ICAR

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भारतीय कृषि अनुसंधान परिषद

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Reporter

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भाकृअनुप
ICAR

News in Brief

From the DG's Desk

Dear Readers,

An appropriate incentive and reward system in any organization serves as an important driver of enhanced performance, job satisfaction and fulfills the basic human desire of being recognized by others, especially the peers. Awards are also good bonding tools that go a long way in development of team spirit amongst co-workers. In a research organization like ICAR, where creativity at the job is the main objective, a balanced incentive and reward system is critical for growth.

To recognize the contributions of the scientists and other stakeholders involved in agricultural development, the ICAR regularly confers awards under different categories. There is a wide array of incentives in the ICAR system ranging from autonomy in decision making, recognition, and feeling of accomplishment and professional growth. The rewards could be classified as intrinsic (when the effort is identified by the state/employers for recognition) and extrinsic (when people work explicitly for the award); system wise and individual; and monetary and non-monetary.

The Rafi Ahmed Kidwai award for outstanding research being the first such award instituted in 1956. In order to diversify the categories and enhance the value of awards for both, individual and institutional excellence, the ICAR Award scheme was revisited in 1999, with the experience gained over the years, inputs from various Judging Committees and the Committees constituted for the purpose. At present 19 awards under different categories are in place to recognize the agricultural scientists and institutions that make outstanding contributions for the growth and development of agricultural science and technology, and promoting excellence in the broad

fields of agricultural research, education, extension and training. These comprise awards for individual research, group research, women scientist, best teachers, extension work, agricultural journalism, innovations by farmers etc.

The ICAR institutes also award the scientists for outstanding contributions in their respective fields of work. These awards are usually Endowment Awards, based on specific financial endowments made to perpetuate the memory of a distinguished agricultural scientist/person are also given to the scientists for outstanding contribution in the respective area of research.

In a recent effort to recognize performance, the Council, apart from revising the guidelines and other features of the existing awards, instituted for the first time, 'ICAR Norman Borlaug Award', and 'ICAR Challenge Award'. These awards carry the highest monetary value compared to any of the ICAR awards instituted so far. The Norman Borlaug Award has been instituted to recognize a scientist, who has provided a breakthrough for agriculture through a new insight that has created high potential value for the future. The nominees for the awards can be scientist(s) of any discipline of agricultural and allied sciences and can be from any research and development organization in India or abroad, without restriction of age, whose research work has displayed a rare quality of original thinking and path-breaking output. Besides the prize money, the selected scientist would be given an appreciable research contingency grant every year for carrying out research in an area with specified objectives and goals mutually identified by the scientist and the ICAR.

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The Challenge Award is instituted to find a solution for any immediate or long-standing problem, or limitation in agriculture, which is coming in the way of agricultural development enhancing productivity in any major agricultural, horticultural or animal/fish product. Any scientist or group of scientists may, at any time, file a claim of having solved any one of the challenges. In addition to the prize money, the awardees also would have a share in the income to ICAR from the commercialization as per rules of the ICAR.

Although a fairly evolved incentive/reward system based on dispassionate and objective evaluation system exists in the National Agricultural Research System, it is often felt that the number of awards and the type of incentives given are inadequate, considering the large number of personnel working in the system. There is, therefore, a need to reorient the personnel policies to motivate scientists and other categories of employees, and to attract the best available talent in the country. Some of the initiatives taken to improve the system of incentive and reward in the National Agricultural Research System include creation of adequate physical infrastructure and research facilities; giving functional autonomy down to the divisions and individuals; encouraging and supporting visits and interactions with experts in renowned laboratories; cash awards for outstanding/devoted work; objective assessment and merit promotion and on-the-job training. It is being ensured that the awards are given timely so that there is minimum delay in recognition of outstanding and promising work. Provision is also being inbuilt for a few specific award-linked institutional grants for developing research/educational capabilities around awardees and for an uninterrupted growth of excellence by creating facilities around competent scientists to develop schools of thought. However, evaluation and award committees need to include more women and more individuals sensitive to gender issues.

Non-monetary rewards can prove to be equally strong motivating factors for an employee to give his/her best on the job. The ICAR also has awards at the institutional level in this category. It is worthwhile to consider using more honorary awards, with provision for peer nomination and also participation of the employees in process of deciding the category of award. The ICAR continuously strives to recognize and honour the creative and innovative minds in the organization so that the talent is nurtured and an environment of healthy competition is maintained amongst the colleagues.

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WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

82nd Annual General Meeting of the ICAR Society

New Delhi, 2 February 2011. 'Agriculture sector offers considerable scope for equitable growth of the economy', said, Union Minister for Agriculture and Food Processing Industries, Shri Sharad Pawar, while inaugurating 82nd Annual General Meeting of ICAR Society at NASC complex. Innovations and human resources are the twin engines of growth and development and the Indian Council of Agricultural Research (ICAR) is playing a key role in providing the technological solutions and human resource development to achieve inclusive growth, he added. 'In continuing efforts to improve crop production and productivity, release of 60 improved varieties and hybrids of important crops, and production of over 30,000 tonnes of better seeds of different categories will significantly improve crop agriculture in different agro-climatic regions of the country', he said.

The Union Minister for Human Resource Development and Communications and Information Technology, Shri Kapil Sibal complimented and congratulated the ICAR for its enormous contribution in phenomenal agricultural growth and urged ICAR to join hands with Ministry of Science and Technology, Department of Bio-technology and University system to harness power of science to achieve the desired growth. He also opined that ICAR should initiate cross-disciplinary research programmes on biotechnology, genomics and engineering by involving university research system. To curb migration of rural population, we must develop skill development programme in agriculture for school level students, he added.

Earlier Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) presented a brief account of activities and achievements of ICAR during the year. He said that the Year 2010 has been 'agriculturally rewarding' as we have observed one of the highest growth rates of over 4% in the quarter of July-September, that is being considered as the major driver of the projected National GDP close to 9%; and the National Agricultural Research System, as always, has provided the required inputs. 'Department's performance against the commitments made in the Results-Framework Document (RFD) for 2009-10 achieved the highest composite score during the year', he added.

Shri Sharad Pawar along with Shri Sibal launched on this occasion 'National Initiative for Climate Resilient Agriculture' to address abiotic and biotic stresses affecting agriculture. Council's strategic document *ICAR Vision 2030* and a popular publication on horticulture in Hindi '*Phal Vigyan*' were also released. Concurrently organized Farm Innovators exhibition attracted participants, and farmers were honoured by Shri Pawar and Shri Sibal.

National Initiative on 'Climate Resilient Agriculture' Launched

Adopting a holistic approach and proactive mode, seven major research institutes of the Council will work in unison to evolve coping technologies with the Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad as the lead centre. With a budget outlay of ₹ 350 crore, state-of-the-art research facilities of international standards will come up at identified research institutes for developing adaptation and mitigation strategies. Best-bet and cost-effective technologies to cope with climate variability will be demonstrated on farmers' fields in 100 most vulnerable districts of the country. The technologies include rain-water harvesting and its judicious use, *in-situ* moisture conservation, drought-management strategies, seed and fodder banks, timely and precision agriculture, effective agro-advisory system using ICT kiosks. Small and marginal farmers in rainfed, coastal and hill areas will benefit more in view of the focused attention in these regions. Capacity building of scientists in frontier areas is another core activity of the project. To prepare all stakeholders to face challenges, multi-pronged awareness generation programmes on issues of climate change are planned.

Two publications such as *ICAR Vision 2030* and *Phal Vigyan* were released. The National Initiative on Climate Resilient Agriculture was also formally launched by President, ICAR Society on the occasion before commencement of the business. Thereafter, Agenda was taken up.

The Director General, ICAR highlighted the following five point programme as future strategy :

- Improve efficiency of research resources,
- Facilitate accelerated dissemination of improved technologies, knowledge and information
- Enhance quality of human resource in agri-supply chain
- Commercialization of technologies through organized IPR system and
- Promote effective governance and best practices.

The *DARE/ICAR Annual Report, 2010-2011* was presented by the Director General, ICAR.

