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ICAR

News in Brief

From the DGís Desk

Dear Readers,

The knowledge, skills and technologies developed by institutions of the Indian Council of Agricultural Research and the State Agricultural Universities over the years have significantly enhanced agricultural productivity, quality and production. However, increasing globalisation of agricultural research coupled with expanding domains of proprietary rights over innovations in agriculture are changing not only the nature of agricultural research but also redefining the inter-institutional relationships which underlie agricultural development. The research and development priorities, in addition to increasing the productivity, are now also required to be oriented towards devising strategies, towards agricultural diversification and value addition of agricultural products; thereby providing real equity and livelihood security. This endeavour would essentially require an innovation system centric policy.

The focus has to be on creation of new knowledge with both social and economic perspectives. It is not just the new invention or a discovery that is important, but the recognition of the potential of their approaches for developing new products, services or systems that add value to bring about significant changes in the society. Setting up an effective innovation system would essentially require networking of the institutions in the public and private sectors, the NGOs, CSOs and farmer organisations, so that all these stakeholders interact and become partners in the production, diffusion and use of new and economically useful knowledge; and that alone would further enhance the innovation process.

To address the issues relating to IP management, the ICAR formulated its own guidelines on "Intellectual Property Management and Technology Transfer/ Commercialization" that provide the required policy framework to develop research partnerships. The ICAR has adopted a decentralized three-tier institutional mechanism; wherein an Institute Technology Management Unit (ITMU) and a Committee (ITMC) are established in each institute that are empowered to

handle various intellectual property and technology management matters on day-to-day basis. Five institutes generating more of technologies with commercial potential were identified as the Zonal Technology Management & Business Planning and Development (ZTM&BPD) units to serve as the middle-tier, in synergy with the ITMUs in their respective zones, and work out the best-fit strategies and work plan for technology transfer and realization on a zonal basis. The Central Technology Management Committee at the ICAR (Headquarters) is the apex decision-making body facilitating in techno-legal and policy matters/concerns. The central unit is also to catalyze more initiatives in building sustainable public-private relationships.

The concept of having an incubation centre at the middle-tier of ZTM&BPD Units has been implemented for promoting Partnerships for new technologies with entrepreneurs and other companies. This initiative has been taken under the National Agricultural Innovation Project, thus establishing technology incubators at the five ZTM&BPD Units at National Institute of Research on Jute and Allied Fibres Technology, Kolkata (East); Central Institute for Research on Cotton Technology, Mumbai (West); Indian Agricultural Research Institute, New Delhi (North-I); Indian Veterinary Research Institute, Izatnagar (North-II); and Central Institute of Fisheries Technology, Kochi (South). These incubators would be instrumental in formulating business policy, plan and developing models for technology commercialization in the zones. Besides, taking a holistic view, five such Business Planning and Development (BPD) Units have also been established in State Agricultural Universities: Anand Agricultural University, Anand; Birsa Agricultural University, Ranchi; Chaudhary Charan Singh Haryana Agricultural University, Hisar; Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur; and Tamil Nadu Agricultural University, Coimbatore.

The agri-business entrepreneur often faces the constraints of identifying a good commercially viable product, getting trained personnel, better equipment and adequate technical backstopping. The technology incubators established by the ICAR would therefore create a mechanism for commercialization of agriculture research products/technologies generated from public research institutions. Appropriate capacity building in terms of human resource being the other important component for implementing this programme, the existing inter-disciplinary scientists/professionals engaged in the area of technology management in the institutes have been sensitized and re-oriented to this new dimension. A dozen IP management training-cum-workshops have been organized by the ICAR all over the country, in which over 600 scientists and other concerned staff from the ICAR institutes and SAUs were initially exposed to the nuances of the overall subject of IPR and core areas of technology transfer. Subsequently, ICAR scientists and other concerned staff were also nominated for national and international trainings in various premier institutions. To further inculcate the spirit of change, five zonal workshop-cum-training programmes were organized in 2009-10, therein covering about 490 persons and including about 250 ITMC members from 89 ITMUs. These programmes deliberated specific Institute-wise and Zone-wise details of the progress and constraints. The issues such as the methodology to critical analysis of the commercial potential of the inventions in the institute(s) and checklist of issues related to licensing/commercialization of technologies were deliberated in depth. With these efforts of capacity building, which will further continue in future, it is expected that the trained persons would spearhead the change process and provide leadership for technology management and enterprise creation.

The technology incubators established by the ICAR would therefore create a mechanism for commercialization of agriculture research products/technologies generated from public research institutions.

Any successful innovation system requires concerted outreach efforts to be made through technology meetings and events, creating networks, organising workshops and conferences, and interaction with enterprises of promise. In this endeavour, a Special Conference 'Strategic ICAR and Industry Partnership: Knowledge and Technology Transfer' is being organized in July, 2010. In addition to showcasing the ICAR technologies, the interaction with the invited industry partners would be important to assess the trends of research collaboration and technology transfer between ICAR and private sector so as to have increased synergy between the institutes developing the knowledge and technologies and the potential industry recipients.

The new initiatives taken for establishing the innovation system are expected to lead to development and commercialization of new products, technologies, processes, designs, prototypes and services for improved on-farm and off-farm productivity. They would also act as a catalyst in accomplishing science and technology-led, sustainable socio-economic gains, by applying inventions derived from the NARS through technology validation, technology transfer and enterprise development.

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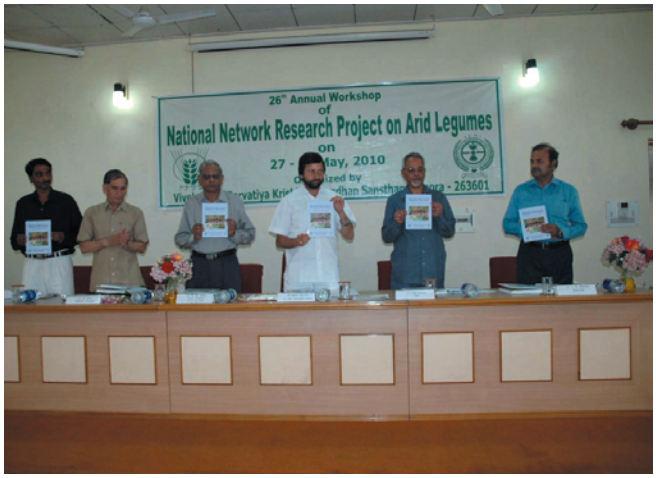
WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

XXVI Annual Workshop on national network research project on arid legumes



Almora,28 May 2010.The XXVI Annual group meeting of National Network Research Project on Arid Legumes was organized at the Vivekanand Parvatiya Krishi Anusandhan Shala between 27 and 28 May 2010. In this group meeting, 65 Arid Legumes research and development workers and officers from Government and Non-government institutions, departments and organizations across the country actively participated. Uttarakhand Minister, Shri Prakash Chandra Pant, participated in one of the sessions. He was apprised of the activities of the institute during his visit to museum and the institute. The catalogue *Evaluation of Indigenous Horsegram Germplasm of Uttarakhand Hills for Utilization in Breeding Programme*, the bulletin *Sustainable Fodder Production Management in North-West Himalaya*, and VPKAS Hindi Newsletter *Parvatiya Krishi Darpan* (October 2009 – March, 2010) were released by Minister of Uttarakhand during the workshop. Research work carried out during *kharif*, 2009 was presented. Besides, technical programmes for *kharif*, 2010 were formulated with special emphasis on development of mapping population on the traits like maturity, yield, gum quality in *guar* and resistance to abiotic and biotic stresses.

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Utilize research outcomes to boost maize production

Srinagar, 11 April 2010. H'E Governor of Jammu and Kashmir, Shri N. N. Vohra, called upon the agri-scientists to pool their expertise and optimally utilize research outcomes and latest technologies to boost per acre yields of maize and enhance production significantly. The success of such an effort would transform the economic situation and provide financial stability to the farming community, he said. H'E Shri Vohra emphasized the need for raising the contribution of agriculture to the Gross Domestic Product by adopting the latest techniques and switching over to high-yielding hybrid seeds. The challenges on the agricultural front are numerous but these can be met successfully by better resource and environment management, and it needs greater synergy between the ICAR, State Agricultural Universities and the extension agencies of the State Agricultural Departments for transfering the latest technologies to the farm. The Governor stressed the need of effectively co-ordinated efforts of the processing industry for value-addition of maize and other agri-products to optimally benefit the farmers and continuously improve their economic conditions.

