovation. Dr J.K. Jena (Director, NBFGR) opined that 'We have made a new beginning for a new subject and felt there is a strong need to take it forward for the benefit of grass root innovators'.

The workshop included the deliberations on 'Leveraging Innovation for transforming lives of farmers through Literacy', 'Frugal Innovations in Emerging Markets', 'the Role of Media in dissemination of Innovation', 'The Land to Lab Approach for Promoting Frugal Innovation: Addressing Technological and Ecosystem Gaps', 'Corporate Social Responsibility of TATA Chemicals', and 'The Innovation Chain: from Lab-to-Land and Entrepreneurship Lessons for Researchers and Grass-root Innovators'. The deliberations were aimed at how to capitalize on the innovations done by innovators at the grass-root level.

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International Linkages

Second Global Conference of Network of Indian Agri-Business Incubators 2012

New Delhi, 8 February 2012. His Excellency former President of India, Dr A.P.J. Abdul Kalam, inaugurated a three-day Second Global Conference of Network of Indian Agri-Business Incubators 2012— jointly organized by the ICAR, ICRISAT, NAIP, Agri-Business Incubation Programme, IARI and Network of Indian Agri-Business Incubation (NIABI) — on 6 February 2012. He urged for overall development of agricultural sector and said, "along with concentrating on reinforcing agriculture, we should also emphasize on agro-processing, development of

rural craftsmanship, dairy, fish and fish processing, silk production, so that the non-farm revenues for the rural sector is enhanced." He described components of sustainable development for farmers' prosperity as integrated thoughts and actions which lead to financially robust systems and also keenly focus on societal development, environmental conservation, technological infusion and employment creation. Dr Kalam presented the best incubator award to IARI, New Delhi and IVRI, Izatnagar and two entrepreneurs.

Dr William D Dar [Director General, International Crops Research Institute for Semi-Arid Tropics (ICRISAT)] said, "India should lead the rest of the world with its vast experience in commercializing



H.E. former President of India Dr A P J Abdul Kalam in his inaugural address emphasized for overall development of agriculture

farming technology. Networking with farmers and enterprises will be the core of this success”.

Dr Bangali Baboo (National Director, NAIP) said that Network of Indian Agri-Business Incubation aims at creating a synergy among 10 Business Planning and Development (BPD) units spread across the country, facilitating the commercialization of the innovative agro-technologies through agri-business development and thereby benefitting the farmers. The BPDs are set up by the NAIP, ICAR and co-ordinated by the Agri-Business Incubation programme of the Agri-Business and Innovation Platform at the ICRISAT. “So far, 40 technologies have been successfully commercialized”, he added.

Some of the discussed cases are:

- *Millets recaptured in Indian diet*: Millets, viz. sorghum, pearl millet, finger millet etc. recaptured in diet through development and commercialization of millets based multigrain *aatta*, *rawa*, bakery items etc.
- *Fibre from banana waste*: Banana pseudostem, a waste, now being used for technical grade fibre by developing technology and machines to extract banana fibre. Village Rajpipla near Surat a good example of generating about 3,000 man-days/year employment besides net profit of about ₹ 65,000 and compost for village.
- *Jasmine flower from Indian fields to foreign markets*: Packaging technology for enhancing shelf-life of flowers enabled large-scale export of jasmine flowers from village near Coimbatore to Gulf and the United States of America. Enhanced income of farmers, traders, transporters involved in the value chain.
- *Health and wealth from prawn shell waste*: Chitin and Chitosan valuable products from prawn-shell waste commercialized and being produced on large-scale in Andhra Pradesh, Kerala and Gujarat. These products being exported to several countries for pharmaceutical applications.
- *Celebrate holi with Eco-holi colours*: Eco-holi colours developed and commercialized. The colour from flowers, seed, and leaves of different plants produced on large scale in Hyderabad and Chintapalli near Visakhapatnam.

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International Conference on 'Climate Change, Sustainable Agriculture and Public Leadership'

New Delhi, 9 February 2012. Shri Harish Rawat (Minister of State for Agriculture) inaugurated International Conference on 'Climate Change, Sustainable Agriculture and Public Leadership', jointly organized by the ICAR and National Council for Climate Change and Sustainable Development, Ahmedabad on 7 February 2012 at the National Agricultural Science Complex. He said that we should address climate change related issues in a systematic



Shri Harish Rawat, MoA(S) emphasized the need for comprehensive and multi-dimensional strategy to mitigate climate change effects

manner through constructive and developmental programme to increase in productivity and profitability of small and marginal farmers. He added that climate change effects would be more in Indian conditions as there are different agro-climatic zones. The most affected will be marginal and small farmers which constitute 80% of Indian farming community. Shri Rawat gave a manifesto on climate change, that is being discussed at higher levels in the Indian Government, and opined that the farmers are the worst affected as far as climate change is concerned. Therefore, strategic action research and contingency plans, being executed by the ICAR and National Agricultural Research System *per se*, need to be groomed and oriented to meet the global challenges and solve/resolve farmers' problems.

Dr William D Dar, Director General, International Crops Research Institute for Semi-Arid Tropics (ICRISAT) said that the most affected would be the small and marginal farmers. He said that to feed growing population we need to increase production from 75 to 100% by 2050 A.D. This will be a shared responsibility for everyone. The renowned scientists emphasized on challenges arising out of climate

change conditions and suggested that resource management and appropriate use of biotechnology, nano-technology and microbiology can mitigate the adverse affects of climate change. Variability in climate should be given high priority, and scientists, farmers and policy makers should move together to form new strategies; and technological support to small and marginal farmers can reduce the adversity of climate change. In the Conference discussion was on the specific themes: (a) Climate Resilient Agriculture, (b) Environmental Degradation and Conservation Agriculture, (c) Agro-forestry, (d) Participative Approach to Climate Change Mitigation and Adaptation, (e) Policy aspects, (f) Public Leadership, etc. Overall, the principle objective has been to mainstream agriculture as an integrated mitigation and adaptation tool to overcome challenges posed by climate change.

The New Delhi Charter, 2012

This perspective has enormous implications for a robust public policy that would simultaneously promote expensive agriculture, optimize conservation and productivity gains and minimize externalities. We, therefore, unanimously invite parliamentarians, decision makers, academicians and experts in the fields related to agriculture and environment through the New Delhi Charter to join in recognizing the specific role everyone concerned can play as part of this process. This initiative further recognizes and proposes:

- Improving farming practices to reduce impacts on the quality and quantity of resources considering

the relative contribution of such actions to the overall profile of greenhouse gases (GHG) implicated in global warming and climate change.

- Developing agro-meteorological warning systems assessable to the farmers to save their crops from the events related to climate aberrations, and planning the future strategies.
- Increased recognition of Climate Resilient Integrated Farming System as an important area of investment for small- and marginal-farming community, land rehabilitation, biodiversity conservation, climate change mitigation and adaptation and improved food and nutritional security.
- Foster and strengthen leadership traits of elected and non-elected leaders in communities and youth in particular to play well informed and goal oriented roles to address challenges related to food security, development, natural resource management and climate change together, as interlinked issues, through a 'Farmers First' framework.

The New Delhi Charter on 'Climate Change, Sustainable Agriculture and Public Leadership' has been unanimously adopted and resolved that this should be widely circulated to all the national and international organizations and esteemed member states of the FAO of the United Nations with a request to accept and implement the recommendations to achieve the goals of sustainable agriculture, relevant for the entire human civilization.

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FMD India 2012

New Delhi, 15 February 2011. The Union Minister of State for Agriculture, Food Processing Industries and Parliamentary Affairs, Shri Harish Rawat, inaugurated a three-day International Conference on 'Scientific Development and Technical Challenges in the Progressive Control of Foot-and-Mouth Disease in South Asia' popularly known as 'FMD India 2012', jointly organized by the ICAR, DADF and FAO on 13 February 2012. Shri Harish Rawat said that India occupies a strategic position to lead, and intensively participate in the control of Foot-and-Mouth Disease

(FMD) in the SAARC region and India is determined to control this major disease within the next decade, to increase the productivity of the livestock sector and to improve the livelihood of the small-, marginal- and resource-poor farmers. India is producing about 300 million doses of trivalent vaccine per annum and the demand is expected to go up to 600 to 800 million doses in the next 3 to 5 years. The IVRI is trying to set up a new plant at the Bengaluru Campus under Public- Private Partnership mode, with an estimated capacity of 100 to 150 million doses, he added. While lauding the role played by the ICAR in alleviation of Foot-and-Mouth Disease from India he called for more research in this direction.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) said, "We have research, scientific and institutional strength. This confidence will be a driving force for eradicating Foot- and- Mouth Disease. Deliberations in conference will give inputs for XII Five-Year Plan". Shri Rudhra Gangadharan (Secretary, Department of Animal Husbandry Dairying and Fisheries, DADF) called for united efforts of all sections of society to eradicate Foot-and-Mouth Disease. He said, "It's a livelihood issue for most of



the small and marginalized farmers. In this process everyone will gain. Hence, united efforts are needed". Dr Juan Lubroth (Chief Veterinary Officer, FAO, Rome) provided three-point strategy for alleviation of this disease—Understanding of FMD, availability of tools and political will. Dr Joseph Domenech, Charge de Mission for FMD and PPR, OIE, said that preventive and controlling strategies should be given high priority. Dr K.M.L. Pathak (Chairman, Organizing Committee and Deputy Director General, Animal Sciences, ICAR) also focused on the Foot-and-Mouth Disease. Conference was attended by 600 partners from across the world.