The *ICAR Annual Accounts and Audit Report for the year 2009-10* was presented before the Members of General Body .

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Vice-Chancellors' Conference

Need to evolve agriculture education in tune with changing global scenario

New Delhi, 21 February 2011. Shri Harish Rawat, State Minister for Agriculture and Food Processing Industries inaugurated two-day National Consultation on Higher Agricultural Education and Vice Chancellors' Conference, organized by the Indian Council of Agricultural Research. While referring major challenges of Indian agriculture, he highlighted the need to fill the knowledge deficit which is one of the main constrains in future food security. 'Globalization and demand-led market call for a relook at the content and delivery of curricula and curriculum delivery such that the graduates coming out not only meet the expectations of different stakeholders but also be propeller of agricultural growth', he stated.

Earlier, Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) highlighted the contribution of the ICAR in development of human resources in agriculture. The ICAR is making efforts to attract

Soil-Plant-Animals Health: Safety and Security

Lucknow, 10 February 2011. His Excellency Governor of Uttar Pradesh, Shri B. L. Joshi inaugurated the Xth Agricultural Science Congress organized by National Academy of Agricultural Sciences and Indian Council of Agricultural Research at the National Bureau of Fish Genetic Resources, Lucknow on 8 February 2011. The theme of the Congress was "Soil - Plant- Animal Health: Safety and Security". The Minister of State for Agriculture and Food Processing Industries, Shri Harish Rawat, presided over the inaugural session of Agricultural Science Congress.

The Director General of International Rice Research Institute, Dr Robert S. Zeigler, Director General of CIMMYT, Thomas A. Lumpkin, Dr R S Paroda and Dr Mangala Rai, former DGs of ICAR; Dr R B Singh, President, NAAS and other distinguished scientists were also present on the occasion.Latest advances in agricultural research and technology were showcased at the National Congress on Agricultural Sciences in the exhibition 'Agri-vision 2011'.

More than 500 scientists, entrepreneurs, and policy makers and farmers participated in the three-day meet.

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youth and talent towards agriculture through innovative programmes along with enhancement in quality of education. Council is providing professional and financial support to Sate Agricultural Universities through quality assurance via accreditation, modernization of course curricula, improvement of faculty competence, modernization of farms, IT support and upgradation of infrastructure and facilities including libraries. Dr Panjab Singh (Ex-Secretary, DARE and DG, ICAR and Chairman, National Agricultural Education Project Committee) flagged various issues, which require intense deliberations in the National consultation which included strategic planning for development of future agriculture leaders, integration across disciplines, faculty development and enhanced participation of various stakeholders. Dr Arvind Kumar, Deputy Director General (Agricultural Education), ICAR outlined the objectives of the National Consultation and highlighted the important role of ICAR in enhancement of quality agricultural education in the country. The National Consultation is planned to have the benefit of suggestions of distinguished experts from academia and governance, Vice Chancellors of State Agricultural Universities, senior officials of the ICAR and others.

The decision was taken on the following agenda items:

- ARS/NET Reforms and State Agricultural Universities' Performance
- Education Quality Assurance and Reforms—Issues and Strategies
- National Agricultural Education Project
- Accreditation of Agricultural Universities
- Governance and Adoption of ICAR Model Act
- International Cooperation/Programmes such as ICAR International Fellowships; India-Africa Fellowships; India Afghanistan Fellowships;
- Education Planning and Development: Strengthening of food science and technology; enhancement of CDA grant of ICAR to saus during XII Five-Year Plan;mobile animal health clinic; setting up of an advanced disease diagnostic centre etc.
- Human Resource Development: Issues and Strategies such as designing a faculty and staff capacity building model for academic excellence; strengthening national centres of excellence; attract talented youths etc.
- Other important agenda included: Bio-security issue an important emerging area in the country; Spurious and low quality formulations of biological control agents; Undertaking quality evaluation of other agricultural inputs such as fertilizers, seeds, hormones, vaccines etc; Package of practices of the State Agricultural Universities; Strengthening of public - private partnership in Transfer of Technology.

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ICAR Directors' Conference inaugurated

New Delhi, 23 February 2011. Shri Sharad Pawar, Union Minister for Agriculture and Food Processing Industries inaugurated 2-day Interface of Vice-Chancellors of Agricultural Universities and ICAR Directors and Directors' Conference, organized by the Indian Council of Agricultural Research. He further called upon Vice-Chancellors to expeditiously take

steps for adoption of the Model Act developed by the ICAR for Agricultural Universities. The ICAR is contemplating a National Agricultural Education Project for which a Committee is already working to suggest reforms and renewal of higher agricultural education in the country, he informed the audience.

Sri Harish Rawat, State Minister for Agriculture and Food Processing Industries complimented the ICAR Institutes and Agricultural Universities for their excellent research contributions having direct and positive impact on food and nutritional security of the country. He appreciated record production of about 234 million tonnes of food-grains during the year. Besides, Shri Rawat expressed concerns over challenges faced by higher agricultural education in the country, such as shortage of quality human resources, scarcity of resources and research facilities, inbreeding in faculty positions etc. A new thrust in higher agricultural education is required for enhancing the overall quality, he said. In an era of partnerships, strong and fruitful collaborations should be developed between agricultural universities, ICAR institutes and other stakeholders, he suggested.

Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) highlighted the major contributions of the ICAR in agricultural research, education and extension during the year. As an impetus to enhance productivity of crops 52 improved varieties of important crops were released for cultivation in different agro-climatic regions. The ICAR made successful efforts to help timely supply of quality seeds and planting materials to farmers. A National Initiative on Climate Resilient Agriculture worth ₹350 crore was launched to address biotic and abiotic stresses. A special programme on demonstrations for pulse productivity enhancement has been initiated on a wide scale. Recent efforts towards strengthening of Intellectual Property Rights have resulted in filling of 60 patent applications of which 30 published and 7 granted to ICAR. Dr Ayyappan briefed various other initiatives taken by the Council to strengthen scientist-farmer interactions and delivery of knowledge at the farmers' doorstep.

Sri Sharad Pawar presented coveted Best Performance Awards to the Kerala Agricultural University, Thrissur; Acharaya N G Ranga Agricultural Univresity, Hyderabad; and Govind Ballabh Pant University of Agriculture and Technology, Pantnagar. Best Annual Report Awards for 2009-10 were conferred upon the Central Soil and Water Conservation Research and Training Institute, Dehra Dun and National Bureau of Fish Genetic Resources, Lucknow.

The action points emerged in the Directors' conference include :

- the vision 2030 document of each institute/ Directorate /NRC/National Bureau;
- XII Plan preparation; MoU with International organizations;
- funding from multinationals;
- delegations with financial powers;Regional committees;
- Performance indicators;
- Logistic support for second set of agriculturally important microbes etc.

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New horizons in animal breeding technologies for accelerating livestock production and health

Izatnagar, 20 January 2011. At the XI Annual Convention of "Indian Society of Animal Genetics and Breeding (ISAG&B)", a two-day National Conference on "New Horizons in Animal Breeding Technologies for Accelerating Livestock Production and Health" was held on 20 and 21 January 2011 at Division of Animal Genetics, Indian Veterinary Research Institute (IVRI), Izatnagar.

Speaking at the inaugural function, the Chief Guest, Dr R.M. Acharya, Formerly Deputy Director General (Animal Science), ICAR, New Delhi illustrated that India is number one in producing of milk with 112 million liters due to large genetic progress of the country. He further emphasized that both the national economy as well as the socio economic growth of the country are backed by the livestock and poultry sectors.

Speaking on the occasion as the Guest of Honour, Dr P.N. Bhat, Formerly Deputy Director General (Animal Science), ICAR and Chairman, Task force on Animal Biotech, DBT, New Delhi listed out many areas where attention is required in Animal Genetics and Breeding and stressed the need for giving priority to Animal Nutritionists.

Delivering his presidential address, Prof. M.C. Sharma, Director, IVRI, stated that efficient long term strategies and operational breeding schemes for increased future food production are required while maintaining genetic diversity.