The Vice-Chancellor, SKUAST-Kashmir, Prof. Anwar Alam, said that a number of field trials on maize cultivation have been made by the University by adopting the latest technology. He added that there is a need for according special focus for maize cultivation in the State as it has immense potential for ensuring increased production levels.

The Project Director, Directorate of Maize Research, Dr Sain Dass, informed about the area-specific and across the country research being conducted for giving fillip to the maize production. He also called for adopting public-private partnership mode for production of quality maize seeds and popularizing cost-effective technologies for larger benefit of the farmers.

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National Academy of Dairy Science launched

Karnal, 1 June 2010. On the occasion of World Milk Day, the National Dairy Research Institute launched 'National Academy of Dairy Science (NADS)' during a national workshop. Mission of the Academy is to achieve recognition as a think-tank to provide views of the scientific community on dairying related issues, and to encourage and promote scientific and technological talent, making it a powerful instrument in fostering knowledge-based vibrant dairy industry for the growth of national economy.

This academy will also act as nucleus for promoting inter-institutional collaboration; facilitate conduct of national and international workshops and appropriate forum for nomenclature of degrees, discipline and institutions.

In the National Workshop, dairy scientists and policy makers from all the professional dairy education institutes in India agreed that dairy graduate and post-graduate students must attain knowledge to serve needs of large as well as small level milk processing units and business management in highly competitive world market.

Dr R. B. Singh, former Chairman, Agricultural Scientist' Recruitment Board (ASRB), New Delhi, while inaugurating the workshop, expressed his concern that about 1 billion people in the world remain hungry and 40% malnourished children are in India. Livestock sector is performing better over crop sciences and was supposed to grow at 6%, but growth in this sector is hovering around 4 to 5%. Livestock sector employs more women and hence can empower women.

The new web site of the NDRI *www.ndri.res.in* has been developed. It conforms to Agroweb guidelines and will help in providing useful information and services to all stakeholders. Digital Dissemination of Agricultural

Information project is popularly called as Agroweb project. The Agroweb team has also published guidelines to bring uniformity in design and look of websites of all the ICAR Institutes.

The key note address by Dr B. N. Mathur, former Director, NDRI, emphasized that India could be a centre for providing dairy education to nationals from Africa, Latin America and Caribbean. In his presidential address, Dr A.K. Srivastava, Director, NDRI informed that livestock sector contributes 28 to 30% to agricultural Gross Domestic Product and milk contributes 70% to livestock Gross Domestic Product. Milk production in India is growing four-fold over world average.

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XXII meeting of the ICAR Regional Committee No. VIII

Bengaluru, 15 May 2010. The XXII Meeting of the ICAR Regional Committee No. VIII was held at Bengaluru between 13 and 15 May 2010. Interactive session was also held on the Krishi Vigyan Kendras and technology transfer in which the Training Organizers of Krishi Vigyan Kendras in the region participated.

Following are the important action points arising out of the three-day deliberations:

- There should be an integrated approach to extension activities. At present Universities, Departments, ICAR Institutes, Krishi Vigyan Kendras, agencies like *Rayatu Samprak Kendras* and NGOs carry out extension activities independently. These activities should be integrated to avoid duplication and contradiction and to ensure effective transfer of technologies. Krishi Vigyan Kendras should also tap the funds available with agencies like NABARD for more effective technology transfer. There is a strong need to strengthen the veterinary component of KVKs.
- Different development models are to be developed for the Krishi Vigyan Kendras based on the specific requirements of the state and stage of development.
- Farmers to be imparted training to produce their own seeds of self-pollinated varieties, and distribution of such seeds among the farmers to be encouraged.
- Productivity in most crops has come down in recent years. A critical analysis of the yield decline with respect to technological, extension and other aspects have to be made. An assessment of productivity in relation to labour availability and mechanization may be made decade-wise (70s, 80s, 90 and 2000).
- Each state may develop database on climate data and land use for appropriate regional planning.

- Comprehensive "package of practices" are to be brought out for each State / agro-climatic region integrating the recommendations of State Agricultural Universities and the ICAR Institutes.
- Information on nutrient profile of minor millets should be updated and published. Studies are to be taken up on the nutrient profile of recent varieties of minor millets.
- Fodder Development Programme may be entrusted to the Agricultural Departments of the States, as the Animal Husbandry departments do not have the expertise on the cultivation of fodder crops. There is a need for establishing feed block warehouses.
- Student exchange programme between States and Universities should be thought of and the incentive mechanism should be worked out by the universities.

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XXI Meeting of the ICAR Regional Committee I

Jammu, 12 June 2010.The XXI Regional Committee No. I of Indian Council of Agricultural Research was held at Sher-e-Kashmir University of Agricultural Sciences and Technology, Chatha, Jammu, with more emphasis on the role of Krishi Vigyan Kendras in providing farming solutions to farmers.

'Growth in agriculture is the only hope for increasing employment', said G.H Mir, Minister of Agriculture from Jammu and Kashmir in the inaugural session of 3-day XXI Meeting of ICAR Regional Committee No.1. He said that unemployment in the state is a big problem and the decreasing land available to agriculture due to mass urbanization along with increasing demand of food is another area of concern. While commending the role of ICAR in maintaining food security despite such challenges, he emphasized the need of quick transfer of the technologies to the farmers.

Mr Ali Mohammad Sagar, Minister for Rural Development, said that strategies need to device-out to save agriculture of hilly states. Mr Sham Lal Sharma, Minister of Horticulture and Floriculture, suggested that opportunity in cultivation of medicinal plants may be exploited to raise income from agriculture. Mr Aga Syed Rahullah, Minister of Animal and Sheep Husbandry called for time-bound research in the animal sciences sector while Mr Javed Ahmed Dar, Minister of State for Agriculture, appealed to tap agriculture potential of state.

"Agriculture research is the only area where you invest one and get seven as return," highlighted Director-General (ICAR) and Secretary, DARE, Dr S Ayyappan. 'Objective of organizing such meetings was to find out problems and device-out collaborative measures to enhance agricultural profitability', he added. On dealing with climatic change effects, Dr Ayyappan assured that Council would provide all support to state governments and agricultural departments in this regard. Listing marketing linkage as major limiting factor in hill states, he said that use of fertilizers in J&K was quite low as compared to national average, and if this factor is taken care production can go up manifolds.

Dr S Ayyappan, urged agricultural institutes and KVKs to make the farmer better than today. Dr Ayyappan interfaced with Programme Coordinators of Krishi Vigyan Kendras belonging to Jammu and Kashmir, Himachal Pradesh and Uttarakhand and sought details of innovations, extension activities, technologies transferred, technical, administrative and financial issues suggesting action points. Promising introduction of more awards for well-performing Krishi Vigyan Kendras, the Director-General said that ICAR is considering introducing 3 months orientation programme for scientists who are posted to Krishi Vigyan Kendras.

The National Director, NAIP, Dr Bangali Baboo said that Krishi Vigyan Kendras should not restrict dissemination of technologies only from affiliated organization, but should also cater to other agricultural institutes.The other renowned scientists emphasized on — adoption of latest technologies for cultivation of horticultural crops; terming drought as biggest challenge, scientists called for the need to maximize benefit from monsoon by establishing watersheds and rainwater harvesting sheds in this

region; and need for better communication and e-connectivity among Krishi Vigyan Kendras.