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Agro-chemicals Protecting Crops Health and Natural Environment

New Delhi, 18 February 2012. The Union Minister of State for Agriculture and Food Processing Industries, Shri Harish Rawat, inaugurated a three-day Second International Conference on 'Agro-chemicals Protecting Crops Health and Natural Environment: Role of Chemistry for Sustainable Agriculture', jointly organized by the IARI, ICAR and Society for the Promotion of Sustainable Agriculture (SPSA) at Pusa Campus on 15 February 2012.

Prof. V.L. Chopra (Former Member, Planning Commission, Government of India) focused on the need of three major areas of concern—Increasing load of agricultural chemicals causing soil and environmental problems, gradual increase in use of pesticides and lack of general awareness. Dr John Unsworth (Chairman, International Union of Pure and Applied Chemistry Committee on Crop Protection Chemistry) highlighted the role of International Union of Pure and Applied Chemistry.

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Second ASEAN-India Working Group Meeting on Agriculture and Forestry

Palembang, 8 March 2012. His Excellency the Governor of South Sumatra, Mr Alex Noerdin, inaugurated a three-day Second Meeting of the ASEAN-India Working Group on 'Agriculture and Forestry' on 6 March 2012 in Palembang, South Sumatra, Indonesia and highlighted the policy of Government of Indonesia to accelerate the pace of economic development to achieve the vision of Indonesia Independent, Forward, Equitable and Prosperous in 2025. He also presented the overview of economic development of South Sumatra. Mr Hari Priyono (Secretary General, Ministry of Agriculture, Indonesia) in his capacity as the SOM-AMAF Chairman and Dr R. K. Mittal (Assistant Director General, EQR, ICAR) co-chaired the meeting. Dr Mittal informed that the ASEAN-India Working Group on 'Agriculture and

Forestry' has made significant progress that was identified in the last Working Group Meeting in New Delhi for implementation during 2011-12. It endorsed the Terms of Reference for the Working Group and Medium -Term Plan of Action for 2011-15. Dr M. Madan Mohan (ADG, Marine Fisheries, ICAR), Dr T.S. Rathore (Director, Arid Forestry Research Institute, Jodhpur) and Mr Nikhilesh Giri (First Secretary, Indian Embassy in Jakarta) participated in discussions as Member of Indian delegation.

Three training programmes proposed by India for scientists of ASEAN Member States have been approved and will be implemented between April and May, 2012 in India. Sixteen other training proposals submitted by Indonesia, Thailand and Malaysia were also briefly discussed and the mechanism for submission of project proposals was firmed up. During the meeting, it was agreed to hold a Conference of Heads of Educational and Research Institutions in India, Workshop on 'Climate Change Adaptation and Mitigation in Agriculture, 2nd ASEAN-India Ministerial Meeting on 'Agriculture and Forestry' and an ASEAN-India Agri-Expo during the current year in India. The *ASEAN-India Newsletter* on Agriculture and Forestry will be published bi-annually and the exchange visits of farmers between ASEAN and India will be organized. It was also agreed that the next meeting of the Working Group will be held in India tentatively in the first quarter of 2013.

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Indo-UK collaboration

Izatnagar. Dr Fionatoley (Professor, Royal Veterinary College, London) is Head of an Indo-United Kingdom (U.K.) collaborative research project, 'Anti-coccidial vaccine development: the importance of genetic diversity and delivery strategy' involving the Indian Veterinary Research Institute, and the Royal Veterinary College, London, United Kingdom as lead centre. This Project has recently been approved for developing a vaccine against coccidiosis (disease of poultry widely prevalent throughout the world including India). In this project, the other collaborating partners from India are Tamil Nadu University of Veterinary and Animal Sciences, Chennai; Centre for Cellular and Molecular Biology, Hyderabad; and Indian Statistical Institute, Kolkata. Prof. M.C. Sharma (Director, IVRI) said that this international project has been taken up in collaboration with British scientists to study the genetic diversity of poultry coccidia prevalent in our country, with an ultimate aim to develop a potent vaccine against coccidiosis in poultry. He added that this project is fully funded by the Biotechnology and Biological Sciences Research Council, United Kingdom. A team of four scientists from Division of Parasitology of the Indian Veterinary Research Institute will work on this project.

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Global Conference on Women in Agriculture: Opportunities for Inclusive Growth

New Delhi, 15 March 2012. A three-day Global Conference on 'Women in Agriculture: Opportunities for Impulsive Growth', jointly organized by the Indian Council of Agricultural Research and Asia Pacific Association of Agricultural Research Institutions with the support of the World Bank, GFAR, UK-Aid, CGIAR, TAAS, USAID, ADB, Australian Government, ACIAR, IDRC-Canada and RAGA, was inaugurated on 13 March 2012 at the NASC Complex. Her Excellency, the Governor of Uttarakhand, Smt. Margaret Alva, delivered Presidential Address in the inaugural session of the Global Conference on 13 March 2012 and suggested that specially focused capacity building



H.E. the Governor of Uttarakhand Smt. Margaret Alva delivering Presidential Address

programmes for women in agriculture may be initiated to refine skills with appropriate technologies. Agricultural tools and machines should be ergonomically designed to reduce drudgery of farm-women and they should be empowered with farm knowledge through distance education, community radio and other effective means. Smt. Alva also suggested that Laws banning women from performing operations like stone breaking, pulling carts, spraying insecticides, carrying loads on the head etc. must be put in place together with social security and welfare measures.



“There is a need to revisit and redesign our agriculture education, research and extension policies and programmes” said Smt Sheila Dikshit, Chief Minister of Delhi

extension, information, credit, inputs, marketing etc through these groups”.

Prof. M.S. Swaminathan (renowned agricultural Scientist and Parliamentarian) said that we are quite aware of the problems which women face in farms and fields. However, at this juncture we require in-depth analysis of the problems followed by the appropriate actions. Suitable technologies must be delivered to the farm-women for change and empowerment. Other practical steps may also be taken up to help and support farm-women. Prof. Monty Jones (Chair, Global Forum on Agricultural Research) emphasized the need of gender equality in

agriculture and close the prevailing gender gap. He said that gender equality is on global agenda and we need to design a gender policy for empowering women in agriculture as a means towards improving the livelihoods of all.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) highlighted some of the noted initiatives of the ICAR for women in agriculture. He hoped that the output of this Conference will be instrumental for all stakeholders to design and implement the suitable action plan in the years to come. Dr R.S. Paroda (Executive Secretary, APPARI and Co-Chair, IOC) elaborated on the theme, objective and agenda of the Conference which has the overarching goal of 'Empowering Women for Inclusive Growth in Agriculture'. We want to spread three messages through this conference; first, empowerment of farm-women; second, attain inclusive growth in agriculture; and third, to achieve sustainable development in agriculture, he added. In a video message, Smt Michelle Bachelet (Head, United Nations–Women) emphasized the need to prioritize gender equality and highlighted that farm-women need policy interventions for economic empowerment.

Smt. Sheila Dikshit (Chief Minister, Delhi), Chief Guest of the Conference, appreciated women centered Self-Help Groups and said, “Now, we have to harness the full potential of these Self-Help Groups by channelizing all agricultural support services such as training,

agriculture and close the prevailing gender gap. He said that gender equality is on global agenda and we need to design a gender policy for empowering women in agriculture as a means towards improving the livelihoods of all.

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On 15 March 2012 at the valedictory function, Her Excellency the President of India, Shrimati Pratibha Devisingh Patil, said that two years ago, the Government of India initiated a scheme on Women Farmer's Empowerment, popularly called 'Mahila



H.E. the President of India emphasized on forming Mahila Kisan Mandals for educating farm women on different aspects of agriculture and related activities

Kisan Sasaktikaran Pariyojana', which enables women farmers to gain more control over the production resources and access to inputs and services. The ICT can provide access to new information on market, trade, technology, investment and services related to education, health, nutrition and help farmers in taking rational decisions, she added.

At the valedictory function Shri Sharad Pawar (Union Minister of Agriculture) said that a gender analysis of the data collected by various agencies confirms the increasing participation of women in agriculture. Currently there are number of schemes, being implemented by Ministry of Agriculture wherein there is a provision for women-specific activities. These



include *Gramin Bhandaran Yojana*, the mega schemes like *Rashtriya Krishi Vikas Yojana*, National Food Security Mission, National Horticulture Mission and

Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize, which caters to the technological needs of farm-women.

The deliberations were on the followings:

- Assessing Women's Empowerment in agriculture.
- Agricultural innovation for reducing drudgery.
- Linking women to markets.
- Role of women in house-hold food and nutritional security.
- Access to assets, resources and knowledge: policies and services.
- Impact and responses to climate change related risks and uncertainties.

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Success Stories

MADHU GRAM

Kaithal. The Krishi Vigyan Kendra, Kaithal had the vision of establishing *Madhu gram*, *Dugdh gram*, *Compost gram*, *Van gram*, *Samttal gram*, *Khumb gram*, *Fal gram* and *Samridh gram* in which a single technology could be utilized as an enterprise. With this in view, survey was conducted in different villages to assess the need of the villagers. In this context, Village *Gohran* was found appropriate for developing into *Madhu gram*. The village has wheat-rice cropping pattern which covers 95 % of land use pattern. This system provides little scope of employment for landless population. To provide employment opportunities mainly to the under privileged, bee-keeping was considered worthwhile to be established as an income generation activity. Training was imparted to landless and marginal farmers on bee keeping at KVK Kaithal premises. In all 75 participants were imparted training during which emphasis was laid on management of bee-hives during different seasons, insect pest and disease management, quality honey production and marketing. The feedback from trainees indicated good adoption of bee keeping as a vocation.