Recommendations

- Plan sustainable programmes for more than 3 million crossbred cattle available in India.
- Plan for protecting elite buffalo germplasm that is slaughtered after 2-3 lactations.
- Identify, document and register existing lesser known domestic animal population.
- Initiate course curriculum at school level for sensitization on livestock conservation.
- Strengthen breed-wise livestock senses.
- Initiated genomic selection in those livestock herd, which have accurate data base
- Initiate research to understand innate immunity as well as to identify genes involved in disease resistance as well as pathogenic interaction by following functional genomic approach.

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Workshop-cum-Meeting on E-publishing in agricultural research — a way forward

New Delhi, 26 March 2011. The Deputy Director General (Agricultural Education), Dr Arvind Kumar inaugurated the Workshop-cum-Meeting on "E-publishing in agricultural research — a way forward" at NASC Complex. He appréciated achievements of the E-Publishing and Knowledge Management in Agricultural Research —an NAIP Project which is disseminating knowledge pertaining to ICAR activities in 143 countries. Dr R. C. Agrawal (National Co-ordinator, NAIP) appreciated the progress made under this Project and added that more ICAR funded societies should come forward and join Directorate of Knowledge Management in Agriculture e publishing

web portal. Dr Sanjeev Saxena shared his experience on Copyrights issues for on-line publishing. He focused on plagariasm and copyrights in present scenario. Several ICAR Funded Societies such as Indian Phytopathological Society, Society of Plant Biochemistry and Biotechnology, National Research Center Biotechnology, Society of Pesticide Science India , Indian Society of Agronomy, all in Indian Agricultural Research Institute : and Indian Society of Plant Genetic Resources in National Bureau of Plant Genetic Resources, Pusa Campus; Indian Society of Agricultural Statistics; Agricultural Economics Research Association (India), Indian Dairy Association, New Delhi; Cotton Research and Development Association C.C.S Haryana Agriculture University, Hisar; Indian Society of Pulses Research & Development, Indian Institute of Pulses Research, Kanpur ; Indian Potato Association, Shimla; and Society of Fisheries Technologists, Cochin, attended workshop-cum-meeting.

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New paradigms in laboratory animal science in an era of advanced biomedical research

Izatnagar. 28 January 2011.A national symposium on New Paradigms in Laboratory Animal Science in an Era of Advanced Biomedical Research was held on 28 and 29 January, 2011 at Indian Veterinary Research Institute (IVRI), Izatnagar. The Chief Guest, Dr P.K. Uppal, Formerly Director of National Research Centre for Equines, Hisar, emphasized the importance of small animals and stressed the need of concern on best management and nutrition for laboratory animals. He stated that the contribution of small animals are immense to human society.

Recommendations

(a) Plan stringent regulations in respect of upkeep of laboratory animals
(b) Initiate more containment facilities for experimentation of laboratory animals to handle emerging infectious zoonotic micro-organism in India.
(c) Plan more research to develop genetically modified animals in India
(d) Setup more facilities of SPF and geno-biotic animals in India.

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Cost-effective shrimp farming through CIBA aquafeed and BMP adoption

Chennai, 23 February 2011. The Central Institute of Brackishwater Aquaculture (CIBA, Chennai) has developed an indigenous innovative and cost-effective shrimp feed technology using the locally available ingredients. This innovative feed has been found to give comparable results with other commercial feeds in field experiments in terms of feed stability survival rate, water quality, feed conversion ratio (FCR) and productivity. To study the performance of CIBA aqua-feed the institute is implementing a research project entitled "Cost effective shrimp farming through adoption of indigenous innovative feed and better management practices by small-scale farmers" at Ramanathapuram district of Tamil Nadu, with financial assistance from NABARD. One of the objectives of this project is capacity building of farmers on Better Management Practices (BMPs) in Shrimp Aquaculture. In this Context, a Workshop was organized at Ramanathapuram with participation of about 100 stakeholders in shrimp farming sector, namely the shrimp famers, input dealers, feed manufacturers, Tamil Nadu State Fisheries officials, Bankers, exporters, representatives from NGOs, KVK and fisheries research organizations.

Various aspects of the Best Management Practices in shrimp farming, mainly involving feed management, health management, soil and water quality management, were discussed in detail among the CIBA scientists and the participants. The official from the NABARD addressed the gathering about the effective implementation of projects in the food production sector, particularly the coastal aqua-farming. The issues related to technical aspects in shrimp farming, such as the availability of soil and water analysis kits, disease management through environmental monitoring, and bacterial problems in shrimp farms as well as in hatcheries were also discussed in detail. The shrimp farmers who are associated with the demonstration trial of the shrimp culture using CIBA feed shared their experience and the success stories with the participants. The manual published by CIBA in vernacular on BMPs was distributed to the farmers and was highly appreciated by them as a useful material for their day-to-day practice in shrimp farms.

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Advances in Freshwater Fish Farming

Krishi Vigyan Kendra (Farm Science Centre) of Washim district organized a 2-day Workshop in collaboration with MITRA (Maharashtra Institute of Technology Transfer for Rural Areas) for the extension functionaries of MITRA staff members on **Advances in Freshwater Fish Farming**. Programme was conducted during 14-15 February 2011. Forty extension functionaries from Buldhana, Nandad, Yavatmal, Amravati and Washim districts participated in the workshop. Shri S.K. Deshmukh (Programme Coordinator, KVK), while inaugurating the workshop appealed the trainees to take the benefit of facilities at available KVK and to transfer the technology up to the farmer's door. In the first technical session Shri R.S. Daware (Subject Matter Specialist, Plant Protection) explained about the strategy for marketing of different agro-based products. He explained that the saving starts from purchasing of raw material. The quality of raw material and its bulk purchase can increase the profit margin of entrepreneurs.

Packaging technique used by KVK was demonstrated to trainees. Dr Daware also showed the low-cost technologies in agriculture which can save the operational cost of the farmers. Shri R.L.Kale, Training Coordinator and SMS (Fisheries) showed the results of different ongoing experiments under On Farm Testing of KVK programme. All the trainees were take to demonstration unit of Integrated Fish cum duck farming unit of KVK which is sponsored by Department of Biotechnology, New Delhi. This is a unique type of work being carried out in the Vidarbha region of Maharashtra. During the programme the

demonstration on Breeding of *Cyprinus carpio,* i.e. common carp, was organized at Aquaculture unit. The identification of male and female of common carp was done by the participants. Dr R. M. Salunke, Project Assistant demonstrated the rearing of magur fish seed and also the ornamental fish seed rearing at Aquaculture unit. He also showed the method of live bearer ornamental fish breeding, i.e. guppy and molly. It was emphasized that the critical inputs required for starting of these units could be provided by KVK.

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National Seed Congress organized at Pune

Pune , 29 January 2011.The 3rd National Seed Congress was organized at the College of Agriculture, Pune. Shri Vijayrao Kolte, Hon'ble Vice Chairman, Maharashtra Council of Agricultural Education and Research (MCAER), in his inaugural address said that the domestic hybrid seed market is annually

growing at 10 % a year as against the global average of 5%. Dr Tukaram A. More, Vice Chancellor, MPKV, Rahuri in his welcome address urged for serious efforts to raise the seed replacement rate for enhancing crop production and productivity.

The Technical sessions were on Role of Plant Breeding and variety protection for Livelihood, Profitability in Agriculture and Seed Industry; Importance of seed quality assurance and regulations for National/ International Seed movement; Advances in seed production and post harvest handling; Advanced technologies for seed quality enhancement, testing, seed health; and Public-Private Partnership.

Recommendations

- Revise field standards in view of climate change.
- Use of uniform seed testing methods for quality assurance.
- Use of molecular markers for grow-out test.
- Increase the seed replacement for increasing the production.
- Change validity period of 9 months for seed germination according to behaviour of the crops.
- Test of the seed supplied by Private Agencies by Public Seed Certification agencies.
- Establish at least 1 model seed testing laboratory in every state.
- Get approval of New Seed Bill 2004 as early as possible.
- Focus research on varieties/ hybrids/parental lines for climate change.
- Develop farmer friendly, economical GM detection methods.
- Establish laboratories for detecting genetically modified crop in the country.
- Develop seed vigour testing protocol with a practical approach.
- Bridge the gap between public and private agencies.
- Free exchange of germplasm (genetic material).
- A uniform National Seed Policy.
- Exchange of segregating material.
- Ensure quality, timely availability of seed at reasonable cost.