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Interface with entrepreneurs in zone VII

Jabalpur. An interface meeting was organized by Krishi Vigyan Kendra, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, for the emerging entrepreneurs of Jabalpur District with Dr K. D. Kokate, Deputy Director-General (Agricultural Extension) at village Jatwan, block Panagar. More than 100 entrepreneurs of dairy, goatry, vermicompost, fruit, vegitable, seed production, lac production, nursery along with Self-Help group of women actively participated in this programme. Hari Om Vermi-compost Unit was established by young and enthusiastic farmer/entrepreneur Shri Brijesh Kumar Vishwakarma under the guidance of Krishi Vigyan Kendra, Jabalpur. The Deputy Director General (Agricultural Extension), shared the success story with different entrepreneurs. The teams of DES of JNKVV, Jabalpur; RVSKVV, Gwalior; and OUAT, Bhubaneshwar; and Zonal Project Director, Zone-VII and Programme Coordinator, KVK, Jabalpur, along with KVK visitors of Hari Om Vermi-compost Unit discussed about the production and marketing of vermi-compost. The annual turnover of vermi-compost unit was impressive and it generated employment. Presently the vermi-compost production is 15 tonnes/day. The farmer is also growing cucurbits along the side of shed through which he is earning about Rs 500/day besides protection of worms from direct sunlight.

The team also visited another progressive farmer, Shri Ramlochan Patel's field of who has successfully diversified integrated farming system (dairy, vegetables, fruits, vermi-compost and lac production) modules.

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Interface meeting on Weed Management

Jabalpur,17 May 2010.The Secretary, DARE and Director-General, ICAR, Dr S. Ayyappan, inaugurated an Interface meeting on Weed Management and expressed his concern over data showing huge yield losses due to weeds by citing examples of submerged weed infestation in Dal Lake and Loktak Lake, causing hindrance to inland fisheries. He also released a publication on *Directorate of Weed Science Research-Marching ahead.*

The scientists suggested adoption of direct seeded rice with suitable crop variety like Pusa Sugandha which can impart allelopathic effect toward weed suppression. For efficient weed management one should have proper understanding of the seed biology of weeds. The experts were critical of using Mexican beetle and its efficiency in controlling a notorius weed *Parthenium*, and on the large scope for developing Herbicide Resistant Crops as there is no risk of gene flow in cross-pollinated crops. The scientists expressed concern about spurious herbicides and suggested to develop easy techniques for the identification of spurious herbicides.

Recommendations

Research

- Upstream research on emerging and challenging issues of weed science is required to be taken up at the Directorate of Weed Science Research (DWSR) and concerned ICAR institutes as voluntary centres.
- Up-scaling of available weed-management technologies as Frontline demonstrations to larger areas through co-ordinating centres.
- Testing of new herbicides should be taken up at the Directorate of Weed Science Research and only after thorough studies on persistence, residues, effect on non-target organisms as well as their economics, these be passed on to crop directorates, All-India Co-ordinated Research Projects for further testing, verification and refinement at their agro ecological zones.
- Greater emphasis for developing management technology of wild rice in different rice ecologies including the survey at national level to identify the extent of weedy rice infestation.
- Based on their level of infestation important weeds should be categorized as 'National Weeds'.
- Effective weed-management strategies should be developed for rainfed upland rice and direct-seeded rice.
- New approaches for bio-control of problematic weeds should be explored.
- Greater emphasis on management of aquatic weeds particularly submerged ones.
- Weed surveillance should be supported by GPS data.
- The Directorate of Weed Science Research should

take up research on fractionation of various botanicals and develop new bio-molecules for weed control.

- Develop strong research network for devising small tools and implements for weed control for small and marginal farmers.
- Intervention of Council at higher level for release of successful bio-control agent identified by National Bureau of Agriculturally Important Insects against *Mimosa* spp. in Kaziranga National Park.
- Seed priming and seed health for early germination and vigour should be exploited in weed management.
- Protocols of experiments to be finalized by the Directorate of Weed Science Research in weed management studies in consultation with crops and horticulture Institutes.

Administrative

- All crop and horticultural institutes should be included as voluntary centres of DWSR for better co-ordination of research. The Directorate of Weed Science Research should act as resource centre with all other institutes as a clientele.
- The Directorate of Weed Science Research should serve as nodal agency for maintaining updated and uniform protocols of experiments on weed science. Scientists working in relevant fields of weed management in different institutes should meet periodically at the Directorate of Weed Science Research and develop uniform research objectives and protocols for experiments.
- Training for the ground-level workers and farmers for proper mixing and application of herbicides,
- Strong back up for training to scientists in weed management.
- The Krishi Vigyan Kendras should be suitably informed and trained on weed-management practices periodically.
- A policy decision should be taken for developing and adopting Genetically Modified crops in the country.

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Quinnial review team on rapeseed-mustard meets

Bharatpur, 24 April 2010.The Project leaders of 22 All-India Co-ordinated Research Project on Rapeseed-Mustard centres, from 15 states of India, met at Directorate of Rapeseed-Mustard Research, between 22 and 24 April 2010. The achievements of rapeseed-mustard research programmes between 2004 and 2009, were put before the Quinnial Review Team members. The meeting was chaired by Dr B. Mishra, Chairman of Quinnial Review Team for Directorate of Rapeseed-Mustard Research, All-India Co-ordinated Research Project on Rapeseed-Mustard, and Vice-Chancellor, Sher-e-Kashmir University of Agriculture Sciences and Technology, Jammu. The QRT advised the centres to focus their activities as per the mandate and resources available.

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Conservation Agriculture in Hills Region

Almora,10 May 2010. A brainstorming session on Conservation Agriculture was organized at the Vivekanand Parvatiya Krishi Anusandhan Shala in which the Chief Guest, Dr I P Abrol, Formerly Deputy Director General (NRM), ICAR introduced 3 principles of conservation agriculture: (i) minimum soil disturbance, (ii) keeping the soil covered, and (iii) adopting crop rotation in temporal and spatial scale. The scientists discussed resource conservation technologies, viz. perennial vegetation on bunds, vegetable cultivation through harvested water, seed priming and deep sowing for crop establishment, which may constitute Conservation Agriculture. Besides the issue of conservation agriculture; the need of using weeds for nutrient, conservation tillage giving example of rice-wheat cropping system; identification of important issues to be taken up and proceed with site specific multi-location trials, which may benefit the hills farmers; conservation agriculture as a driving force for looking alternative technologies etc. were discussed. The scientists opined that puddling of rice

field is one of the main constraints for the adoption of conservation agriculture in irrigated lands.

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Rapeseed-mustard research and development under PPP mode

Bharatpur, 28 April 2010. The Chairman, Brainstorming meeting on Rapeseed-mustard research and development under PPP mode mentioned that technology generation is usually with public organizations and intellectual property belongs to private sector, hence integration of both is imperative for rapidly harnessing the benefits of generated technology. Although both systems have their own advantages and disadvantages, there is a need to harmonize and synergize the efforts through dialogues resulting into fruitful public-private partnership. He also quoted the earlier efforts of holding such meeting for hybrid maize with successful outcome.

The scientists highlighted the importance of public-private-partnership (PPP) especially in development of varieties and hybrids and informed the participants about the initiatives of Indian Agricultural Research Institute in this context. In 2 sessions, 18 presentations were made by the invitees. The issues like monitoring/ verification of commercialized products and trade statements, pre-breeding for improving tolerance to biotic/abiotic stresses, exchange and sharing of germplasm, development of case-specific Memoranda of Understanding and tracking of the supplied material for genuine ownership and hassle-free utilization, product development, conduct of All India Co-ordinated Research Project on Rapeseed-Mustard trials at locations of private organizations, inclusion of varieties developed by private organizations as checks and joint monitoring, participatory plant breeding and utilization of public infrastructure for research programmes of private organizations, establishing a consortium of all stakeholders for commercialization of hybrids/varieties, pre-breeding, etc. were identified for Public-Private Partnership.

Dr S.K. Datta, DDG (Crop Science) suggested more concerted efforts for licensing of commercial products from private organization to public sectors, involvement of private sector in All-India Co-ordinated Research Project on Rapeseed-Mustard, sharing of information about plant genetic resources among the public and private sector partners.