To observe the change, 10 non-bee keepers out of which 8 belongs to Scheduled Castes and 2 from General Category were also selected. A well structural and pretested interview schedule was formulated to judge their knowledge, skill acquired and adoption of bee keeping technology. The bee-keepers were in more contact with KVK scientists for the problems arising in bee keeping and with Khadi Board (KVIC), DRDA and *Harijan Kalyan Nigam*.

The family income of beekeeping was more than ₹ 20,000 per month when compared with non-bee keeping of General Category (4 to 5 acres) was ₹ 18,000. The income of non-beekeeping of SC was only ₹ 4,500 who was dependent on farm labour only. About 120 persons are employed directly while another 125 are

indirectly benefited through this vocation. Once poorest of the poor are now the leaders of *Gohran* village.

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Integrated rice-fish-vegetable module farming system for enhanced income

Jorhat. In major parts of Assam rice is taken as a monocrop. The productivity and income is low. Integration of fish with existing rice crop has been successfully demonstrated as viable option for increased income under NAIP sub-project on 'Livelihood Promotion through Integrated Farming System in Assam' by Assam Agricultural University, Jorhat. This system was demonstrated in an area of 168 ha covering 600 farmers in three backwards districts of Assam, namely Lakhimpur, Kokrajhar and Karbianglong.

The HYV *Ranjit* rice was introduced with improved package of practices to replace the traditional varieties. Fish (*Rohu*, *Mrigal*, *Catla*, common carp and silver carp) was provided 400 for 2,800 m² area. After rice crop, vegetables (french bean, *chikli* and *knol khol*) were cultivated to utilize residual moisture and enriched nutrients added by the activities of fish. The yield of paddy crop increased from base line value of 2.9 tonnes/ha to 4.7 tonnes/ha. The additional yield of fish and vegetable from 0.28 ha area was 40 to 42 kg and 1.7 tonnes (6.1 tonnes/ha respectively). The net income per household from 0.28 ha increased from previous income of ₹ 11,144 to ₹ 42,983. Mr Diganta Gohain was a beneficiary of 'Rice-fish-vegetable module' in Lakhimpur district. He had earned profit of ₹ 22,380 from rice-fish-vegetable module against from the traditional farming only ₹ 3,537. A total of 40 man-days had been generated during the entire period compared to 14 man-days generated during conventional system.

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Review of a NAIP Project

Chitradurga, 21 February 2012. Dr S. Ayyappan (Director General, ICAR) made a visit to review NAIP sub-project on 'Livelihood Security of Rural Poor in Disadvantaged Chitradurga through IFS Approach'. He was accompanied by Vice Chancellor, Director of Research and Director of Extension of the University of Agricultural Sciences (Bengaluru) and the Project Director, Zonal Coordinating Unit, Bengaluru. He was explained in detail the objectives and innovative approaches of the project along with various activities on soil conservation, crops and cropping systems, IFS and income generation, animal health



Dr S. Ayyappan, Secretary DARE and Director General, ICAR interacting with the farm-women at Hiriyyur, Chitradurga District

and nutrition, aquaculture, besides social mobilization and human resource development. The various exhibits observed by Dr Ayyappan were NAIP value-added products, viz. areca nut chips and leaf plates, vermi-compost, sheep-woolen blanket and ornamental fish. He interacted with the farmers and farm-women and collected their feedback regarding the project implementation.

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Media disseminate technological information

Izatnagar, 28 February 2012. Prof. M.C. Sharma (Director, Indian Veterinary Research Institute, inaugurated one-day 'Media Meet and Showcasing of Technologies', jointly organized by the Indian Veterinary Research Institute and Govind Ballabh Pant University of Agriculture and Technology, and emphasized the importance of mass media to reach the needful information up to the door step of end-users. The programme was sponsored by the ICAR, New Delhi under the National Agricultural Innovation Project (NAIP) sub-project entitled 'Mobilizing Mass Media Support for Sharing Agro-Information' and was attended by around 100 participants including media personnel representing from different press and

media agencies and farmers from Bareilly district. The Joint Director (Extension Education, IVRI) Dr Triveni Dutt, informed that 9 technologies of the IVRI have been commercialized so far to 22 commercial houses for the use of livestock owners and farmers.

Dr Y.P.S. Dabas (Director, Extension, Govind Ballabh Pant University of Agriculture and Technology, Pantangar) briefed about the project and informed that the project envisages cooperation of mass media for extension of new technologies in the field of agriculture, animal husbandry, veterinary and allied sciences developed by scientists of agricultural universities and ICAR Institutes, so as to enable the farming community to increase their production and get maximum benefit.

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National Agricultural Innovation Project extended

New Delhi, 1 March 2012. The Union Cabinet, in its meeting held on 1 March 2012 has approved the ICAR proposal for extension of closing date of National Agricultural Innovation Project (NAIP) from 31 December 2012 to 30 June 2014. This is no cost extension, i.e. no additional financial allocation.

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Multiplication of superior germplasm using multiple ovulation, embryo transfer

Makhdoom. India is naturally gifted with a vast genetically diverse goat germplasm. Twenty-three recognized goat breeds are adapted to diverse agro-climatic regions of the country. Reproductive potential of Indian goats is variable particularly that of Sirohi goat which is having relatively low twinning percentage. Sirohi is a large-sized breed of semi-arid region of the country having relatively low twinning rate (10%). Over the years, vast methods of reproductive biotechnologies are available which have resulted in augmentation of reproductive efficiency in farm animals including goats. The future trends in small ruminant production are expected to be dominated by emerging bio-techniques of



reproduction. To bridge the gap between the demand and supply of milk, meat and fibre, it is mandatory to optimize production of prolific breeds and to augment the reproduction rate of less prolific breeds like Sirohi. These technologies relate to more frequent kidding, increases in litter size in less prolific breeds, extending mating outside the normal breeding seasons, Artificial Insemination, Multiple Ovulation and Embryo Transfer [MOET], IVF-ET and associated techniques, early pregnancy determination, application of real time B-mode ultrasonography in animal reproduction and control of kidding aiming to augmentation of reproduction.

Sirohi goat having normal oestrous cycle pattern and apparently good health was selected as a donor. The donor goat was mated by a superior Sirohi buck during the standing oestrus. The recipient goats exhibiting oestrus along with the donor were selected for embryo transfer at 84.00 hr following standing oestrus.

Super-ovulated Sirohi goat was subjected to laparotomy at 84.00 hr after mating to record

ovulatory response and subsequent flushing of embryos. A total of 14 corporalutea were observed on the both ovaries with a moderate number of small-medium-sized follicles on ovarian surface. The uterine horns and oviducts were flushed by retrograde method to collect the embryos. In total nine morphological normal, good quality embryos and one unfertilized egg were recovered from this donor of Sirohi goat. These embryos were subsequently transferred in four closely oestrus synchronized recipients (@ 2 embryos/recipient) at the tip of uterine horn ipsilateral to the corpus luteum bearing ovary. Following transfer, pregnancy was initially confirmed at day 35 to 40 by real time ultrasonography. Out of the four embryo transfer recipients, two recipients delivered two kids (One male and One female) and third recipient kidded with a twin (male and female). Thus a total of four kids (two males and two female) were produced from a single Sirohi donor. This work was undertaken under a research project, which was financially supported by NAIP of ICAR, New Delhi.

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Celebrations

Silver Jubilee celebrations of Directorate of Cashew Research

Puttur 24 December 2011. Mrs Mallika Prasad (MLA, Puttur) inaugurated a two-day Silver Jubilee celebrations at the Directorate of Cashew Research (DCR), on 23 December 2011. A 'National cashew stakeholders meet' was organized. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR), commended the achievements made by the Directorate of Cashew Research, in terms of possessing largest germplasm collection of cashew in the country as well as developing large number of technologies in association with centres of AICRP on Cashew.

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Large- and Small-breed categories awarded at Dog show

Izatnagar, 10 January 2012. Prof. M.C. Sharma (Director, IVRI) gave prizes and certificates to the wining dog owners: the breeds Saint bernard, and Chihua Hua secured First position and English mastiff and Pug got



Second position in large- and small- breed categories, respectively at the dog show of Indian Veterinary Research Institute held on at its outdoor sports stadium. Dr Triveni Dutt (Joint Director, Extension Education) briefed about the dog show and informed that about 100 dogs including 22 breeds participated in this show.

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Central Agricultural University organized Agri-Fair

Imphal, 21 January, 2012. His Excellency the Governor of Tripura, Padmashree Dr D.Y. Patil, inaugurated a three-day 'CAU Agri-Fair, 2012' on 19 January 2012 at Agartala and apprised the farming community of North-Eastern Hills (NEH) Region and other stakeholders in agriculture and allied sectors on the theme 'Enhanced livelihood through ecosystem-based sustainable farming'.

His Excellency emphasized that the NEH Region has been gifted by the nature with tremendous biodiversity and widely varying agro-climatic conditions. He stressed upon the need for quality seeds, irrigation, power, machinery and implements, fertilizers and credit at affordable prices in adequate quantity for farmers and to provide appropriate price and trade policy mechanism to enhance farmer's income. A souvenir, *Farm Magazine* and *Compendium on Farm equipment and Technologies* suited for Hills Agriculture were released by the Chief Guest.



Dr K.D. Kokate (Deputy Director General, Agricultural Extension, ICAR) stated that the ICAR is taking initiatives for strengthening Krishi Vigyan Kendras (KVKs) in the country during XII Five-Year Plan. He stressed on technology backstopping, drudgery reduction through custom hiring of implements, farm mechanization, secondary agriculture, water security, market linkage etc. and highlighted the need for coordinated efforts to develop roadmap on fishery development for all the KVKs of North-Eastern Region. Dr S. N. Puri (Vice Chancellor, Central Agricultural University, Imphal) presided over the inaugural ceremony and reiterated the major achievements of the University, and remarked hill agriculture as challenging due to difficult terrain, and emphasized that it is very difficult to attract rural youth to agriculture in the present era of development. Water harvesting, organic farming, protected cultivation of high value crops, integrated farming system, primary processing, efficient transportation, market linkage and conserving natural resources were mentioned as key for the development of hill agriculture. Three North-East farmers were honoured with cash awards in recognition of their innovative ideas/interventions.