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Climate Change and Food Security: Challenges and Opportunities for Tuber Crops

Sreerkariyam, 22 January 2011. A National Seminar on 'Climate Change and Food Security: Challenges and Opportunities for Tuber Crops', was held at the Central Tuber Crops Research Institute, from 20 to 22 January 2011. Dr H. P. Singh, DDG (Horticulture), ICAR, in his keynote address on 'Impact of Climate Change on Horticulture: An Overview', highlighted the impact of climate change on horticulture, especially the effect of change in rainfall pattern, rising temperature, frequent occurrences of drought and flood on crop production.

Dr H.P. Singh added that temperate zone will have shifting of cropping pattern. Therefore to address the adverse impacts of climate change on productivity of crops, he urged the scientists to develop suitable mitigation and adaptation strategies like development of biotic and abiotic stress-resistant cultivars, adjusting the time of planting, use of micro-irrigation etc. During the three-day deliberations, there were eight technical sessions including a session for contest papers for the ISRC Young Scientist Award. Overall 25 theme lectures, 35 oral presentations and 66 posters were presented during the seminar. In addition, 14 papers were presented in the contest session.

The seminar was inaugurated by Shri Mullakkara Ratnakaran, Minister of Agriculture, Government of Kerala.

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Apple growers and scientists interacted

Kotkhai. 12 March 2011. An interactive workshop was organized by Krishi Vigyan Kendra, Shimla on 12 March 2011 at Kotkhai, a major apple growing area of Shimla district. Dr K.D. Kokate, DDG (AE) was the chief guest on this occasion and he was accompanied by Dr A.M Narula, ZPD, Zone-1. More than 125 farmers/orchardists from various farmer groups, panchyat pardhan, Block Development Committee and officers of line department participated in this workshop. Dr Kokate interacted with apple growers and outlined various new initiatives of the ICAR to boost up the cultivation of apple fruits. He emphasized that recommendations to the resource poor farmers should be less vulnerable to weather and other factors to avoid risk. He also stressed upon for high density planting in apple and use of suitable clonal root-stocks as per recommendations. Dr Narula defined the role of KVK in the district for refinement of technologies.

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Kisan Gosthi-cum-demonstration on Management of Yellow Rust in Wheat

Kurukshetra. 10 March 2011. A *Kisan Gosthi*-cum-Demonstration on Management of Yellow Rust in Wheat was organized on 10-03-2011 by KVK, Kurukshetra under PPP mode in collaboration with a Private company at Village Kisangarh, District Kurukshetra. Dr K. D. Kokate, DDG (Ag. Extension), ICAR was the Chief Guest and Dr A.M. Narula, Zonal Project Director, Zone-I presided over the function. Dr Kokate directed the KVK in acceleration of effort to manage the yellow rust in wheat as early as possible. The disease can be managed through spray of 500ml propiconazole 25 EC per hectare. Dr Kokate visited the Demonstration plots of Chemical Control of Yellow Rust of Wheat at farmer's farm along with ZPD, Dr S.P. Goyal, Sr. Coordinator and other scientists of the KVK, CIMMYT and Officials of Private company.

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Commercial flower and vegetable farming

Mahog. 11 March 2011. A *Kisan Goshthi* on *Phool Evam Sabjion Mein Vavsaik Kheti* was organized on 11 March 2011 by Krishi Vigyan Kendra, Solan at Village Mahog (Chail) , Solan (Himachal Pradesh). The *Goshthi* was graced by Dr K.D. Kokate, Deputy Director General (Agri. Ext.) ICAR, New Delhi, Dr. K.R. Dhiman, Vice Chancellor, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan, and Dr A. M. Narula, Zonal Project Director (KVK Zone-I), besides the Scientists of Krishi Vigyan Kendra, Solan and representatives of the State Department of Horticulture and Agriculture, Himachal Pradesh. An Exhibition on different activities and progress of farmers was also organized. During the *Goshthi*, a farmer-scientist interaction was organized in which, the scientists of KVK delivered talks on various issues pertaining to soil health, flowers and vegetable production and protection aspects and the farmers took keen interest during the session. The farmers of the area highlighted their achievements in bringing out prosperity by way of cultivation of off-season flower and vegetable crops. In this venture, they appreciated the efforts made by the KVK Scientists in the development of this village and earning the name of "Model Flower Village" as well as imparting knowledge on various issues to the farmers.

Deputy Director General (Agri. Ext.), Dr K.D. Kokate impressed upon the rural youths to actively participate in farm oriented business to earn more profit rather than to run after white collar jobs. For this purpose he assured a trip of 15-20 farmers to Pune and adjoining areas which are excelling in horticultural activities especially floriculture. Vice Chancellor, Dr. K.R. Dhiman stressed upon the farmers to produce quality flowers and develop co-operative societies for effective marketing of their produce for better market returns. He also assured the farmers every help from the University in boosting flower and vegetable cultivation.

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Interface Meeting on Mithun

Medzipherma,4 February 2011. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) visited different laboratories of the National Research Centre on Mithun and interacted with the scientists of the NRC on Mithun at ICAR Research Complex for North-Eastern Hills Region, Nagaland Centre on 3 February 2011. An interface meeting for formulating the strategies to develop agriculture and allied sectors in Nagaland was held on 4 February 2011 at the National

Research Centre on Mithun (ICAR), Jharnapani, under the Chairmanship of Dr S. Ayyappan. He also visited the pineapple fields in Molvom village, Medziphema and graced the Pineapple Festival of the village as Chief Guest. He discussed about the future programme earmarked for XII Five-Year Plan and emphasized about the importance of the collaborative programmes for bringing in vibrancy in different fields of research and extension activities. An exhibition showcasing the different activities of ICAR Institutes and KVKs of Nagaland was inaugurated by Shri T. R. Zeliang, Minister of Planning and Animal Husbandry and Veterinary.

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Brainstorming Meeting to finalise XII Five-Year Plan

Makhdoom, 31 January 2011. The Brainstorming Meeting of Directors of ICAR Animal Science Division Institutes was organized at the Central Institute for Research on Goats, during 30-31January 2011. All Directors, Joint Directors and Heads of Regional Stations of the ICAR Animal Science Institutes and Assistant Directors General, Principal Scientists and Deputy Secretary (Animal Sciences) attended the Meeting, which was Chaired by Dr K.M.L. Pathak, Deputy Director General (Animal Sciences) ICAR. The meeting was to sensitize the Institutes in preparing the XII Plan EFC document and identify few flagship programmes and thematic areas to be addressed during the XII plan. For the first time incharges of various regional stations were involved for providing inputs. The interaction was useful and few programmes on genomics, stem cell research, nanotechnology, molecular diagnostics and vaccines, biogeography of rumen and nutrition and reproduction interaction were prioritized for drawing focused research activities.

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NRC Meat: Promoting value addition and entrepreneurship development

Hyderabad, 15 March 2011. NRC Meat has organized a one day awareness program on 15 March 2011 to sensitize interested entrepreneurs about meat processing and value added meat products. The 50 entrepreneurs attended this program and many requested for hands-on training programs. To keep the interest of entrepreneurs alive and to meet their demands NRC Meat immediately planned series of hands-on training programs. Most of the entrepreneurs have already registered for the aforesaid trainings and many are willing to sign an MoU/agreement with NRC Meat for test marketing and for commercialization of NRC Meat technologies. Prospective entrepreneurs willing to venture into meat processing business and want to acquire all the skills needed may contact: Director, NRC Meat, Chengicherla, Hyderabad-92; Phone-040-27204541, 27201672. First 3-day entrepreneursip training programme was organized at NRC Meat, Hyderabad, from 22 to 24 March 2010. Participants were meat product processors, hoteliers, Chefs and housewifes from different parts of Andhra Pradesh.