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Public-Private Partnership for food security

New Delhi, 13 April 2010. A National seminar on 'Quality Seed for Food Security through Public-Private Partnership' was organized by Indian Agricultural Research Institute, National Seed Association of India and Trust for Advancement of Agriculture Sciences at Dr B.P. Pal Auditorium, IARI, New Delhi. Dr S Ayyappan, Secretary (DARE), Director-General (ICAR), focused on the quality seed for food security and also pointed out difference between expected production of rice and pulses and their total production. He added that this growing deficit is a prime cause for price rise. Scientists must concentrate their effort to find out the solution of these problems. For that, private and public institute have to work together. Long-term association of various organizations will be needed. The Chairman, TASS, Dr R.S. Paroda, emphasized to develop a national system for quality seed and food security, and said that policy support, scientific input and support of farmers will be needed for this purpose. He described seed as a catalyst of change. In his opening remarks President, National Seed Association of India, Mr Uday Singh stressed for collaboration between public and private institutions and said that there is a need to build mutual trust and then try to contemplate each other. Scientists opined that food security can only be ensured through quality seed. Public and Private sectors have to come together to harness this opportunity. There is need to prepare a roadmap to move in this direction.

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Strategies for organic farming

New Delhi, 23 April 2010. To understand the emerging scenario of organic farming in India and abroad and to determine strategies for its promotion, a one-day consultation was organized by the ICAR at NASC Complex. Dr S Ayyappan, Secretary, DARE and DG, ICAR in his inaugural remarks urged upon the participants for developing the road map to spearhead the organic movement in the country and also emphasized upon specific agenda for research, extension and human resource development in the field.

The recommendations are as follows:

1. Low cost bio-intensive organic farming system should be promoted to ensure food, nutritional and economic security for small and marginal farmers in ecologically fragile areas (rainfed, hilly/mountainous and tribal regions).
2. While organic farming could be practised for any crops/cropping systems, preference may be given to crops like basmati rice, sugarcane, oilseeds, pulses, cotton, spices, tea, coffee, cashew, fruits and vegetables that have high demand as organic produce in domestic and international markets.

3. Certification may not be required for the organic produce, if it is accepted by the consumers as such under the brand name. It may be warranted for the domestic and international markets demanding so and offering a premium price for the organic produce. While APEDA is facilitating the export of organic produce to the international markets under its regulatory mechanism, the National Centre on Organic Farming as an Apex Body under Department of Agriculture and Cooperation, Government of India should develop its own easily affordable Internal Control System for certification involving State Government Agencies, ICAR, State Agricultural Universities, Krishi Vigyan Kendras, Non-Governmental Organizations, Agri-clinics etc.
4. The organic standards on the system of growing organic crops, permissible organic inputs, storage and processing etc. need to be formulated and notified for the domestic markets.
5. The organic laboratories for testing of soil, water, organic inputs and organic produce should be set up to ensure the quality of the produce.
6. NARS comprising ICAR and State Agricultural Universities should evolve scientifically validated organic farming practices after harmonizing the existing knowledge pool (ITKs) with farmers.
7. Providing a scientific basis for improvement in quality of organic produce in terms of taste, colour, complexion, fragrance and keeping quality etc.
8. Best experiences on organic farming from farmers and organizations need to be identified and documented and used as input for research and extension.
9. Organically responsive seed and planting material should be evolved.
10. India having competitive advantage in availability of diverse climates and crops and low production costs, should emerge as bigger beneficiary of global organic boom.
11. Best experiences on organic farming from farmers and organizations need to be identified and documented and used as input for research and extension.
12. Inclusion of organic farming in curriculum at graduate level, launching degrees programmes and diploma and certification courses in organic farming.

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Marine Biotechnology and Biodiversity Conservation: Expert Consultation Organised

Goa, 22 April 2010. The National Bureau of Fish Genetic Resources, Lucknow organized an 'Expert Consultation on Marine Biotechnology and Biodiversity Conservation', at Goa from 21 to 22 April 2010 in collaboration with National Institute of Oceanography, Goa and Aquatic Biodiversity Conservation Society, Lucknow. The main objective of the consultation was to deliberate on the status of research, set priorities for future and develop strategies and action plan involving all important stakeholders in the marine sector. The consultation was attended by more than 50 top professionals, policy makers, scientists and professors. 'State fish' concept initiated by the NBFGR, was introduced, which paved the way for conservation of those fishes. Prof. (Dr) Mohan Joseph Modayil (Member, ASRB) and the Chief Guest emphasized that capture, culture, trade, climate and social factors have also got a direct impact on the marine biodiversity, and pointed out the need for knowledge driven use of biodiversity for sustainability. He opined that the marine protected areas will hold the key for boosting fish stocks.

The scientific presentations were on—Issues pertaining to the taxonomic identification of Deep-sea resources of the Indian EEZ; Marine Protected Areas (MPAs) and marine protected animals of the country; benthic biodiversity; sustainable utilisation of marine resources through efficient eco-friendly fishing practices; Marine Ornamental Fish Resources of India; impact of climate change on marine ecosystem of fisheries: adaptation and mitigation strategies; bio-active molecules from marine invertebrates; development of cell lines from marine finfish and shellfishes and its application in marine biotechnology, biodiversity conservation and management; recent trends in production of bioactive compounds from marine organisms; importance of biosecurity and aquatic animal health management; genetic stock identification and DNA barcoding of marine fish. The session on policies included presentation on—Regulatory framework for coastal aquaculture practices in India; local communities, co-management and biodiversity and the related issues; and the initiatives of CMLRE, Kochi in establishing Indian Ocean Biogeographic Information System (IndOBIS) and formulation of national plan on Census of Marine Life (CoML).

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Strengthening Statistical Computing for National Agricultural Research System

New Delhi,8 June 2010. Dr S. Ayyappan, Secretary (DARE) and Director-General (ICAR), inaugurated the Launch Workshop on 'Strengthening Statistical Computing for National Agricultural Research System' under NAIP Consortium. This project is a realization of the visualization of research managers, research facilitators, researchers and trainers to create a sound and healthy statistical computing environment for the benefit of scientists of National Agricultural Research System (NARS). The goal of the project is to provide research guidance in statistical computing and computational statistics so as to provide enabling statistical computing facilities to the researchers of NARS. The efforts would not merely be focused on an interface of statistics, computer science and numerical analysis, but it would also involve designing of intelligent algorithms for implementing statistical techniques particularly for analyzing massive data sets, simulation, bootstrap, etc.

The availability of healthy statistical computing environment would enable the researchers in National Agricultural Research System to undertake probing, in-depth, appropriate, intractable analysis of data generated from agricultural research including those in advanced research areas like biotechnology, genomics, micro-arrays, forecasting, agricultural field experiments, surveys, microarrays, massive data sets such as climate change, biodiversity, market intelligence, etc. It would also facilitate data sharing over web and creation of analytics over the web useful for All India Co-ordinated Research Projects and other Network Projects of National Agricultural Research System.

Dr Ayyappan, emphasized the need to sensitize the researcher managers about the capabilities of this project in making the agricultural research globally competitive, visible and acceptable. To this end Indian Agricultural Statistical Research Institute has

to play a proactive role by describing success stories, capabilities and features of the statistical computing environment through presentations in Director's Conferences, State Agricultural Universities Vice-Chancellor's Conferences, Dean's meetings and other important fora. The launch of this timely initiative to reinvigorate the agricultural research system with advanced computing facilities and development of computing skills would provide enhanced visibility to Indian Agricultural Statistical Research Institute and agricultural statistics discipline in National Agricultural Research System. This project has brought all 151 NARS organizations in a closed network. The training component of the project is also very exhaustive and targets at training 1,500 agricultural research scientists in the country in the usage of high-end statistical package. These would then become trainers and in turn train other agricultural research scientists. Such an effort would have a multiplier effect.

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Stakeholders' Meet

3 June 2010. A research and development programme for livelihood development of SC/ST farmers through aquacultural technologies in Mayurbhanj and Nayagarh districts of Odisha, funded by the Department of Biotechnology, Government of India has been operating at the Institute from 2009. In the project, three blocks, namely, Raj Ranpur, Khandapara and Nuagaon in Nayagarh district; and three blocks, namely, Shamakhunta, Betnoti and Udala in Mayurbhanj district have been identified for dissemination of FRP carp hatchery technology for production of quality fish seed and rearing them in the farmers' field. Under the project, a Stakeholders' Meet on Dissemination of FRP carp hatchery technology for SC/ST farmers of Odisha was conducted at the Institute on 3 June 2010. The Stakeholders Meet was inaugurated by Dr Ambekar E. Eknath, Director, CIFA. In his inaugural speech, he said that the FRP carp hatchery technology has been demonstrated in 21 states, including 6 districts in Odisha. He stressed that fish farmers practising composite fish culture should stock disease free, healthy fish seed from the hatchery. Farmers and user groups who have come forward for this participatory development work would be provided skill training. Besides, the project staff from the Institute persons attended the workshop including 20 farmer representatives.