An 'Agri-Exhibition' was also organized in which 25 different research organizations, Krishi Vigyan Kendras, state development departments, agricultural input supply agencies and nationalized banks showcased their technologies/products/services through professionally managed exhibition stalls for the benefit of visiting farmers. Different shows and competitions on vegetable, flower, dog, cultured-fish etc. were the attraction of visiting farmers. About 1,250 progressive farmers from 6 (six) north-eastern states participated in Farmers-Scientists Interaction. During the Fair, paddy seeds, chicks, fingerlings and fish feeds were distributed to selected farmers.

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Kisan Mela-cum-Kisan Sangoshthi 2012

Jabalpur, 23 January 2012. Dr Gautam Kallu (V C, JNKVV), the Chief Guest, inaugurated *Kisan Mela-*

cum-Kisan Sangoshthi - 2012, organized by the Directorate of Weed Science Research (DWSR) at its Foundation Day. He appreciated the on-going research programmes taken up by the Directorate and advised the farming community to learn the modern weed management techniques to enhance the crop productivity.

Dr A.K. Singh (Deputy Director General, Natural Resource Management, ICAR) presided over the function and advised farmers to adopt models ensuring optimum utilization of resources in their farms. He also highlighted the importance of proper communication between farmers and scientists. Around 5,000 farmers visited the *Kisan Mela* and used this opportunity to know various aspects of agriculture from the 42 different stalls put up by various developmental research organizations, State Department of Agriculture, Horticulture, Forestry, industries of pesticides, fertilizers, seeds and implements, Banks, NGOs, etc.

A *Kisan Sangoshthi* and field visit were also arranged in which scientists/subject matter specialists interacted with the farmers, discussed and clarified the queries about emerging agricultural problems including weed management. Twentyfive progressive farmers belonging to different villages of Madhya Pradesh were also felicitated during the *Kisan Mela*.

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XVIII Sarson Vigyan Mela-cum-Exhibition

Bharatpur, 3 February 2012. The XVIII *Sarson Vigyan Mela* provided an opportunity to various stakeholders in the field of agriculture especially rapeseed-mustard growers, research and development personnel to demonstrate the technological know how for the benefit of farming community. Dr R. B. Singh (President, NAAS, New Delhi) emphasized that agro-processing industries should be established in villages and farmers should form the club or companies and sell their products themselves that would help in regulating the market prices at the XVIII *Sarson Vigyan Mela*. He urged the farmers to adopt scientific technology to increase the productivity of the crop so that their income is increased. Such farming system should be adopted that suits the climate change and resources available to them. Village youth should come forward to get the training on scientific farming and take the advantage of the schemes/programme of the government launched for them.

Shri D.P. Singh (Chairman, Research Advisory Committee of DRMR) said that farmers should get remunerative prices of their crop, credit at lowest interest rate and every state should form Farmers commission so that better policies/schemes can be made for the welfare of farming community. He also

urged the farmers for adopting resource conservation technology including sprinkler and drip irrigation.

Dr B.B. Singh (ADG, Oilseeds and Pulses, ICAR) the Guest of Honour, said that there is a need to develop the short duration and high temperature tolerant varieties of rapeseed-mustard so that average productivity of the crop can be increased up to 20 q/ha in next 10 years. He assured the farmers for multilateral support of ICAR for benefit to them.

Dr J.S. Chauhan (Director, DRMR) reiterated the mission of establishing the Directorate of Rapeseed Mustard Research in Bharatpur, viz., increase the productivity of rapeseed-mustard, improve the quality of oil and livelihoods of farmers. About 800 farmers from Rajasthan, Madhya Pradesh and Uttar Pradesh and personnel participated. There were 25 stalls exhibiting different aspects of agriculture. Two technical bulletins, namely '*Resource conservation techniques for mustard-based cropping pattern*' and '*Selection of improved varieties of mustard and their seed production through farmers participatory approach*' were also released.

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Chickpea Germplasm Field day

Rahuri, 4 February 2012. With the aim to provide opportunity to the chickpea breeders from the country for selection of chickpea (*Cicer arietinum*) germplasm lines of their interest were made available at one place on the occasion of the 'Chickpea Germplasm Field day' at Mahatma Phule Krishi Vishwavidyalaya, in co-ordination with National Bureau of Plant Genetic Resources (NBPGR), New Delhi. Dr T.A. More (Vice Chancellor, MPKV, Rahuri) inaugurated the function and expressed the importance of germplasm and its use in breeding programme for enhancement in productivity of chickpea. He said that this is the rare opportunity to the chickpea breeders for selection of material at one place for breeding programme. Dr J.S. Sandhu (Assistant Director General, Seeds), ICAR, said that the scientists' efforts in evolving high- yielding and disease-resistant varieties of chickpea at this center have contributed significantly in increasing the chickpea production in the state. Total 18,794 accessions of chickpea from the national gene bank of NBPGR, New Delhi are grown at Pulses Improvement Project, Mahatma Phule Krishi Vishwavidyalaya during *rabi* 2011-12.

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Annual Kisan Mela-cum-Exhibition, 2012

Ranchi, 13 February 2012. His Excellency the Governor of Jharkhand, Dr Sayed Ahmed, inaugurated the Annual *Kisan Mela-cum-Exhibition*, 2012 at the



H.E. the Governor of Jharkhand, Dr Sayed Ahmed, inaugurating the Annual *Kisan Mela-cum-Exhibition*, 2012 at the Institute Campus, Namkum, Ranchi

Institute Campus, Namkum, Ranchi. Technologies developed by the different organizations were displayed during the *Kisan Mela* and total 18 stalls were put up. More than 800 farmers from different states of the country, viz. Jharkhand, Chhattisgarh, West Bengal, Maharashtra, Madhya Pradesh and Odisha, participated in the *Mela*. '*Kisan Gosthi*' was also organized on the occasion to address the queries of the farmers by the scientists.

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ICAR participate in XXth World Book Fair

New Delhi, 27 February 2012. The ICAR participated in a three-day XX World Book Fair, organized by the National Book Trust of India, and inaugurated by the Union Minister for Human Resources and Development, Shri Kapil Sibal, on 25 February 2012 at Pragati Maidan, New Delhi. The Directorate of Knowledge Management in Agriculture had a stall of the ICAR literature, e-products and other informative material for the benefit of students, scientists, extension workers, farmers and visitors with a uniform discount of 10% on all the publications except the periodicals. The handbooks on Agriculture, Horticulture, Animal Husbandry, and Fisheries and Aquaculture also attracted readers interested in agriculture.

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NRC Agro-forestry celebrated ICAR-Industry Day and Agricultural Education Day

Jhansi, 28 February 2012. The National Research Centre (NRC) for Agroforestry celebrated the ICAR-Industry Day and the Agricultural Education Day at Jhansi. The deliberations and discussions included present scenario of agro-based industries in the region is bleak and mostly confines to sale of produces, agro-inputs; scope of fruit and vegetable

preservation, value addition, creating alternate livelihood support systems through cultivation of lac etc. However, agri-based industry development requires greater input from various state agencies, NGOs and societies. The students were encouraged to opt agriculture as career development activity and were taken to laboratory visit followed by research farm visit.

Dr S.K. Dhyani (Director) emphasized that agriculture research needs to be reoriented towards revenue generation besides sustained production. He added that Country needs trained manpower in agriculture to sustain agriculture production, and enhance income from available produce/resources.

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Science Day, 2012 celebrated

Solan, 28 February 2012. The Directorate of Mushroom Research celebrated the National Science Day/ Agriculture Information Day. About 250 students of higher classes from different schools visited the Directorate of Mushroom Research and learnt about spawn production technology, cultivation of different mushrooms like white button mushroom (*Agaricus bisporus*), oyster mushroom (*Pleurotus sajor-caju*), shiitake etc. and visited various labs including post-harvest laboratory where they saw various mushroom products like pickle, biscuits and other value added products of mushrooms.

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NRC Citrus celebrates Silver Jubilee

Nagpur, 29 February 2012. Dr C. D. Mayee (Former Chairman, A.S.R.B.), the Chief Guest, inaugurated a three-day Silver Jubilee function on 27 February 2012 and expressed concern about elusive problem of *Phytophthora* disease and opined that biotechnology may play a role in providing the remedy for the disease management. On this day 'National Dialogue on Citrus Improvement, Production and Utilization' was organized for three days beginning from 27 February 2012 under the aegis of Indian Society of Citriculture in collaboration with National Research Centre for Citrus, sponsored by NHB, NHM and NABARD. The technical sessions were on citrus improvement, citrus production, citrus protection, and post-harvest management, public-private partnership, and citrus cultivation on North-East Hills Region. On 28 February 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) emphasized on the development of need-based technologies in the XII Five-Year Plan. He stressed upon the need of the breeding programme, utilization of promising germplasm and also cautioned the scientists about *Phytophthora* menace. About 150 delegates participated in the programme.

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Pusa Krishi Vigyan Mela



Dr C.D. Mahant, MoS(A) emphasized importance of Mela for farmers through generation of awareness regarding new farm technologies

New Delhi, 3 March 2012. Dr Charan Das Mahant (Union Minister of State for Agriculture and Food Processing Industries), Chief Guest, inaugurated the *Pusa Krishi Vigyan Mela-2012* on 1 March 2012 at the IARI, New Delhi. The theme of this Mela was 'Prosperity Through Innovative Farm Technologies'.