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First Global Conference on Agri-business Incubation

Hyderabad, 10March 2011. The First Global Conference on Agri-Business Incubation: Network of Indian Agri-Business Incubators (NIABI), 2011 was organized by National Agricultural Innovation Project (NAIP) in collaboration with International Crop Research Institute for Semi-Arid Tropics (ICRISAT) at Hyderabad. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) in presence of Dr Bangali Baboo (National Director, NAIP) inaugurated and informed that Indian Council of Agricultural Research (ICAR) is contemplating a new initiative 'Agri Innovation Foundation' to give due recognition to the innovators in agriculture. Around 15 international institutes from 10 countries participated in the deliberations on the themes Challenges in agriculture through agri-business incubation, NextGen agri-business opportunities, Women entrepreneurs in agriculture, etc. On the occasion National Awards instituted by Network of Indian Agri-Business Incubators (NIABI) were given in the categories Agri-Business Incubators and Incubatee by Shri N.R. Reddy, Minister of Revenue Department, Government of Andhra Pradesh, in presence of Dr William Dar (Director General, ICRISAT). The Best Agribusiness Incubatee Award was won by Mr Rajkumar of M/s Emral Tune Line Systems. The "Best Agribusiness Incubator" was conferred to BPD unit of TNAU.

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XXV Project Management Committee Meeting of NAIP

New Delhi, 30 March 2011. The XXV Project Management Committee meeting of National Agricultural Innovation Project was held at the Conference Room, PIU-NAIP under the Chairmanship of Dr S. Ayyappan (Secretary, DARE & DG, ICAR) who expressed contentment over the concurrence of

World Bank for 18 months extension of NAIP from January 2013 to June 2014 and expressed gratitude to the DEA and the World Bank team as well as PIU-NAIP for the efforts. He emphasized on the requirement of rigorous monitoring and evaluation of the sub-projects at this stage and during the extension period. He informed that two more World Bank Projects are coming up, viz. National Agricultural Entrepreneurship Project and the National Agricultural Education Project, and hoped that these would be submitted in 3 to 6 months time.

The NAIP films 'Towards Transformation' in English and '*Parivartan ki oar*' in Hindi were released by Dr I.P. Abrol (Director, Centre for Advancement of Sustainable Agriculture).

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Fibre and value added products from banana pseudostem

Navsari. A Value Chain on Utilization of Banana Pseudostem for Fibre and Other Value Added Products is operating at Navsari Agriculture University for developing a complete value chain. The extraction of banana fibre with existing fibre extracting unit was tedious, time-consuming and non-profitable. The Navsari Agricultural University, Navsari with the assistance from CIRCOT, Mumbai, a consortia partner modified the raspador unit, standardized the process of fibre extraction and provided the trainings to banana growers.

Besides fibre extraction, the NAU further standardized processes of pulp and paper making from pseudostem, fibres and scutching waste both at handmade paper and board. Standardize processes for extracting textile grade fibres from pseudostem and prepare home furnishings. Also developed technology for preparing candy, RTS and pickles from tender core of pseudostem and got tested its quality in referral labs.

Impact of technologies on income and employment generation

Economics were computed for different products developed from banana pseudostem. The products for which economics calculated are fibre extraction, vermi-compost preparation, sap as liquid fertilizer and candy from central core. The gross income of products (fibre, vermicompost and sap) developed from banana pseudostem was ₹ 124,895 and net income was ₹ 64,478. It generated employment for 183 man days/ha. The cost of production of candy (10 kg) from central core was ₹ 948 which fetched ₹ 1,800 through its sale, and there was net profit of ₹ 852.

Banana fibre extraction technology: adopted by farmer

After attending training at Navsari Agricultural University, Navsari, near Surat in Gujarat followed by hands on training in the field at Rajpipla village, one farmer Mr Upendrasinh Patel came forward and started fibre extraction from banana pseudostem using one raspador unit. After seeing the encouraging results he extended this activity to small-scale cottage industry in GIDC, Rajpipla and installed 20 raspador units. With this facility, he extracted 7,400 kg of banana fibre and could generate employment for 2,960 man-days worth ₹ 207,200 whereas his net profit was ₹ 347,800 from the sale of banana fibre.

Eco-powders for safe holi

Hyderabad, Andhra Pradesh. The coloured powders used for holi were made from natural extracts of flowers, roots and herbs. With the advent of synthetic dyes, the natural dyes have disappeared and synthetic dyes took its place. Dyes, meant for industrial use like dyeing textiles, are toxic and may cause skin allergies leading to various ailments like eye irritation, blindness and much more. Even the bases in which these chemical dyes are mixed are also highly toxic to human health. When washed,

they enter our water and soil and cause even more pollution.

With the growing awareness of dangers of using synthetic holi colours the market demand is now growing for natural colours. These natural colours can be made from flower sources, kesula (*Butea monosperma*) and marigold (*Tagetus erecta*) to produce yellow shades; mehndi and other dried leaves to give green colour; red sandal wood powder, madder, annatto, etc. to produce orange to red shades; the barks of trees to produce brown shades and beet root to produce magenta shade.

With this concept Acharya N. G. Ranga Agricultural University (ANGRAU) under National Agricultural Innovation Project (NAIP) sub-project 'Value chain in Natural dyes' has come up with 12 shades, six shades (yellow, pink, marron, orange, green and blue) were the most consumer accepted colours and so these six colours are produced in large quantities by tribal groups of Chintapalli area in the Natural dye unit. These colours are marketed by taking orders and also through their sales counters in coordination with NGO, Hyderabad Goes Green.

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Success stories

Ghungroo pig: a potential strain of indigenous pig for the rural farmers

Ghungroo,an indigenous strain of pig first reported from North Bengal is popular among the local people because of high prolificacy and ability to sustain in low input system. This breed/strain produces high quality pork utilizing agricultural byproducts and kitchen wastes. Ghungroo are mostly black coloured with typical Bull dog face appearance, with a litter size of 6-12 piglets, individually weigh about 1.0 kg at birth and 7.0-10.0 kg at weaning. Both sexes are very much docile and easy to handle. In the breeding tract they are maintained under scavenging system and mainly act as insurance to the rainfed agriculture. At National Research Centre on Pig, Rani, Guwahati Ghungroo pigs are being maintained under intensive system of rearing with standard breeding, feeding and managemental system. Their evaluation for genetic potential for use in future breeding programmes is in progress and this indigenous strain is performing very well in terms of productive and reproductive efficiency. Some of the selected sows have delivered litter size of 17 piglets at birth as compared to the other indigenous strains of pigs maintained at the institute farm.

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Increase the yield of mango by managing mealy bugs

Mango mealy bugs could be managed by banding of tree trunks with polythene (400 gauge, 30 cm wide) at a height of about 30 cm from the ground level and grease should be applied at the lower edge of band in third week of December followed by application of 1.5% chlorpyriphos dust @ 250 g/ tree around tree trunk. If it is not undertaken in December, it should be done in January. If nymphs have already started ascending on trees, spray carbosulfan (0.05% 25 EC @ 2ml/litre water) or dimethoate (0.06% 30 EC @2ml/ Litre water) from January to March. Good orchard-management practices such as ploughing of the orchards in November will expose eggs to the sun resulting in destruction of eggs due to heat and use of bio-control agent, namely *Beauveria bassiana* may prove useful in reducing the pest population.