XII Biennial Workshop of AICRP - Mushroom

Bengaluru, 31 May 2010. His Excellency Governor of Karnataka, Dr Hans Raj Bhardwaj, inaugurated the XII Biennial Workshop of the All India Co-ordinated Improvement Research Project on Mushroom at the

Indian Institute of Horticultural Research. He stressed the need to diversify agricultural and horticultural activities to generate employment in rural areas. He lauded the role of the research institutions of the ICAR, especially the IIHR, for enhancing the per caput availability of fruits and vegetables in the country and leading India towards nutritional security. While appreciating the India's position as second largest producer of fruits and vegetables, he emphasized on the excellent nutritive and medicinal value of mushroom and urged for development of farmer friendly technologies for mushroom cultivation through recycling of agricultural and horticultural wastes. H'E Governor of Karnataka showed concern for the economic uplift of the landless and marginal farmers in which such technologies can be of great help. Cultivation of a variety of fruits and vegetables is the need of hour to diversify and strengthen respective baskets, he added.

Dr H P Singh, Deputy Director General (Horticulture) ICAR, elaborated the significant achievements and milestones of horticultural research in the country and presented a glimpse of appropriate technologies for farmers.

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Advances in animal cancer research in India

Izatnagar.15-16 June 2010. A two-day National Seminar on "Advances in Animal Cancer Research in India : Diagnosis, Treatment and Clinical Management" was held at Indian Veterinary Research Institute (IVRI), Izatnagar on 15-16 June 2010. During the opening session, the Chief Guest, Prof M.C. Sharma. Director, IVRI delivered the fifth Dr C.M. Singh memorial lecture on "Cancer in pet animals: incidence, diagnosis and management", while the Guest of Honour, Dr Lal Krishna, Animal Husbandry Commissioner, Government of India and Assistant Director General (Animal Health), ICAR, New Delhi, delivered the second Dr B.S. Rajya memorial lacture on "Animal health policy for disease management in India."

Speaking at the inaugural function, Prof. Sharma emphasized the importance of the seminar and remarked that cancer remains a challenge even today because of its high fatality rate and incurability inspite of the significant progress made in cancer diagnosis and treatment through technologically advanced inter-disciplinary approaches. On this occasion, Dr Lal Krishna and Dr S.B. Lal, President, CMSET, Bareilly also shared their views. Dr R. Somvanshi, Chairman of the Organizing Committee and Head, Division of Pathology welcomed the dignitaries on the occasion. He informed that the seminar was primarily aimed at providing a platform for reviewing the work on various aspects of animal neoplasms/ cancers.

First Consultative Meet of Deans of Agricultural Universities

Hyderabad,25 June 2010.The First Consultative Meet of Deans of Agricultural Universities comprising 46 State Agricultural Universities, 5 Deemed Universities and Agricultural Faculties and 4 Central Universities was inaugurated at University Auditorium. The 2-day meet jointly organized by Acharya N G Ranga Agricultural University, and ICAR aims at reviewing the impact of various initiatives taken up to develop and strengthen Agricultural higher education sector in this country.

The event started with a formal Inaugural session which was graced by The Chief guest Padma Sri Dr. M.V. Rao, Former Special Director General ICAR,inaugurated the session. Dr S.Ayyappan, Secretary (DARE) and Director- General, ICAR, felt that majority of innovative policies framed by ICAR took shape in the tranquil campus of ANGRAU. The DG opined that this conference gives the best opportunity to analyze the impact of initiatives taken up by the ICAR in the field of agricultural higher education viz., RAWEP, Experiential Learning, Niche Area of Excellence, Modernization of Agricultural University Farms (AU Farms), Revision of the course curricula, quality reforms etc., Following are some of the highlights of his speech.

Dr Arvind Kumar, DDG (Edn.) requested all Deans to contribute enormously in implementing the necessary changes in education system to develop professional skills, team building, communication skills and inter-personal relations, so as to restore the pride in students of being agricultural graduates and professionals.

- The initiative of modernization of the Agricultural Universities farms should focus on creating a model farm with unique infrastructure facilities to serve as a model to the young professionals.
- Efforts are needed to make Agricultural higher education attractive talented to the students.
- Investment in agriculture is to be increased as the returns to investment are very high in agriculture.
- Capacity building programmes are to be formulated at various levels. Initially, a modular training programme on leadership and management is planned for the Faculty Deans by NAARM, Hyderabad.
- Agricultural Universities should exploit the online access of over 2000 journals available under Consortium for e-resources for Agriculture (CeRA).
- To improve and maintain standard of education, priority should be accorded to accreditation of SAUs, colleges, implementing NET and syllabi updation on a continuation basis.
- Develop international linkages and establish the enterprises to infuse efficiency in crop production activities at affordable cost for small and medium farmers.
- Re-thinking is necessary in implementing optimal mode of teaching methodologies through ICT.
- About 50% of the posts are vacant in most of the Universities and Vice-Chancellors should approach the State governments for filling the vacant positions. Examine the possibility of filling 25% posts through all India cadre.
- Assessment of Human Resources requirement and impact assessment is to be done for each and every State. Format for getting credible information is to be developed.
- The Deans meet would be an annual event here after to have a meaningful dialogue.

Dr M.V. Rao raised the following issues:

- Second Green Revolution must include rainfed agriculture through enhancement of the productivity and by minimizing the post harvest loses.
- Diverse in secondary agriculture to accommodate the rural population profitability. Still 30% of the population is below poverty line.
- Maintenance of quality of soil, water and air in the agro-ecosystem must be ensured.
- Inclusion of WTO related issues, IPR, Codex standards etc in the course curricula and called up of the VC's and Deans to get involved in active teaching.
- Need to review of the land grant model, which in USA has diversified. He lamented the narrow approach of excluding non-agricultural streams in the student enrolment. While the world is witnessing consolidation of Universities and companies, we witness increased fragmentation of Agricultural Universities into Horticulture, Veterinary etc.

International Linkages

World Bank Team visits CIFT

Cochin, 24 May 2010. The officials from the World Bank reviewing the NAIP sub-projects being implemented at the Central Institute of Fisheries Technology, Cochin, visited the Institute.

The team reviewed the facility being set up for the Business Planning and Development Unit under the NAIP, one among the 5 being set up in the country by the ICAR. The team also visited the Pilot Plant, which will be utilized by prospective entrepreneurs in incubating the technologies before actual commercialization. The team also visited the Community Based Processing Unit set up under the project, Responsible harvesting and utilization of selected small pelagics and freshwater fishes, at Chellanam.

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MoUs/Work Plans

A Work Plan for the year 2010-11 between the Indian Council of Agricultural Research (ICAR), New Delhi, India and the Agricultural Research Centre for the Arab Republic of Egypt was signed on 14 January 2010.

Success Story

Consortium for e-resources in agriculture

New Delhi. The NAIP has taken an initiative and established Consortium for e-Resources in Agriculture popularly known as CeRA, at Indian Agricultural Research Institute, New Delhi. The main aim of this sub-project is to provide online accessibility of reputed international journals related to agriculture to all researchers in NARS. As on date, more than 120 libraries in National Agricultural Research System (NARS) are availing this facility. Currently, CeRA provides access to a collection of more than 2,000 journals from Publishers like, Elsevier, Indian Journals, Taylor and Francis, Springer Verlag, Annual Reviews and CSIRO. The Web of Science Expanded from Thomson Reuters is subscribed for SCI and related facilities at IARI but catering to all in NARS. Besides, specific reprints from library subscribed titles are made available through Document Delivery Request System.