The attractions of *Pusa Krishi Vigyan Mela-2012* included free-of-cost soil and water testing; display and sale of farm equipments and machinery; sale of seeds of high - yielding varieties of crops, saplings and seedlings; and display and sale of agricultural books and periodicals. The Directorate of Knowledge Management in Agriculture, ICAR also had a stall for display and sale of its knowledge and information products in print and electronic mode.

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Field day-cum-interaction on sorghum

Hyderabad 5 March 2012. To popularize sorghum cultivation for food and nutritional security of tribal farmers, A Field day-cum-interaction meeting was organized by the directorate of Sorghum Research (DSR), in the tribal belts of Andhra Pradesh under Tribal-sub plan project. To create awareness of importance of sorghum for human health and ways to increase the productivity of *rabi* sorghum, the first field day was organized on 5 March, 2012, at ARS, Mulug road, Warangal. Around 100 tribal farmers including farm-women participated in the programme. A The Farmers-Scientists interaction session was also held to address the problems faced by the farmers. An exhibition was also arranged on the day for popularizing value-added food products like biscuits, *poha*, pasta, vermi-cell, *rawa*, etc. prepared from sorghum. The farmers were also taken to the fields to show the performance of high-yielding *rabi* sorghum cultivars like CSV 216R, Phule Chitra, Phule Revati, Phule Vasudha, etc. They were very impressed to see the performance of these cultivars in the field.

The second field day was organized on 13 March, 2012 in Tenali village of Guntur district of coastal Andhra Pradesh, where sorghum cultivation is gaining popularity among farmers under rice-fallow due to its highest average productivity (6.5 tonnes/ha). During the interaction various queries of farmers regarding production of sorghum and its value addition were resolved by the scientists of the DSR. As the sorghum fodder is very good for animals, farmers were urged to use sorghum stover as animal fodder or incorporate sorghum residues in their soils instead of burning it. It was also suggested to grow some leguminous crops like blackgram/greengram in rice-sorghum sequence to maintain the soil health. Field visit was also arranged to show the performance of sorghum hybrid 'CSH 16' and 'CSH 25' in rice-fallows.

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International Women's Day

Cochin, 8 March 2012. The Central Institute of Fisheries Technology (CIFT), celebrated the International Women's Day. Dr S. Girija (Director, National Institute of Fisheries Post-harvest Technology and Training, Cochin) the Chief Guest, highlighted the importance of women in society as well as the difficulties faced by them. Dr T. K. Srinivasa Gopal (Director, CIFT) highlighted that the United Nations special theme for this year : 'Empower rural women: End poverty and hunger', and stressed that CIFT has been doing its bit to the fishing community by engaging in research for the sector which have directly or indirectly contributed to improving the livelihoods of fishers.

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XVth Annual Cashew Day

Puttur, 9 March 2012. The 'XVth Annual Cashew Day', organized by the Directorate of Cashew Research (DCR) was inaugurated by the Chief Guest Shri Achuta Moodithaya at Kemminje campus of the DCR under the financial assistance from Directorate of Cashewnut and Cocoa Development (DCCD), Kochi, and National Bank for Agriculture and Rural Development (NABARD). He expressed that DCR is a ray of hope for cashew farmers. He told that high density planting system is encouraging the farmers to realize higher yields. The guidance needed for scientific cultivation of cashew is being given by the DCR. To have control over marketing of cashew, he



Dr Bhat said that a focus be given to produce cashew at a cheaper rate so that a common man can afford to buy cashew kernels

felt that there is a need to establish a co-operative union similar to CAMPCO which is for arecanut and cocoa. Since cashew is a food-based crop, there will be a bright future. He emphasized that cashew farmers should rigorously follow the recommendations and advice of the DCR experts in their day-to-day farm operations. Further, he felt that to attain sustainable production, research efforts on organic farming of cashew need to be intensified. He said that he feels proud to place in record the contributions of the DCR towards cashew development.

Dr M.G. Bhat (Director, DCR), highlighted the research achievements and improved cashew production technologies developed by this Directorate. He added that scientists have to play a crucial role in the transfer of technologies from research centres to farmers fields to increase the productivity of cashew and making the country self-sufficient in cashew production. He mentioned that AICRP on Cashew has 14 Centres in 12 cashew-growing states for conducting location-specific research on cashew. Dr Bhat said that it is possible to get higher yield of raw cashewnuts from lesser available area by adopting high density planting and maintaining the plant architecture as followed in coffee plantations.

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Foundation Day of ZPD, Zone-I

Ludhiana, 19 March 2012. The Zonal Project Directorate, Zone-I, celebrated its Foundation Day at the Wheat Auditorium of the Punjab Agriculture University. Shri A.C. Ghosh (Director, General Administration/Agricultural Extension), the Chief Guest, delivered a talk on financial and management issues of Krishi Vigyan Kendras.

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ICAR Partners

- Active collaboration with international agricultural research institutions including CG centres, CABI, FAO, NACA, APAARI, UN-CAPSA, APCAEM, ISTA, ISHS etc.
- MoU/Work Plans with over 30 countries for bilateral cooperation in agricultural research, training and study visits.
- ICAR offers quality and cost-effective agricultural education to international students at under-graduate and post-graduate levels. And need-based short-term training programmes in specialized areas are also offered. Special concessions for SAARC students.

Capacity Building

State-of-the-Art Feed Mill

Bhubaneswar, 2 January 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated state-of-the-Art Feed Mill, National Feed Testing Laboratory, Digestibility Laboratory and Physiology Wet Laboratory at the Central Institute of Freshwater Aquaculture. The feed mill would help up-scaling the feed technology and promote feed use by the farmers towards enhancing fish production. The referral laboratory would help in quality assurance and certification for production of quality fish feed informed Dr P. Jayasankar (Director, CIFA).

Dr Ayyappan visited the farm facilities and the laboratories and discussed research priorities in freshwater aquaculture for the XII Five-Year Plan. He stressed on 'Farmer First' programme embarked upon by the ICAR. He underlined the need for spending 25% of scientists' time in farmers' field. Spread of research results and visibility of impact would be the yard-sticks for successful farm research.

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New Centre for Environment Science and Climate Resilient Agriculture

New Delhi, 11 January 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated newly established Centre for Environment Science and Climate Resilient Agriculture at the IARI, New Delhi. This multi-disciplinary centre will function as a Project Directorate with a team of 20 scientists from 8 different disciplines and will conduct basic and strategic research, and impart post-graduate education and training. The centre will primarily focus on five thrust areas of research, namely (i) environment-friendly agriculture, (ii) climate-smart



Dr S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurating the Centre for Environment Science and Climate Resilient Agriculture

agriculture, (iii) low C and N agriculture, (iv) radio-ecological studies, and (iv) capacity building and policy formulation, and follow a collaborative model with the participation of public, private and civil society organizations to develop appropriate technologies and demonstrate them on-farm, so as to enhance the resilience of Indian agriculture and improve the livelihood of farmers.

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MoA(s) reviewed Directorate of Mushroom Research

Chambaghat, 24 January 2012. Dr Charan Das Mahant (Union Minister of State for Agriculture and Food Processing Industries) visited the Directorate of Mushroom Research. He emphasized that mushrooms, viz. *Agaricus bisporus*, *Pleurotus sajor-caju*, are very good agricultural products for conversion of agricultural-waste into protein-rich food. This activity is very remunerative for unemployed youths and women wherein they can earn good amount of profit by utilizing lesser space and money, and hence, more and more people are coming into this profession. He felt the need to upgrade this Directorate into Institute in XII Five-Year Plan which would ensure more manpower and funds. He added four-five regional stations in different parts of the country are also needed to cater to the need of different mushrooms and also to propagate mushroom cultivation in all parts of the country. Dr Mahant also visited in different laboratories, cropping rooms, composting-yard, library and museum, and addressed the staff and other participants.

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Facility inaugurated for on-line examination

Izatnagar, 10 February 2012. Prof. M.J. Modayil (Member, Agricultural Scientists' Recruitment Board) inaugurated the On-line Examination Hall at the IVRI for conducting 'National Eligibility Test/Agricultural Research Service (NET/ARS) - Preliminary Examination for ASRB.' He interacted with the scientists and students of the Indian Veterinary Research Institute and Central Avian Research Institute to brief them about the on-line examination system, a new concept of Agricultural Scientists' Recruitment Board soon going to be launched countrywide with 23 nodal centers (including IVRI) across the country for conducting on-line examination in 55 agriculture and allied disciplines. He also provided some useful information related to the career advancement scheme of the ICAR.

Prof. M.C. Sharma (Director, IVRI) informed that the On-line examination centre, which has been funded by the ASRB under the NAIP project on 'Developing Commissioning, Operating and Managing an On-line Examination System for NET/ARS- Prelim Examination for ASRB has been designed and equipped with all modern facilities of computer peripherals, and has excellent seating arrangements.

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Model sheep slaughterhouse for clean meat production

Hyderabad, 2 March, 2012. Dr K. M. L. Pathak (Deputy Director General, Animal Sciences) inaugurated Model slaughterhouse, built at Sri Venkateswara Veterinary University, Tirupati, funded by the NAIP for the project, 'Value chain for clean meat production from sheep'. Dr Pathak hoped that facility will help to provide hands-on training to local butchers on clean meat production and to provide information to municipal officials on requirements of an abattoir. He advised the faculty to conduct demonstration on operations of slaughterhouse to students of the concerned departments of veterinary college as a regular activity.