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Technology intervention for revival of lac cultivation on *ber*

Kunthi, Jharkhand. Dr R. Ramani (Director, IINRG, Ranchi) and his team visited village Dilisud for lac crop monitoring and advised the farmers to harvest the crop in form of broodlac only instead of sticklac. The Indian Institute of Natural Resins and Gums (IINRG), Ranchi intervened in the Kunthi area for revival of lac cultivation with support from farmers of Binda village (Murhu block) and Gaurbera, Kandeor village (Torpa block) of the Khunti district. This technology has come as a boon to overcome the mortality of summer *rangeeni* crop on *ber*. Twenty-nine farmers of the village underwent one week training on 'Scientific methods of lac cultivation' at IINRG Ranchi. The Institute also organized on-farm trainings during 2010 (for 3 days) in the area in which around 578 farmers participated. These training programmes were sponsored under the sanctioned project by Deputy Commissioner, Khunti. Eleven farmers of village, Gaurbera formed a Self Helf Group '*Lakh Sahyog Samittee, Gaurbera*' for cultivation of lac in the area. These involved members started lac cultivation in 2009, which expanded to include 577 families by 2010. During 2009 the group has successfully cultivated lac by adopting improved technology and sold 15 quintals broodlac worth ₹1.5 lakh. Farmers have adopted the new technology '*Winter Kusmi lac cultivation on ber*' and successfully raised winter lac crop on around 5,500 *ber* trees. Few farmers, of the area are also carrying out *rangeeni* lac cultivation on *palas* and *kusmi* lac cultivation on *kusum*. During 2010 each family earned

₹10,000 to 25,000 from lac. All 577 families have sold the lac worth ₹6.5 million during this year. On an average the farmers got 10-fold returns on their investment. This year due to drought the farmers could not grow paddy and the income from lac came as a boon for them. For marketing of sticklac farmers go to nearby Murhu local *haat* and broodlac is sold locally to the farmers. Some farmers have expressed that shortage of broodlac and non-availability of improved inputs in local market as constraints. With the present level of lac production farmers can increase their income by selling sticklac directly to the lac-processing units which are available within 30 km range of lac-producing villages. With the success of lac cultivation in the above-mentioned villages, the technology has spread in many surrounding villages of the area, namely Liangdih, Ketidiri, Dugdur etc. (Bandgaon block), Maloti, Parasu, Hardlama, Kuchia, Chaldag, Kochange, Tuti etc. (Birbanki block) and villages of Murhu and Torpa block of the district.

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Farm mechanization

Amritsar, Punjab. Mr Harjeet Singh (31-year- old), possess 28 acres (11 ha) land and his family is doing farming for the last 10 years (by adopting new technologies that help in conservation of natural resources soil and water) at village Zheetah Kalan, on National Highway 1 near Amritsar. He has own Agro- Service Centre in his village. He is successfully using the following machinery on custom-hiring basis.

Mr Harjeet Singh got training to operate laser leveler from the Department of Farm Power and Machinery, Punjab Agricultural University, Ludhiana, and purchased a 50 HP tractor to operate Laser leveler in the same year. He is doing laser leveling of farmer's fields with new innovative technologies on custom-hiring basis for last four years. He charges ₹600-700 / hr for the leveling and it takes generally 90 to 120 min to level 1 acre area. Before start of *kharif* his levelers are booked by farmers even 4 to 5 months in advance.

Mr H. Singh purchased one reaper for making *bhusa* from wheat straw. He runs this reaper in the adjoining states also. He is fetching good profit from running this machine. Mr H. Singh used the rotavator to manage paddy straw in his own fields and other farmers' fields on custom-hiring basis and charges ₹ 2,500/ha.

He is sowing wheat with zero drill machine and is charging Rs 1,500/ha for this machine at farmers' fields. Mr Harjeet Singh used seeder for sowing wheat in the combine harvested paddy fields without burning of straw and this is becoming very popular among farmers.

Mr H. Singh possesses one bailer for collecting the paddy straw from the combine harvested paddy and basmati fields with an amount of 1.1 million. He got subsidy of an amount of ₹5 lakh from the State Department of Agriculture. The charges of this machine on custom hiring are ₹ 75/quintal of paddy straw, of which bails are formed by the machine. He runs this machine on custom-hiring basis for Rana Sugar Mill, Butter village, Amritsar. He also collects the paddy straw bails from farmers field and that are supplied to the Sugar Mill, for energy source in the boilers.

He purchased paddy transplanter in March 2009.The cost of the machine at that time was ₹ 97,000 and he got subsidy for this machine. He sowed the mat type of nursery with a new machine which put the seed at accurate space and used specified quantity of seed for specified area at his farm under the supervision of KVK expert and also taken help from the department of Agriculture, Amritsar. He transplanted total paddy at his farm land with paddy transplanter as well as farmers' field at limited level. He has done a few changes in paddy transplanter platform, which is helpful in leveling the puddled field, so that paddy can be transplanted more precisely.

Mr Harjeet Singh had purchased one chiseler of ₹ 30,000 for breaking the hard soil crust which is helpful for better aeration and nutrient and water uptake. It is used for custom hiring @ ₹ 1,200 to 1,500/ha. Mr Singh purchased one tractor-mounted sprayer pump of ₹35.000 and used this pump for spraying his own fields as well as for custom-hiring basis.

There are four submersible tube-wells in the farm for irrigation. Canal water is also available at his farm. Now-a-days he is also planning to set one sprinkler irrigation system. Besides above said farm machinery, he has also other farm equipment/ farm machinery at his farm for daily use. He adopted these methods of cultivations which conserve natural resources like straw incorporation for increasing organic matter of fields. He incorporates the left straw after using reaper and never burnt straw. He sows all the pulses and vegetables for household use at his farm. He took lead to adopt mechanical paddy transplanter and bailer in district. He also introduced seeder and laser land leveler technologies to save residue and water. He always remains in touch with Krishi Vigyan Kendra, Amritsar and other agriculture related departments to know about recent developments in farm mechanization. He has given number of innovative feedbacks on agricultural machinery. He was given Best Farmer Award from ATMA, Amritsar for new innovations, and State level award for the Best Farmer by the Government of Punjab.

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Areca sheath utility as fodder for feeding dairy animals

New Delhi, 8 February 2011. Dairy farmers from Panaje near Puttur in D K district of Karnataka have a reason to cheer. They got a much-needed technology which used dried areca sheath as total mixed ration along with suitable proportion of concentrate to support milk production. Thanks to the National Institute of Animal Nutrition and Physiology (NIANP), Bengaluru and the National Bank for Agriculture and Rural Development (NABARD)-supported project, the Dairy farmers in this region have started using the processed areca sheath in the form of total mixed ration. The NIANP had taken up a research work in this aspect and evaluated the utility of areca sheath in feeding of dairy animals. The findings indicated that areca sheath is superior to paddy straw in relatively low lignin (<3%), silica (<4%), higher energy (>50% TDN) and some minerals like calcium, sulphur and copper. Feeding areca sheath in sheep and dairy cattle had no adverse effects. The NIANP has developed a technology of using dried areca sheath in the form of total mixed ration along with suitable proportion of concentrate to support milk production. Since in some regions of Karnataka particularly in coastal zone there is a deficit of dry fodder, paddy straw is imported from neighbouring districts, thus resulting in higher market price. Areca cultivation as a commercial crop is quite extensive in this region and there is a possibility of using the fallen areca sheath as a dry fodder for dairy animals.The above technology was appreciated by the NABARD during an interactive meeting and they came forward to finance a pilot project to NIANP to transfer the technology under their Rural Innovation Fund scheme by installing an areca sheath processing unit at Milk Cooperative Society, Panaje. The Society provided the housing, electricity etc. for installing the areca sheath processing unit. Machinery like disintegrator, grinder and mixer required for this unit was procured and installed in the society by the NIANP under the above scheme. The formal inauguration of the above-mentioned unit and a technical workshop was organized by the society involving people's representatives at Panaje, Puttur.

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International Linkages

KVK activities attract global participants

Namakkal, 20 February 2011. The Krishi Vigyan Kendra, located at Namakkal district of Tamil Nadu, conducted International Training Programme 'Smallholder Livestock and Commercial Poultry Farming' under Indo-African Forum Summit from 7 to 20 February 2011 at the Krishi Vigyan Kendra Campus. The programme was sponsored by Ministry of External Affairs, Government of India. Participants were from Ministry of Agriculture and Allied fields from Nigeria, Sudan, Namibia, Ethiopia, Zambia, Mali, Ghana and Kenya.