Detailed information on CeRA is available from the URL: www.cera.jccc.in, and one can interact through e mail ID: cera.usi@iari.res.in. This site is the most sought after for accessing online journals by all researchers in NARS. During the past 2 years ending December 2009, the number of visitors to CeRA web site is more than 1.2 million and the total download of full text articles is more than 1.1 million. Based on the number of downloads and the Consortium subscribed costs to Publishers, there is more than 90% savings, not to speak of the easiness with which a researcher can have the access of full text articles. Besides, under the Document Delivery Request System more than 2,500 scientific articles were sent to CeRA users. To spread the awareness of CeRA workshops-cum-trainings are being

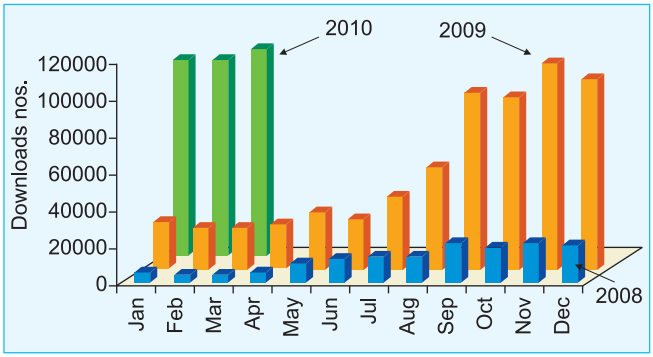

Fig. 1. Downloads of Scientific Articles in CeRA during 2008, 2009 and till March 2010

conducted at institutions in NARS from time to time. The month-wise download information given in Fig 1 reveals the CeRA usage in NARS.

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Zero tillage in wheat saves resources and enhances income

Karnal, 14 May 2010. Sahab Singh, a farmer of Ramba village, Karnal district of Haryana, was impressed with the gains of zero-tillage technology being adopted by fellow farmers in Pehowa area in Haryana. He has a holding of nearly 42 ha in 600 mm rainfall area. He grows cereal crops like wheat and paddy (twice in a season), fodder crops, i.e. *Trifolium alexandrinum*,

sorghum, maize, etc. in the sandy loam soil. He adopted the technology on his farms in 1999, but the benefits were not as per expectations. Later on, he got guidance from scientists of Directorate of Wheat Research, Karnal and CCS Haryana Agricultural University, and could have a minimum saving of Rs 2,50,000 simply due to adoption of zero tillage technology. Before adopting zero tillage, he had to plough the field 8 to 10 times which consumed 75 to 88 litre diesel per ha area. There was a lot of pollution due to more fuel burning. He observed that sowing wheat in full paddy residue is somewhat problematic, therefore, he tried rotary disc drill too. With slight modifications, it can be a fancy machine for the farmers. At times, he had to use reaper to remove residue in fields but he found that crops under residue are better than removal of residue having moisture content.

Zero tillage saved a lot of labour. He uses clodinafop once in 3 years so that there is no build up of seed bank of *Phalaris minor*, a problematic weed, whereas,

the other farmers have to use it every year due to which it has developed resistance against some molecules. During 2007-08, the average wheat yield at his farm was 6.0 tonnes/ per ha using zero tillage which is at par with conventional practices. Wheat was sold as seed @ Rs 11,200/tonne to seed growing companies. The operational expenditure was Rs 10,000/ ha. Therefore his net profit was Rs 57,200/ha. Without compromising on wheat yield, he saves at least Rs 2,500 to 2,900 on account of ploughing.

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Garima, a cloned buffalo calf, completes one year successfully

Karnal. In 2009, the National Dairy Research Institute pioneered the cloning of buffalo using the novel technique called 'Hand-guided Cloning Technique' by making modifications in the "conventional cloning technique.

At one year of age the 'Garima', the cloned calf, has

grown from its 43kg at birth to 325 kg. She was fed her surrogate mother's colostrum for first 5 days and thereafter she was given buffalo milk @ 1/10 of her body weight up to 3 months, first whole then skimmed milk. The milk replacer/concentrate supplement and the quality green fodder were also gradually introduced in Garima's diet. She has gained body weight at the rate of over 770 g/day, which is higher than the average growth rate of around 450-500 g/day for normal buffalo calf. The growth rate during the first 6 months was 840 g/day, during the second 6 months, the growth rate was 730 g/day.

Different clinical/biochemical tests were done on Garima at regular intervals. The behavioural and the physiological parameters of the calf are normal. The scientists are closely monitoring the animal for the further developments including oestrus symptoms. Initially the recording of body temperature, respiration and heart rate were recorded at every 6-h interval and proper record of feeding schedule was maintained.

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Artificially inseminated calf of mithun

Kohima,6 May 2010. The scientist at NRC on Mithun attempted to produce artificially inseminated calf of Mithun for the first time in field conditions (Khunoma Village in Kohima district)—a successful field trial for the benefit of farmers. Artificial insemination has become one of the most important techniques ever devised for the genetic improvement of farm animals. However,artificial insemination has been practising in other livestock like cattle, buffalo etc. but in mithun it has been practised only at institute farm level. Considering it, an approach was made recently to

percolate this technology to the farming situation and accordingly the mithun rearing areas of Khonoma village in Kohima district of Nagaland was selected for this programme.Two mithun cows were synchronised into oestrus by using the protocol developed at Insitute. Cryo-preserved semen samples were used for inseminating the healthy mithun cows. The semen samples were collected from genetically superior bulls and cryo-preserved in liquid nitrogen using TRIS-egg yolk-glycerol diluent. The mithun cows were inseminated using the cryopreserved semen. All the mithun cows were conceived following insemination and one of them gave birth to healthy male calf. Mr. Selie Khate, the owner of the mithun cows approached us along with the other farmers to continue the progamme in their village.

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MoUs /Capacity Building

CIPHET and NGO sign MoU

Ludhiana,14 May 2010. Communication is the key for ensuring that technologies developed by different agro-institutes reach end-users, said Vice-President of Delhi-Based NGO INEXT Bureau, Dr Sajiv Anand, after signing Memorandum of Understanding (MoU) with Central Institute of Post-Harvest Engineering and Technology for creating awareness among farmers/ entrepreneurs regarding technologies developed by the institute. INEXT Bureau will provide the service free of cost to farmers. Dr Anand said that the agro-institutes in our country have developed lot of new technologies, which could transform face of Indian agriculture, but our farmers are generally not aware or have no means to access them. He further added as per MoU they have taken task of developing liaison with farmers and institutes.

Initially, Delhi-based NGO would be creating awareness regarding the banana comb cutter and Evaporative Cooled Room developed by the CIPHET.

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CIPHET signed MoU with WPPF

Ludhiana, 8 April 2010.Central Institute of Post-harvest Engineering and Technology has signed a Memorandum of Understanding with White Pearls Poultry Farms (WPPF) for licensing them meat processing and value-addition technologies for commercial use in Ludhiana. The Director, CIPHET ,Dr R T Patil, said that packaging and branding holds the key for marketing. He opined "now-a-days packaging equipment is available for small-scale entrepreneurs too, which produces excellent results." Entrepreneurs/ farmers need to be advised to maintain highest standards of quality. "Only, then we would be able to create brands of international standards in processed food."

Mr Gursharanjit Singh, owner of the White Pearls Poultry Farms, said that Ludhiana is a big market for poultry products. Meat processing and value-addition technologies of CIPHET would help in increasing range of products. He said that they would also be concentrating on packaging and advertising, and are going to use CIPHET brand to get trust of customers.

Scientists opined that so far they had transferred technologies of meat processing to 5 entrepreneurs in the country and 3 more were in pipeline.

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NBPGR signs contract for consultant's services

New Delhi, June 2010. Under the sub-project "Agro-web-Digital Dissemination System for Indian Agricultural Research (ADDSIAR)" funded by National Agriculture Innovation Project, National Bureau of Plant Genetic Resources (NBPGR) signed a contract

for consultant's services with TATA Consultancy Services for the 'Development and Establishment of Web Portal of Indian Agriculture Research'. The contract has been signed on behalf of Indian Council of Agricultural Research (ICAR) by Dr S K Sharma, Director, NBPGR, New Delhi and Mr Tanmoy Chakrabarty, Vice-President and Head, Government Industry Solution Unit, Tata Consultancy Services.