Dr K.M.L. Pathak, DDG (Animal Sciences) inaugurating the Model slaughterhouse established at SVVU, Tirupati

NAIP calendar containing pictorial depiction of achievements of the project and the brochure on 'National Research Centre on Meat—At a glance' were released by Dr K. M. L. Pathak and Dr Prabhakar

KVK Corner

- KVK, Faridkot. Dr M.B. Chetti (Dean, College of Agriculture, UAS, Dharwad, Karnataka), the Chief Guest, appreciated the activities of the KVK and advised farmers to adopt secondary agriculture for increasing profits during the celebrations of the XI Foundation Day of the Krishi Vigyan Kendra, Faridkot on 10 January 2012. A seminar on 'Enabling farmers for secondary agriculture' was organized at this occasion.

Dr A. M. Narula (Zonal Project Director, Zone-I) apprised the farmers about the initiatives being

Rao respectively. The NRC on Meat conducted awareness campaign on 'Brucellosis disease' and butchers were screened by collection of blood samples. Dr Pathak distributed complementary safety and hygiene accessories to butchers who were the participants of the awareness programme on 'Hygienic Meat Production'.

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Basic Science Complex of DRMR foundation stone laid



Prof. S.K. Datta (DDG, Crop Sciences) laid out foundation stone of Basic Science Complex of DRMR

Bharatpur, 18 March 2012. Prof. S. K. Datta (Deputy Director General, Crop Science) laid the foundation stone of Basic Science Complex at Directorate of Rapeseed-Mustard Research and highlighted the perspective for future rapeseed-mustard research stressing biotechnological approaches and development of transgenic plants especially for resistance/tolerance to aphid insect and *Alternaria* blight disease as the need of the hour for sustainable rapeseed-mustard production.

Dr J.S. Chauhan (Director, DRMR) said that proposed basic science complex, with a total outlay ₹11.5 million (duration of completion 6 months), will have marker assisted breeding and transgenic, besides physiology and biochemistry laboratories.

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Dr M.B. Chetti, Dr A.M. Narula and Dr Mukhtar Singh Gill were present on the occasion along with few scientists from PAU, Ludhiana

taken in XII Five -Year Plan to strengthen the KVKs. Dr Mukhtar Singh Gill (Director of Extension Education, PAU, Ludhiana) appealed the rural youth to adopt various enterprises for self-employment. The successful entrepreneurs in the fields of bee-keeping, poultry, dairy, mushroom cultivation, motor-rewinding, home science activities put up their stalls. The departments of agriculture, horticulture, soil and water conservation, dairy development, animal husbandry, IFFCO etc. also put up stalls in the exhibition to apprise farmers about their schemes. About 500 farmers, farm-women and rural youth of the district marked their presence on the occasion. The technology park established at KVK, Faridkot was a point of interest for the farmers.

web site :www.zpdzone1.org

- KVK, Panchmahal. The Krishi Vigyan Kendra, Panchmahal, Gujarat, organized a day long District level **“Mega Farmers’ Training-cum-Kissan Sammelan”** at its premises in collaboration with the ATMA Project, Godhra on 28 January 2012. Shri Arvind Bhai Rathod (M.L.A., Kalol), the Chief Guest of this mega programme, appreciated the efforts made by the KVK. He also added that there is no doubt that this collaborative programme with KVK, Panchmahal and ATMA will definitely benefit the farmers. The efforts done by KVK, Panchmahal with ATMA in identifying the farm-women group and forming their association in developing/establishing entrepreneurship in value-added products of horticultural crops and marketing by Self-Help Groups make farm-women economically self dependent are worth mentioning. The scientists stressed upon the intercropping with horticultural crops for sustainable livelihood of the farming community in semi-arid regions of Gujarat. The KVK specialists and farmers interface was also held on the occasion. To popularize the protective cultivation, an interaction with progressive farmers was also apprehended. About 1,500 farmers from 11 talukas of Panchmahal district participated in this Mega Farmers’ Training-cum-Kissan Sammelan.

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- KVK, Lengpui. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated a three-day training programme on **‘Aquaculture for Entrepreneurship Development in Mizoram’** in collaboration with Central Institute of Freshwater Aquaculture (CIFA) and Krishi Vigyan Kendra, Mamit on 1 February 2012 at KVK, Lengpui. He asked Central Institute of Freshwater Aquaculture to make arrangements for providing FRP Portable hatchery, portable aquaculture kits, ornamental fish units and fishing nets to the fish farmers through Krishi Vigyan Kendras of the state. Dr B. Meenakumari (Deputy Director General, Fisheries)



Dr S. Ayyappan (Secretary, DARE and DG, ICAR) asked CIFA to provide FRP portable hatchery, portable aquaculture kits, ornamental fish units and fishing nets to fish farmers through KVKs in Mizoram

emphasized on the need for synergy in fish culture and post-harvest technologies for holistic development of the sector. Dr P. Jayasankar (Director, CIFA) assured all possible help to develop freshwater aquaculture in Mizoram for income and employment generation, as well as for food and nutritional security of the people.

The CIFA would promote freshwater aquaculture in Mizoram through provision of enabling technologies, training programmes, demonstrations, and other critical inputs. As a part of this initiative the Institute has organized a training programme.

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- KVK, Hiriyyur. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) **inaugurated the administrative building** of Krishi Vigyan Kendra (KVK), Hiriyyur and planted a coconut seedling on 21 February 2012. He visited the exhibition arranged by KVK, ZARS, NAIP and Akshya Food Park and appreciated the efforts of the scientists of the University of Agricultural Sciences, Bengaluru. Dairy and sheep demonstration units of the farm were also visited. The Director General briefed about the NICRA Project and research priorities for the climate change and said that ZARS will be strengthened by more financial aid and funding for construction of *Shathamantsava Smaraka Bhavan* at ZARS, Hiriyyur to commemorate 100-year of Babbur Farm. Dr Ayyappan opined that more and more Diploma and Certificate courses are to be started which help to enrich the skill and knowledge of the farmers. Farmers expressed their views and requested the Director General for starting of Diploma College in Chitradurga district and Dryland Research Centre at Babbur farm.
- KVK, Konehalli. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) also **inaugurated administrative building** of Krishi Vigyan Kendra, Konehalli, Tumkur and **Seed Godown of ARS,**

Konehalli on 22 February 2012. He emphasized on increasing the productivity level under rainfed situations. He opined that the production level in India with the average annual rainfall of 400 to 500 mm is lower when compared with other countries where the annual rainfall is less than 140 mm and urged the scientists to develop technologies that suit low rainfall areas and helps in increasing the productivity. He stressed upon the need for value-addition of minor millets to fetch higher income and to improve the livelihood security of the farmers. The farmers suggested for the development of suitable farm machineries to overcome the labour problem, improve the productivity of minor millets, promotion of integrated farming system for sustainable agriculture and enhance the subsidy to drip irrigation for efficient use of water, the most critical natural resource.

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- KVK, Raisen, 29 February 2012. The delegation of 11 Members of Parliament under the Chairmanship of Shri Basudeo Acharya visited Krishi Vigyan Kendra (KVK), Raisen to **interact with progressive farmers** and officials of Madhya Pradesh. The Chairman suggested that three major components, production, value-addition and income generation, namely could be better streamlined for speedy progress of the farmers and he expressed his happiness over the works done by the KVKs of Madhya Pradesh for the farming community. Shri Hukumdeo Singh Yadav (Member of Parliament) has suggested that we should give more emphasis on locally available agricultural produce for its wide population among the elite people for getting premium price. Farmers raised the issue of agricultural insurance scheme and its coverage and benefits towards the small and marginal farmers.

During interaction with the officials, Dr K.D. Kokate, (Deputy Director General, Agricultural Extension), said that the post of Subject Matter Specialists should be Scientists' for reducing the anomaly in the designation and further opined that two more scientists, one each of Agro-meteorology and Agri-business Management could be added to KVK for making the strategic changes in the farmers conditions according to the climate as well as marketing change. Dr Kokate suggested that there is a need for further strengthening of the KVKs as well as Directorate of Extension during XII Five-Year Plan, so that capacity building of the farmers and extension personnel could be made up to the desired level.

An impressive exhibition was arranged by 23 KVKs working in Madhya Pradesh under Zonal Project Directorate, Zone-VII, Jabalpur. These KVKs are working under Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur and Rajmata Vijayaraje

Scindia Krishi Vishwa Vidyalaya, Gwalior. On this occasion, some of the progressive farmers briefed their innovation and field applications.

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- KVK, Ujjain, 1 March 2012. Dr K.D. Kokate (Deputy Director General, Agricultural Extension) visited the KVK, Ujjain and got feedback about the KVK mandatory work conducted in the district from the last five years on 1 March 2012. He stressed upon the adoption of various **technologies introduced to farmers** by the KVK scientists for boosting up the production and productivity of the crop. He also emphasized upon the value-addition and marketing that are very important parameters to get the appreciable economic strengthening of the farmers. The Bankers should also play very important role to encourage the adoption of technology as well as the promotion of secondary agriculture like processing of various product. He visited the crop cafeteria of KVK, comprising various crops and varieties. There were 50 participants in this interaction programme.

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- KVK, Rahuri. Dr T.A. More (Vice Chancellor) **inaugurated an Action Plan Workshop** of Krishi Vigyan Kendras at the Mahatama Phule Krishi Vishwavidyalaya in co-ordination with the Zonal Project Directorate, Zone-V, Hyderabad, and emphasized the role of Krishi Vigyan Kendras as a knowledge and resource centre for the district on 17 March 2012. He added that the impact of changing climate needs to be addressed for the benefit of farmers. Dr S.M. Pokharkar (Director of Extension Education) stated the wider role of Krishi Vigyan Kendras in assessment and refinement of technologies. There were nine technical sessions in the workshop and 150 participants from 16 Krishi Vigyan Kendras.