During 15 days programme, 27 topics were covered mainly related to 11 broad areas, namely cattle, sheep and goat; broiler; layer; alternative poultry; piggery; rabbit; ethno-veterinary medicine; meat technology; livestock feed mill; livestock and poultry service providers/advisors and livestock and poultry farm waste management. Visit to poultry units, hatcheries in and around Namakkal district, which is the highest producer of poultry products in India and visit to College of Veterinary and Animal Science, Thrissur, Kerala, were the attractions. In these sessions, 14 farmers contributed their practical experience as resource persons. Different technologies related to replicable small-scale feed mill units, importance of feed analytical laboratory, role of PDDSL to control poultry diseases, impact of weather on poultry, effective disposal of soil and liquid waste for eco-friendly farming were explained to the trainees. Overall, the participants were exposed to replicable small-, medium- and large-scale dairy, sheep, goat, broiler, layer, piggery and rabbit farming enterprises during the programme. The highlight of the programme is the presentation by five groups on the application of technologies learnt during the programme in their respective countries on the following topics:

- Alternative poultry for Nigeria.
- Broiler farming suitable for Africa.
- Innovations learnt in India and possible technological transfer in dairy production.
- Technologies learnt and possible interventions back home on sheep and goat farming.
- Technologies to be adopted in layers farming in Africa.

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IISR Foundation Day

Lucknow, 16 February, 2011. Dr. A. N. Mukhopadhyay (Ex-VC, Asom Agricultural University, Jorhat), the Chief Guest, delivered Foundation Day lecture on '*Trichoderma* and Sugarcane disease management' and released *Water use efficient technologies for improving productivity* , and *IISR Newsletter*, *January 2011* at the 59th Foundation Day of the Indian Institute of Sugarcane Research. Dr G. B. Singh(Ex-Director General, Uttar Pradesh Council of Agricultural Research) chaired the session and appreciated the achievements of this Institute in sugarcane research and also urged the scientists to address emerging challenges amidst changing scenario. Dr R. L. Yadav (Director, IISR) mentioned accomplishments of Indian Institute of Sugarcane Research, namely healthy seed production technique, development of MHAT, improved sugarcane varieties, planting methods, INM, ID&PM, sugarcane machines, *jaggery* making technique etc. The adoption of these technologies by the cane growers enhanced their income from cane cultivation and also helped sugar industry to grow. He added that the efforts of Indian Institute of Sugarcane Research in disseminating bio-control technology for managing sugarcane diseases and pests through Memorandum of Understanding with DSCL group of industry in Uttar Pradesh.

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Kisan Mela organized at IISR

Lucknow,16 February 2011. A *Kisan Mela* was organized at the Indian Institute of Sugarcane Research on its Foundation Day. About 1,000 farmers from Uttar Pradesh and other states participated in this *mela*. Demonstrations of sugarcane cultivation machines, namely cutter planter, ratoon management device, RBS planter etc., were also organized to motivate farmers to adopt these machines for economizing their sugarcane cultivation. Since ratoon management device performs many operations like stubble shaving, deep ploughing, off barring, fertilizer application and earthing up in one pass, its adoption by farmers may save 25 to 30% labour in ratoon cultivation. Five farmers were honoured for their achievements in agricultural production. An "Agri-Exhibition" was also organized in which 20 different agricultural research organizations, agricultural implement manufacturers, Krishi Vigyan Kendras (KVKs), 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. The information on pulses cultivation as intercrops with sugarcane provided to farmers is important in relation to enhance pulse production in Uttar Pradesh. Annually, sugarcane is planted in 10 lakh ha, half of the total cane area in Uttar Pradesh, if pulses are grown as intercrops with plant sugarcane, at an average yield of 2 q/ha of pulse, a total of 20 lakh q of more pulses may be produced every year.

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Kisan diwas at DRMR

Khergarh, 5 March, 2011 The Directorate of Rapeseed Mustard Research organized a *Kisan diwas-cum-*interaction meetingat Nagla Vishnu, Khergarh tehsil, Agra district (Uttar Pradesh) where 10 frontline demonstrations (FLDs) on mustard with varieties NRCHB-101 and NRCDR-2 have been laid out by DRMR during 2010-11 in collaboration with RBS College, Bichpuri, Agra. Dr J. S. Chauhan, Director (DRMR) said that integrating farming by establishing collaboration among different agencies is the need of the hour for over all development. Farmers should adopt green manuring and organic manures for improving the soil fertility and increase the production. He urged the farmers to grow certified seeds of high-yielding varieties of mustard and use sulphur for increasing oil and seed yield. He suggested that farmers should take the participatory seed production programme and develop the seed village.

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XVII *Sarson Vigyan Mela*-cum-exhibition

Bharatpur, 1 February 2011. The XVII *Sarson Vigyan Mela*- cum-exhibition,organized at DRMR Bharatpur, was inaugurated by the chief guest Dr C. D. Mayee (Chairman, ASRB, New Delhi). He emphasized that research focus should be on climate change and farmers must adopt recently released varieties of rapeseed-mustard along with matching production technologies as per their growing conditions; and added that there is need of organized farming by constituting farmers' club that would help in regulating the market prices, citing example of Maharashtra farmers. He cautioned about over-exploitation of natural resources and imbalance use of fertilizers, which may prove great deterrent in long run in achieving higher productivity.

Professor Swapan K. Datta, Deputy Director General (Crop Science), ICAR, New Delhi presided over the function. In his presidential address, Prof Datta emphasized that rapeseed-mustard crops play an

important role in oilseed economy of the country. But farmers are not getting remunerative prices of their crop, they are sometimes forced to sale out produce at lower prices due to lack of proper storage facilities as well as economic condition. He suggested for value addition in mustard oil, and makeing the consumers aware about the quality of mustard oil, enabling the farmers in fetching higher price of their produce. The Directorate of Rapeseed Mustard Research along with coordinating centres have developed the rapeseed-mustard production-technologies almost for all agro-climatic conditions in the country, informed Prof. Datta.

This *Sarson Vigyan Mela* provided an opportunity to the 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. It was attended by about 800 farmers from Rajasthan, Madhya Pradesh and Uttar Pradesh participated.

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All India Farmers' Fair at NDUA&T

Faizabad, 8 March 2011.Two days All India Farmers' Fair was inaugurated by Dr K.D. Kokate, DDG (AE) on 8 March 2011 at the main Campus of NDUA&T, Faizabad. In exhibition products were displayed by different Colleges of University, KVKs and Private Sector. The exhibition focused on new technologies of rice, vegetables, aonla, bel etc. Addressing the farmers, DDG (AE) cited the contribution of Uttar Pradesh in wheat (35%), paddy (15%), vegetable (31%), fruit (18%) and potato (48%). He urged the farmers and all the entrepreneurs to come together and raise the agriculture production further for food and nutritional security. He informed the farmers of eastern UP regarding yellow rust disease of wheat. He urged the farmers to apply nutrient and micronutrient in balanced doses in the soil. He appreciated the work of the University on soil specially *usar* reclamation and subsequently developing tolerant varieties of crop and fruits for the sodic soils. He focused on production, productivity, profitability and marketability of different products through public - private partnership ensuring prestige to the farmers. He cited the efforts of ICAR in identifying 500 farm innovators in the country and working through them by creating an innovation fund. He said the role of farm women would be very strong in the upcoming secondary agriculture. He motivated the farmers to bring in business culture in their approach.

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North-eastern zone regional agri-fair inaugurated

Barapani, 28 February 2011. The North-Eastern Zone Regional Agri-Fair, organized by ICAR Research Complex for NEH Region, Umiam, Barapani, was formally inaugurated by His Excellency Shri R. S. Mooshahary to apprise the farming community and other stakeholders in agriculture and allied sectors on "Bio-diversity conservation and entrepreneurship development". His Excellency emphasized on the need to ensure food security to the entire population and highlighted the importance of crop diversification and crop demand forecasting. He stressed on the need for biodiversity conservation, as this treasure, left by our forefathers, is our main strength in the fight for survival in the changing climate.

Prof. Pramod Tandon, Member, National Advisory Committee speaking as the Guest of Honour, emphasized on the growth of this region through biodiversity conservation, within this diversity of habitats- amazing variety of crops and livestock developed over the millennia of Indian farming. About 348 crop plants are cultivated, 168 economic plants, whose centre of origin / diversity lies in India along with their wild relatives (326 species) and land races. He stated that India is regarded among the 17 top biodiversity regions in the world with 2.5 % of the geographical area.