The main tasks under the contract are:

- to develop a content management system strategy, the initial portal taxonomy and the user scenarios and scripts to prototype portal application and to determine which capabilities are needed in ICAR portal product for development and implementation.
- to develop a framework for document flow between ICAR and its individual institutes. The framework would include control for access and remote administration.
- to integrate various on-line tools developed into the websites of respective institutes and ICAR portal.
- to develop on-line reporting system for the Subject Matter Divisions (SMD) of the ICAR (including the on-line maintenance of tender and various awards being given by ICAR).
- Development of on-line Admissions System of Postgraduate School (IARI), and Information dissemination of the ATIC Centre of the IARI.

The NAIP has funded for establishing a consortium for Agro-web-Digital Dissemination System for Indian Agricultural Research at NBPGR with eight partners: Central Institute of Brackishwater Aquaculture, Chennai; Central Research Institute for Dryland Agriculture, Hyderabad; Indian Agricultural Research Institute, New Delhi; Directorate of Information and Publications of Agriculture, ICAR, New Delhi; Indian Institute of Horticultural Research, Bangaluru; National Academy of Agricultural Research Management, Hyderabad; National Centre for Integrated Pest Management, New Delhi, and National Dairy Research Institute, Karnal.

The main objectives of the Agro-web-Digital Dissemination System for Indian Agricultural Research are:

- to identify standards, develop uniform guidelines, content management strategies and a model template for websites of ICAR institutes.
- to develop model websites of all consortium partners to meet requirements of stakeholders.
- to design and develop ICAR 'Portal' and integrate the websites of consortium partners.
- to build capacity of personnel in ICAR institutes in design, development and management of websites.

The consortium has already developed the Uniformity Guidelines for the contents of the websites of the institutes of the ICAR and has given the templates for the use of the open source content management strategies.

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XXII Foundation Day celebrated and Post-harvest Processing Unit inaugurated

Jhansi, 8 May 2010. The Deputy Director General (Natural Resource Management), ICAR, Dr A. K. Singh emphasized the role of agroforestry in environmental amelioration and mitigating climate change effects on the XXII Foundation Day of National Research Centre for Agroforestry. He also released the varieties: Bundel 2 Shisham and Bundel 6 Shisham, having improved fast growth, and straight Bundal shisham for the region.

To demonstrate agroforestry technologies and to improve rural livelihood activities through participatory watershed development programme, a Model Watershed was initiated at Domagor Pahuj, Jhansi district, Uttar Pradesh. The National Research Centre for Agroforestry, Jhansi established the watershed which is a part of the sub- watershed draining into Pahuj river and truly represents Bundelkhand region. It is being implemented in consortium approach with the ICRISAT, Hyderabad, and an NGO Development Alternative (DA), Jhansi.

Dr A.K. Singh, inaugurated construction of low cost runoff and silt gauging station at the watershed and also planted drum-stick (*Moringa* sp.) near opening of the well at farmers' field as a part of household nutritional security. Dr Singh also inaugurated a Post-harvest Processing Unit for lac, gum and resin at the Centre.

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Work starts for Regional Station of CPCRI

Kayamkulam, 15 May 2010. Prof. K V Thomas, Minister of Agriculture (State), Government of India visited the Central Plantation Crops Research Institute, Regional Station, Kayamkulam. He stressed that CPCRI should strengthen its technology transfer activities through formulation of viable projects on dwarf varieties of coconut as well as homestead farming with the active involvement of various developmental agencies such as Coconut Development Board, State Department of Agriculture and other Local Bodies (Self-Help Groups) to take the research output to the farmers at large. Large-scale production of seedlings of released varieties/hybrid showing tolerance/resistance to root (wilt) disease should be undertaken for distribution to farmers. He later visited the exhibited stall of women entrepreneurs of Women Self-Help Groups trained by KVK and interacted with them.

The Minister of Agriculture (State), Government of India, laid the foundation stone for the construction of Administrative Building of KVK, Alleppey and mentioned that the Government of India is strengthening the activities of Krishi Vigyan Kendras in the country and wanted them as the link between research institutions and stakeholders.

Dr George V Thomas, Director, CPCRI, highlighted various research programmes undertaken and accomplishments made by the institute. Technology transfer programmes taken up by the Institute within the State in general and for Alappuzha in particular were discussed. The regional station has taken up various farmer participatory technology demonstration programmes in large areas, skill upgradation programmes as well as mass contact programmes and successfully transferred various technologies for adoption and upscaling by the farmers. Success stories on adoption of technologies by farmers were also presented.

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64 years of Rice Research

Cuttack, 24 April 2010. The Minister of Agriculture, Co-operation, Fishery and Animal Husbandry Department, Government of Orissa, Dr Damodar Rout, inaugurated the 64th Foundation Day of the Central Rice Research Institute. In his inaugural address Dr Damodar Rout spoke elaborately the socio-economic constraints of the farmers' of Orissa, dwindling land resources and constraints in implementation of agricultural programme of the state, and also provided the detailed picture of the state agriculture policy on seeds, horticulture, integrated farming system and institutional credit for the farmers. Dr Rout advised the farming community to make best use of the rice production technology and farming system model developed by the institute.

Dr T K Adhya, Director, Central Rice Research Institute, spoke on achievements of the institute. The Chief Guest released technology bulletins in Oriya: *Sahbhagidhan*, *Rice Crop Calendar and Botanical pesticides* and awarded the identified progressive farmers of the state for their adoption of innovative rice farming practices.

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International packaging products now possible by small entrepreneurs

Ludhiana, 26 May 2010. Owing to advancement in packaging technology, now even small entrepreneurs could produce international standard of quality products," said Dr R.T Patil, Director, Central Institute of Post-Harvest Engineering and Technology. He made these remarks at certificate distribution ceremony of Entrepreneurship Development Programme (EDP's) in

processing of garlic, ginger, onion into powder for commercial-scale production. Saying that packaging and safety of food holds the key, remarked that various low cost packaging machines have come up in market and by investing even Rs 20,000 on packaging, entrepreneurs could fetch higher price. This kind of packaging equipment is highly useful for small entrepreneurs. Encouraging farmers to go for processing of food, he said that farmers could increase their income by investing very less amount of money. But, he cautioned that quality and safety of food should never be compromised."While we provide training to interested farmers/entrepreneurs, they could also use brand name CIPHET for marketing of their products," Dr Patil added.

Mr Gurpreet Singh, a local businessman, who completed Entrepreneurship Development Programme in processing garlic, ginger, onion said, "But, I find the value addition is quite high in food processing, and would like to set up my own processing plant." He advised others to take benefit of training programmes offered by the CIPHET.

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Celebrations/Farmers' Corner

Weather forecast—a valuable intelligence for agriculture industry

New Delhi, 5 June 2010. 'Weather forecasting is a key area where space science and technology is lending a supportive hand to the agriculture through its array of satellites and imageries', said Dr K. Kasturirangan, Member, Planning Commission while delivering Foundation Day Lecture of the National Academy of Agricultural Sciences. He emphasized that space science and technology is an innovative tool for enhancing efficiency and productivity of agricultural systems. Correct estimation of green cover and water resources will help management of precious assets, and image-based warning for outbreak of pest and diseases will help shrink the crop losses. Advance yield forecasting can be a good resource for planning to effectively run the public distribution system. Space applications for quick and effective delivery of messages to stakeholders have already shown the results and impact, he added.

Dr Mangala Rai, President, National Academy of Agricultural Sciences, proposed a roadmap for developing an innovative model for transformation of agriculture in India. While delivering presidential address, he emphasized location, situation and system based bottom-up perspective planning to achieve policy and programme goals formulated in a participatory mode. Development of forward and backward linkage, forging efficient, effective and relevant partnerships with an end-to-end approach involving stakeholders, players and partners is essential, he added.

A landmark publication '*Degraded and Wastelands of India*' integrating work done by different institutes of the Indian Council of Agricultural Research and the Department of Space in the area of degraded and wastelands was released on the occasion.