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Partners Meet at NBFGR

Lucknow, 20 March 2012. The Partners Meet on 'Fish Bioinformatics: Challenges and Opportunities' was organized under National Agricultural Innovation Project (Component-I) entitled 'Establishment of National Agricultural Bioinformatics Grid (NABG) in ICAR' at National Bureau of Fish Genetic Resources. Dr P. S. Pandey (National Coordinator, NAIP) the Chief Guest of the Meet, summarized the salient activities of the various sub-components of NAIP Component-1 and informed about the extension of NABG project up to March 2013. Further, he appreciated the achievements made by the Fisheries domain and requested nodal scientist from ICAR Fisheries Institutes to take up specific research work in fish Bioinformatics during the extended period of the project. Prof. H. K. Vardia (Dean, College of Fisheries, Indira Gandhi Agriculture University, Raipur, Chhattisgarh) expressed his keen interest for association with NABG project in future. Dr J.K. Jena (Director, NBFGR) expressed his views and explained the activities of the project under fisheries domain.

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Visits

- Bhopal, 10 January 2012. The CIAE QRT visited the Central Institute of Agricultural Engineering, on 9 January 2011 for 2 days. The meeting was held under the Chairmanship of Dr V. K. Sharma (Principal, Bhutta College of Engineering and



QRT team members visiting CIAE adopted village for technology transfer

Technology). During the visit, **QRT interacted with scientists**, technical officers, administrative staff, agricultural machinery manufacturers and farmers. A visit was also arranged to CIAE adopted villages for technology transfer.

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- Rahuri, 12 January 2012. The Harnessing Opportunities for Productivity Enhancement (HOPE) Project Management Team (PMT) comprising the members Drs Yilma Kebede, Mary Magonja, Said Silim, George Okwach from the United States of America and Drs Belum Reddy, Ashok Kumar from ICRISAT, Hyderabad visited Mahatma Phule Krishi Vishwvidyalya, Rahuri jurisdiction on 11 January 2012 under which **HOPE-projects** trials are conducted at Hivarebajar cluster of Ahmednagar district, and Borkarwadi cluster of Pune district. The Project Management Team visited *rabi* sorghum (*Sorghum bicolor*) field trials at farmers' field. These districts are contributing more than 1.6 million ha area under *rabi* sorghum. The project is being implemented on 11,500 farmers fields with one acre (0.414 ha) trial of each farmer. These farmers have been provided rainfed *rabi* sorghum production technology with improved varieties of *rabi* sorghum, viz. *Phule Vasudha*, for deep soil, *Phule Chitra* for medium soil, *Phule Anuradha* for shallow soil for rainfed and *Phule Revati* for medium to deep soil for irrigated condition and these varieties are developed by the MPKV, Rahuri on the basis of soil types.

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- Brazil, 8 February 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) visited Brasilia and Sao Paulo, Brazil, led a three-member delegation comprising the Financial Advisor, ICAR; and Assistant Director General (IP&TM) to discuss with the Senior Management of EMBRAPA (Brazilian Agricultural Research Corporation), Ministry of Agriculture, Livestock and Food Supply, Government of Brazil, from 6 to 8 February 2012. The discussion was on collaboration between ICAR and EMBRAPA and in areas of germplasm exchange, agro-energy (biofuel; sugarcane-based ethanol), soybean (cultivation and processing for biomaterials) and animal reproduction in presence of Dr Pedro Antonio Arraes (President, EMBRAPA) and Mr B.S. Prakash (Ambassador of India in Brazil). The mechanisms of collaborative projects, exchange of scientists and students and an interface meeting of scientists from the ICAR and EMBRAPA in the above areas were proposed to be included in the Indo-Brazil cooperation during the visit of the Brazilian President to India during March 2012. The delegation visited the Genetic Resources and Biotechnology Centre (with programmes of plant and animal gene banking, biotech and biological control); the EMBRAPA Agro-Energy (production aspects of soybean, sugarcane, oilpalm, sweet sorghum as well as processing aspects for biodiesel and ethanol) at Brasilia and the EMBRAPA Instrumentation (with activities of agriculture and animal farming automation, Environment and Earth Science, Biotechnology and genetic improvement and Agro-industrialisation) at Sao Carlo. Visits were also made to the EMBRAPA Cattle Farm and Technology Park. Further, the two colleagues of the Delegation visited the EMBRAPA Soils and EMBRAPA Agrobiology at Rio de Janeiro.

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- Bengaluru, 21 February 2012. Union Minister of State for Agriculture, Dr Charan Das Mahant, visited Indian Institute of Horticultural Research (IIHR) and was taken to the Demonstration blocks of Vegetable Crops, Ornamental Crops, Medicinal Crops, wherein recently released varieties of various crops have been grown. He also visited Agricultural Machinery Unit, Mushroom Laboratory, Post-harvest Technology Laboratories and Agricultural Technology Information Centre (ATIC). He was also taken to the Grape and Strawberry blocks. He showed keen interest in the on-going research activities and appreciated the important vegetable varieties and value-added products developed at the Institute. He indicated that the post-harvest technologies need to be upscaled, so that the farmers could get better market rates and also distress sales could be avoided.

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- Kalyani, 21 February 2012. An interactive meet with stakeholders, progressive fish farmers and entrepreneurs was held at the Field Station of CIFA, Dr (Mrs) B. Meenakumari (Deputy Director General, Fisheries) who was present on the occasion, inaugurated the following facilities:
 - Dr Hiralal Chaudhury Hall for conducting training programmes.
 - High Value Indigenous Fish Bank (0.1 ha) for stocking and rearing of fish having regional importance, customer preference and high market price.
 - Pabda Hatchery Complex comprising of two numbers breeding and hatching pool and two cemented rearing tanks (6 m × 3 m × 1.2 m each) for commercial production of Pabda seed

– Parking lot.

Dr Meenakumari also visited a fish farm adopted by the Kalyani Centre located at Fulia, district Nadia and observed the various activities which included integration of fish-culture with high value cash crops like strawberry, broccoli, coloured capsicum, cabbage, leafy vegetables like lettuce, celery, aromatic paddy (40 varieties), mushroom cultivation etc. All the culture is done by organic farming. She suggested that such type of farming should be promoted to other farmers for their better economic growth. Further, she visited Naihati Fish Seed market and interacted with the seed vendors and held discussions with them.

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Convocation

Xth Convocation of NDRI

Karnal, 21 February 2012. Padma Vibhushan Dr M.S. Swaminathan (Member of Parliament, Rajya Sabha) delivered the Convocation Address and distributed the degree certificates at the Xth Convocation of National Dairy Research Institute. He congratulated the graduating students and lauded the progress made by NDRI in different areas of milk production and processing. He referred to the increase in milk production in India as 'White Revolution'.



On this occasion, Doctor of Science (*Honoris Causa*) was awarded to Dr Ratnakar Nagarcenkar and Dr N.R. Bhasin in recognition to their outstanding contribution in dairy science and education. In the X Convocation of NDRI 20 students were conferred the B.Tech (Dairy Technology). The 105 students were conferred Master Degree in 13 disciplines and 25 students were conferred Ph.D degree in 12 discipline. The Gold medals, merit certificates and Best Thesis awards were also presented to the students.

Dr A.K. Srivastava (Director, NDRI) highlighted the research and academic achievements, NDRI, and new

developments in infrastructure and other spheres. Books and new technologies developed by NDRI were also released on this occasion.

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Future of agriculture to be science based

Ludhiana, 1 March, 2012. Mr P.K. Basu (Secretary, Agriculture and Cooperation, Ministry of Agriculture, New Delhi) delivered his convocation address at the 'Convocation and Prize Distribution function' of the College of Agriculture, Punjab Agricultural University. He said, "To meet the challenges of 21st century and to feed billion plus population with only 2.3% of global land resources and about 4.2% of water resources, food security has to be at the core of the agriculture development agenda".

Mr Basu divulged, 'Due to the availability and adoption of high-yielding crop varieties, inputs and farm machinery, the key ingredients of the 'Green Revolution,' the production of food grains has increased from 82 million tonnes in 1960-61 to 250 million tonnes in 2011-12'. But the tough task of food and nutritional security still needs to be



addressed. Expressing concern that the water-table has gone down to more than 10 m in 97% of the cultivated area of the Punjab, reaching critical levels and endangering sustained agricultural production, he said that the enactment of "Sub-soil Water Preservation Act," which bars transplanting of paddy before 10 June, is a right step to check the excessive drawal of groundwater resources. Climate change is the emerging threat to sustainable agriculture, he noted, saying that the promotion of resource conservation technologies well-supported by precision farming operations like laser land leveler and

tensiometer, developed by the PAU, can help the farmers to minimize the impact of climate change. The 2012 has been declared as the year of "Horticulture," said Mr Basu, adding that focus will be on setting up of series of the State of the Art facilities that would facilitate year round production and efficient post-harvest handling. He exhorted the students to dedicate their energies and skills to meet the agriculture challenges and offer scientific, practical and economically viable solutions to them.