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CIFT celebrates 53rd Foundation Day

Cochin, 29 April 2010. The Central Institute of Fisheries Technology, Cochin celebrated its 53rd Foundation Day. To achieve the mandated objectives, CIFT has been focusing on researches leading to innovative and cost-effective technologies for fish harvest, developing and standardizing various aspects of post-harvest technologies, and developing technologies for extraction of biomedical, pharmaceutical and industrial products from aquatic organisms. As part of the Foundation Day celebrations an Open House was conducted. The laboratories of the Institute were opened for public. A large number of students from various schools and colleges and interested public visited the exhibition conducted by the different laboratories of CIFT and witnessed the research activiies.

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VII Convocation of Indian Veterinary Research Institute

Izatnagar. 4 June 2010. The Seventh Convocation of Indian Veterinary Research Institute (Deemed University) was organized on 4 June 2010 where 146 Ph.D. and 243 M.V.Sc. degrees were conferred to the students.

Addressing the students and faculty, the chief guest, Dr S. Ayyappan, Secretary, Department of Agricultural Research and Education (DARE) and Director General, ICAR briefly outlined the challenges in the agriculture and allied sectors. Driven by the economic liberalization and the concurrent opportunities available today, the Indian agriculture has to respond with relentless pursuit academic and professional excellence to leverage the inherent advantage in the composite animal and fisheries production systems to make this sector more competitive. Dr Ayyappan complimented the outstanding accomplishments of this institute in research, education, extension, technology transfer and IP portfolio management, etc. He appreciated the immense contribution of the institute in over all development of livestock sector in the country. He further called upon the students and faculty to empower themselves to become 'change-agent' in transforming the veterinary and livestock based enterprises with a new landscape of world class agricultural research and learning environment with access to knowledge and skills.

He drew the attention of the faculty and students to various areas of science and technology missions related to livestock development that require concerted action by one and all concerned. He congratulated the students and faculty and all the award winners for their achievements and called upon them to stay a head of the curve in the context of the rapidly changing competitive professional environment globally.

Earlier Prof. M.C. Sharma, Director and Vice-Chancellor, IVRI welcomed the dignitaries and guests and provided a vivid account of the programmes, activities, initiatives and thrusts *vis a vis* the accomplishments in various mandated areas of the institute including the infrastructure development, linkages, networking and administration. He added that the dynamism and aptitude of the faculty and students of this Deemed University lauded the world over with awards, patents technologies, peer recognition, etc. is the major strength of the institute.

Dr K.M.L. Pathak, DDG (AS), ICAR, New Delhi and the Guest of the Honour appreciated the pioneering and milestone contributions of this institute in the areas of animal health, production, technology transfer and livestock products technology.Dr Arvind Kumar, DDG (Education) and Dr. Lal Krishna, ADG (AH) and Animal Husbandry Commissioner, New Delhi congratulated the faculty and students for their achievements on this occasion. Dr C.S. Prasad, ADG (AN&P) read out the message of the Hon'ble Union Minister of Agriculture, Consumer Affairs, Food and Public Distribution on the eve of the convocation.

A comprehensive report on IVRI Deemed University activities was presented by Prof. Dharmeswar Das, Joint Director (Acad.)-cum-Dean, IVRI.

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Trainings

- **Harnessing Pulses Productivity** was organized by MPKV, Rahuri in co-ordination with the ICAR's Zonal Project Directorate, Zone-V, Hyderabad at Rahuri.
- As a part of ICAR initiative to organize technology demonstrations for **demonstrating the production potential and effect of modern technology on productivity of major pulses**, 2-day training programme of 40 KrIshi Vigyan Kendras (KVKs) was organized by Zonal Project Directorate Zone-IV at Indian Institute of Pulses Research (IIPR), Kanpur between 10 and 11 May 2010.
- Training conducted on **Insect Pest and Disease Management through Bio-intensive IPM and Biotechnological Approaches** at ICAR Research Complex for North-Eastern Hills Region, Sikkim Centre, Tadong, Gangtok between 21 and 30 April 2010.
- Training conducted on **Deployment of foldable traps for Tandava reservoir** at Salika Mallavaram Village, Tandava, Narasipatnam.
- Training conducted on **Value addition of freshwater fishes and the business horizons** at College of Fisheries, GADVASU, Ludhiana between 29 and 30 April 2010 in collaboration with College of Fisheries, GDAVASU and Punjab Fish Farmers Association, Ludhiana.

Forthcoming Training Courses

- Fishing Technology, 12 to 24 July 2010, E-mail: cift@ciftmail.org
- Turtle Excluder Devices and By-catch Reduction Devices, 9 to 13 August 2010, E-mail: cift@ciftmail.org
- Operation and Maintenance of Cold Storage Plant, 16 to 21 August 2010, E-mail: cift@ciftmail.org
- Laboratory Techniques for Microbiological Examination of Sea foods, 13 to 25 September 2010, E-mail: cift@ciftmail.org
- Sea food Quality Assurance, 09 to 21 August 2010, E-mail: cift@ciftmail.org
- Modern Analytical Techniques in Biochemistry, 5 to 17 July 2010, E-mail: cift@ciftmail.org
- HACCP Concepts, 3 to 6 August 2010, E-mail: cift@ciftmail.org
- Oil palm Production Technology, 18 to 25 August 2010, Email: dopr2009@gmail.com
- Oil palm Hybrid Seed Production, 22-24 September, 2010, Email: dopr2009@gmail.com

Protocol Activities

Delegation abroad

- Dr B.K. Joshi, Director, NBAGR, Karnal, Dr P.K. Vij, Principal Scientist, NBAGR, Karnal and Dr Vineet Bhasin, Principal Scientist (AG&B), ICAR Hqrs., New Delhi visited Hungary from 4 to 11 May 2010 under the Work Plan 2009-2010 signed between the Ministry of Republic of India and the Ministry of Agriculture and Rural Development of the Republic of Hungary.
- Dr Ram Prakash Due, ADG (Food Crops), ICAR, ICAR, New Delhi visited Eritrea from 24 to 30 May, 2010 to study the agricultural situation in Eritrea and to suggest what might go into the work plan of the host country for 2010-11.
- Dr C S Prasad, ADG (ANP), ICAR visited Washington DC, USA as part of the delegation led by Minister of State (IC) of Science and Technology to USA to participate in the First Meeting of the Indo-US Joint Commission on S&T from 24 to 25 June 2010.

Personnel

Appointments

- Dr A.Arunachalam joined ICAR (Hq.) as Principal Scientist on 10 May 2010.
- Dr J. P. Mishra joined ICAR (Hq.) as Principal Scientist on 17 May 2010.
- Dr B. Meenakumari joined ICAR (Hq.) as Deputy Director General (Fisheries) on 23 June 2010.

- Dr B. P. Singh joined as Director, Central Potato Research Institute, Shimla on 30 June 2010 (afternoon).
- Dr R. Ramani joined Indian Institute of Natural Resins and Gums, Ranchi on 14 June 2010.
- Dr N. V. Patel joined as Director, National Research Centre on Camel, Bikaner on 15 June 2010.
- Dr J. S. Chauhan joined as Director, Directorate of Rapeseed Mustard, Bharatpur on 15 June 2010.
- Dr O. P. Yadav joined as Project Co-ordinator (Pearl Millet Improvement), Mandore, Jodhpur on 18 June 2010.

Retirements

- Dr R. K. Batta, Principal Scientist (ICAR, Hq.) New Delhi retired on 30 April 2010.
- Dr V. V. Sugunan ADG (Inland Fisheries), ICAR retired on 31 May 2010.
- Dr Lal Krishna, ADG (Animal Health), ICAR retired on 30 June 2010.
- Dr S. K. Pandey Director, Central Potato Research Institute, Shimla on retired 30 June 2010.
- Dr Sain Dass, Project Director, Directorate of Maize Research, Indian Agricultural Research Institute, New Delhi retired on 30 June 2010.
- Dr K. K. Kumar, Director, National Research Centre for Litchi, Muzaffarpur retired on 30 June 2010.
- Dr Ram Ajole, Acting Director, Central Soil Salinity Research Institute, Karnal retired on 30 June 2010.

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