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Trainings

- Ludhiana, 25 January 2012. A two-day training programme on 'Fish-based ready-to-eat value added products' was conducted on 24 and 25 January 2012 under the technical guidance of NAIP sub-project 'Responsible harvesting and utilization of selected small pelagics and freshwater fishes'. The programme was held at College of Fisheries, Guru Angad Dev Veterinary and Animal Sciences University. There were 60 participants who were given training on the development of five fish-based value-added products, viz. Momos, Casserole, roll, cutlet and Rohu blocks. Dr V.K. Taneja (Vice Chancellor, GADVASU) also asked the fish farmers to come forward and to take up value-addition as an enterprise to popularize fish products in the state for higher economic returns.
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- Bharatpur, 28 January 2012. With the aim to make the farmers aware about seed production technology of important crops with special reference to mustard and wheat, and motivate them for participatory seed production programme, Shri B. K. Singh [Director (ATMA), Government of Rajasthan] inaugurated a six-day farmers training programme, organized by Directorate of Rapeseed-Mustard Research, Bharatpur under ICAR Seed project 'Seed Production in Agricultural Crops' on 23 January 2012 and said that seed is an important input of crop production and use of good quality seed is pre-requisite for harnessing the full potential of a crop.
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- Rahuri, 30 January 2012. An Orientation Training Programme for new recruited staff of additional sanctioned Krishi Vigyan Kendras was organized by Mahatama Phule Krishi Vishwavidyalaya in co-ordination with the Zonal Project Directorate, Zone-V, Hyderabad.
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- To empower tribal farmers for rapeseed-mustard production under resource constraints, four training-cum-exposure visits, each of three days were organized at the Directorate of Rapeseed-Mustard Research between January and February 2012. The participants (135) from Jharkhand, Asom, Manipur, Rajasthan were imparted training on latest know-how of rapeseed-mustard production, appropriate high-yielding varieties, quality seed production and storage. These training-cum-exposure visits were organized as a part of implimentation of tribal sub-plan by the Directorate.
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- Mizoram, 3 February 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) inaugurated a three-day training programme on 'Aquaculture for entrepreneurship development in Mizoram' organized by the Central Institute of Freshwater Aquaculture on 1 February 2012. The Programme coordinators of all 7 Krishi Vigyan Kendras of the Mizoram were presented in addition to SMSs, and other staff members. Training manual and pamphlets prepared in the local language were released on the occasion.
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- Lucknow, 10 February 2012. Shri B.K. Patnaik (IFS, former Principal Chief Conservator of Forest and Head of Forest Force, Govt. of Uttar Pradesh) inaugurated a 5-day training programme on 'Conservation and Management of Indigenous Fish Resources and Impact of Exotics', sponsored by the National Fisheries Development Board and organized by the NBFGR, from 6 to 10 February 2012 . The programme was attended by 14 Officers from 7 State fisheries departments of the country.
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- Rahuri, 17 February 2012. A five-day National Training Programme on 'Seed Production and

Quality Regulation' was inaugurated by Dr Y. S. Nerkar (Former Vice Chancellor, MPKV, Rahuri) at College of Agriculture, Pune in co-ordination with the National Seed Research and Training Centre, Varanasi on 13 February 2012. A visit to Bejo-Sheetal Seed Company at Jalana was also organized.

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- Izatnagar, 29 February 2012. A three-week short course on 'Newer approaches for feed security and safety', organized by the Centre of Advanced Faculty Training (CAFT), in Animal Nutrition was held from 9 to 29 February 2012 at Division of Animal Nutrition, Indian Veterinary Research Institute, Izatnagar. It was attended by 19 participants including Researchers, Assistant Professors and Subject Matter Specialists from all over the country.

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- Lucknow, 9 March 2012. A two-week Training Programme, sponsored by the World Bank funded by NAIP, on 'Allele Mining in Natural Genetic Resources for Targeted Trait Improvement and their Conservation' was started on 25 February 2012 at National Bureau of Fish Genetic Resources. Eighteen selected participants from various research institutes and universities participated in this training.

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- Izatnagar, 11 March 2012. A twenty-one day international training course on 'Gene-based techniques for research in biotechnology', organized by the Biochemistry Section of the IVRI and sponsored under TCS Colombo Plan Secretariat, Sri Lanka and India Millennium Fund, Government of India was started on 20 February 2012 at Indian Veterinary Research Institute. There were 10 participants from different Asian countries, viz. Iran, Malaysia, Thailand, Fiji, Indonesia and Vietnam.

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- Izatnagar, 17 March 2012. A six-day short training programme on 'Molecular techniques in diagnosis and prophylaxis of diseases of farm animals and poultry', organized by the Division of Pathology, IVRI under ICAR - Niche Area of Excellence (NAE) project, was started on 12 March 2012 at the Indian Veterinary Research Institute. Twelve participants including scientists, assistant professors and disease investigators representing nine states of the country participated in the programme.

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Awards

Dr B.P. Pal Memorial Award

Bhubaneshwar, 3 January 2012. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) conferred the Dr B. P. Pal Memorial Award by Hon'ble Prime Minister of India, Dr Manmohan Singh, during inaugural session of 99th Indian Science Congress.

Padma Shri to ICAR Scientists – Dr Chadha and Dr Singh

New Delhi, 26 January 2012. The Union Minister of Agriculture and President of the ICAR, Shri Sharad Pawar, congratulated Dr K.L. Chadha and Dr V.P. Singh for having been conferred with the prestigious Padma Shri award in 2012. It is a matter of great pride and honour for the ICAR and Council congratulated Professor Krishna Lal Chadha [former, Deputy Director General (Horticulture) and ICAR National Professor] and Dr Vijay Pal Singh (former Principal Scientist, ICAR), and noted rice breeder for winning coveted civilian honor **Padma Shri** in recognition to their outstanding contribution in their respective fields.



Dr K.L. Chadha



Dr V.P. Singh

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- Izatnagar, 19 March 2012. A twenty-one day short course on 'Livestock production and health under impending climate change' was started by the Centre of Advanced Faculty Training (CAFT) in Veterinary Physiology on 28 February 2012 at Division of Physiology and Climatology, Indian Veterinary Research Institute.

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- Izatnagar, 26 March 2012. A 15-day training course on 'Radiology and Ultrasonography' sponsored by Department of Animal Husbandry, Government of Uttar Pradesh, Lucknow was started on 12 March 2012 at the Indian Veterinary Research Institute. The training course was organized by the Division of Surgery, IVRI, wherein 15 field veterinarians participated from different parts of Uttar Pradesh.

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Personnel

Protocol Activities

- Dr H S Gaur [Dean and Joint Director (Edn.), IARI, New Delhi] and Sh. Rajesh Ranjan (Director, DARE, New Delhi) visited Afghanistan from 29 to 31 January 2012 to make preliminary assessment for setting up of the Agricultural University in Afghanistan.
- Dr Swapan K Datta (Deputy Director General, Crop Science), was part of the delegation led by Shri Sharad Pawar, Union Minister of Agriculture and Food Processing Industries, to Australia from 24 to 29 February 2012 for bilateral meetings/discussion with Australian Ministers and signing of MoU on Agriculture and Cooperation.
- Delegation led by Dr R K Mittal [Assistant Director General (EQR)] comprising Dr Madan Mohan, Marine Fisheries ADG and Dr T S Rathore (Director, Arid Forest Research Institute, Jodhpur] to participate in second meeting of ASEAN- India Working Group on Agricultural and Forestry (AIWGAF) at Palembang, South Sumatra, Indonesia from 6 to 8 March, 2012.
- Shri Rajiv Mehrishi (Additional Secretary, DARE and Secretary, ICAR) visited London for 4 days from 12 to 15 March 2012 and Dr H.S. Gupta (Director, IARI, New Delhi) for four working days from 8 to 9 March 2012 and 12 to 13 March 2012, along with intervening weekend to attend legal proceedings in connection with the two Roerich Paintings stolen from IARI, New Delhi.

Appointments

- Dr Jai Gopal has joined as Director of Directorate of Onion and Garlic Research, Pune on 9 January 2012.
- Dr P. Jayashankar has joined as Director of Central Institute of Freshwater Aquaculture, Bhubaneswar in the afternoon of the 12 January 2012.
- Dr P. K. Mishra has joined as Director of Central Soil and Water Conservation Research Institute and Technology, Dehra Dun on 18 January 2012.
- Dr H.P. Maheswarappa has joined as Project Co-ordinator (Palms), Central Plantation Crops Research Institute, Kasaragod on 30 January 2012.
- Dr Pradip Dey has joined as Project Co-ordinator (SCTR), Indian Institute of Soil Science, Bhopal on 1 February 2012.
- Dr P. S. Minhas has joined as O.S.D. National Institute of Abiotic Stress Management, Baramati on 1 February 2012.

- Dr (Ms) Ravinder Kaur has joined as Project Director (WTC), Indian Agricultural Research Institute, New Delhi on 23 February 2012.
- Dr C.S. Prasad has joined as Director, National Institute of Animal Nutrition and Physiology, Adugodi, Bengaluru on 12 March 2012.

Retirements

- Dr S.K. Nayar is retired from the post of Director, Central Tuber Crops Research Institute, Thiruvananthapuram on 31 January 2012.
- Dr V. Krishnamurthy is retired from the post of Director, Central Tobacco Research Institute, Rajahmundry on 31 January 2012.
- Dr K.P. R. Vittal relieved from the post of Director, National Institute of Abiotic Stress Management, Baramati (re-employed) on 29 February 2012.
- Dr K.T. Sampath is retired from the post of Director, National Institute of Animal Nutrition and Physiology, Adugodi, Bengaluru on 29 February 2012.
- Dr M.J. Modayil is relieving from the post of Member, Agriculture Scientists' Recruitment Board on 23 March 2012.
- Dr S. Ranjan is relieving from the post of Assistant Director General (Horticulture, ICAR) on 31 March 2012.
- Dr K.A. Pathak is retired from the post of Joint Director, ICAR Research Complex Mizorum Centre on 23 March 2012.

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