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Enhanced productivity and income through farm technologies

New Delhi, 3 March 2011. Shri Harish Rawat, State Minister for Agriculture and Food Processing Industries, inaugurated *Pusa Krishi Vigyan Mela* on the theme "Enhanced Productivity and Income Through Farm Technologies" at the Indian Agricultural Research Institute. He said that the efforts of central government to enhance the agricultural productivity and for the benefit of the farmers. A 3-day *Pusa Krishi Vigyan Mela* kicks off in the capital from today to showcase the achievements of Indian Agricultural Research Institute, various other institutes, Non-Governmental Organizations as well as private companies. The *mela* will also showcase the Indian agriculture as a remunerative profession with presentation by successful farmers. Dr S. Ayyappan

(Secretary, DARE and Director General, ICAR) showed his concern on the challenges of agriculture. He expected farmers' initiative for taking up the agricultural challenges and boost the farm production. He also stressed to make green revolution to ever-green revolution and the scientists and farmers' contribution in achieving it.

Earlier, the Director of the Institute, Dr H. S. Gupta highlighted the main features of the *Pusa Krishi Vigyan Mela*. He enumerated that *Mela* will be of great attraction in respect of purchase of seeds, agricultural equipment, knowledge of farm technologies, facilities of soil and water testing and agro-advisory services.

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Multifaceted activities of KVK inaugurated

Bhapra, 9 January 2011. Dr K. D. Kokate, Deputy Director General (Agricultural Extension) chaired the 'Mushroom Field Day' at village Bhapra in Panipat district and visited the small in-house mushroom unit in Samalkha town and held discussion with members of Self Help Group. He appreciated the efforts of Krishi Vigyan Kendra in technology transfer of low-cost mushroom production. He also visited village Hazrana in district Kaithal to see the demonstrations on 'Resource Conservation Technology', after that visit of Krishi Vigyan Kendra farm was organized. Dr Kokate addressed a large gathering of progressive farmers of the district who were attending a seminar on Agro-forestry and *rabi* crops at Krishi Vigyan Kendra, Kaithal. Thereafter, he inspected the integrated pasteurized mushroom compost plant installed by cooperative society, Krishi Vigyan Kendra and DRDA, Kurukshetra. The Deputy Director General (Agricultural Extension) and Vice-Chancellor, Haryana Agricultrural University, Hisar addressed the Ex-trainees *sammelan* organized at Bajwa mushroom farm in village Bhorsaidan of Kurukshetra district. More than 80 landless farm-women-cum-mushroom growers participated in this *sammelan*.

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NBPGR organizes Farm Innovators' Meet

New Delhi, 28 February 2011. Professor Swapan K. Datta, Deputy Director General (Crop Science) was the Chief Guest of the first 'Farm Innovators' Meet', organized by the National Bureau of Plant Genetic Resources on National Science Day at its Experimental Farm, Issapur (New Delhi), to felicitate innovative farmers. This was to commemorate a decade of innovation in the Indian Council of Agricultural Research by recognizing Indian farmers in various states of the country for their talent and innovative ideas, which have ultimately led to the significant progress of Indian agriculture.

Addressing the farmers and the *Gram Pradhans* of nearby five villages, all the speakers emphasized the important role played by the farming community in the conservation of plant genetic resources and their judicious use in sustainable agricultural production. This has become more significant particularly in the climate change scenario. Dr P.N. Mathur, South Asia Coordinator and Senior Scientist, Diversity Assessment and Use, Bioversity International, briefed the farmers about the role of Bioversity International in Plant Genetic Resources Management. Prof. Swapan Datta, in his address appreciated the efforts made by the NBPGR in encouraging farmers' involved in PGR management and motivated the institute to further intensify its activities to include more farming communities.

More than 200 farmers, scientists and representatives of development agencies participated in this function. A total of 39 farmers belonging to six states, namely Rajasthan, Uttarakhand (Garhwal and Kumaon), Himachal Pradesh, Haryana and Delhi, were felicitated for maintaining and promoting the use of

landraces of different crops/ animals/ fish genetic resources and associated technologies related to conservation of agriculture. These farmers were selected from among a large group of farmers originally nominated by the NBPGR Regional Stations located at Bhowali, Shimla and Jodhpur and four Krishi Vigyan Kendras (Shikopur, Ujjawa, Jajjhar and Ranichauri). The farmers narrated their experiences about the new technologies/innovations developed by them like conservation and utilization of neglected and underutilized species, organic farming, water conservation, fruit and vegetable cultivation and processing, beekeeping, Emu farming, etc. as a source of their livelihood and income. An exhibition depicting plant genetic resources activities being carried out by the NBPGR was also displayed. The *Krishi Jaivividhita Prabandhan mein Krishkaun ka Yogdan* (brouchre in Hindi) describing the role of farmers in agro-biodiversity management was also released on the occasion.

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Farmers' Fair continues at Pantvarsity

Pantnagar, 10 March 2011. The 89th All India Agro-industrial Exhibition-cum-Farmers Fair, popularly known as *Kisan Mela* or *Krishi Kumbh* was formally inaugurated by Dr A. K. Singh (Zonal Coordinator, North Zone, ICAR) on 9 March 2011. This 4-day seminal event is very popular among the farming community, as thousands of farmers from all parts of Uttarakhand and the neighbouring states of Uttar Pradesh, Bihar, Haryana, Punjab, etc. visit this fair. A number of small and medium agribusiness firms have put-up their imaginative and colourful displays showcasing the best and latest in agriculture technology. Almost all the major brands of agriculture sector – be it tractor or fertilizer or plant protection chemicals or seed companies is participating in this *kisan mela*.

Dr A. K. Singh, Chief Guest at the inaugural ceremony, remarked that to feed the billion-plus population of the country, we would need to double the present level of food production by 2050. He added that though the land under agriculture is progressively declining due to increasing demands for housing and industries, we need to produce more, at least 5.0 million tonnes of food grains more every year till 2050, to meet the challenge of targeted production level.

The Vice-Chancellor Dr. B. S. Bisht, who presided over the inaugural ceremony, reiterated that our major aim is the welfare of farmers. He advised the farmers to re-orient their farming by using precision farming practices, so that they could save their resources and that the same time could get more profit with less expense. He also reiterated universities commitment for extension of integrated and eco-friendly agriculture. Dr Bisht also recounted the major achievements of the University and said that "Pantnagar Product", be it seed or the student, are renowned globally for their quality and reliability.

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IVRI Technologies commercialized

Bareilly, 9 March 2011. The technologies of PPR vaccine and Goat Pox vaccine developed by Indian Veterinary Research Institute(IVRI), Izatnagar, have been successfully commercialized. ICAR has established Zonal Technology Management- Business Planning and Development Unit (ZTM-BPD Unit) at IVRI, for technology commercialization, Intellectual Property management and entrepreneurship development in ICAR North Zone II. The technology commercialization was Earlier done through NRDC.

The demand for veterinary vaccine and diagnostics are increasing and many commercial houses are contacting IVRI for the technologies. One of the commercial houses, M/s Hester Biosciences Pvt. Ltd, Ahmedabad has taken two potential technologies, i.e. PPR vaccine and goat Pox vaccine developed by IVRI. Prof. (Dr) M C Sharma has informed that the IVRI has established its first Business Incubator in Veterinary Sciences in the world. The institute is offering various veterinary vaccine and diagnostic technologies for commercialization.

The ZTM-BPD Unit extends its services to 20 ICAR institutes of animal, crop and horticultural sciences, natural resource management and fisheries.

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Cotton technologies for entrepreneurs

Ahmedabad, 7 January 2011. With a theme to showcase the new cotton technologies to prospective entrepreneurs for commercial adoption the Zonal Technology Management and Development Unit of the Central Institute for Research on Cotton Technology, Mumbai, organized a Business Development Programme for Cotton Technologies at Ahmedabad Institute of Management in association with Fibre to Fashion, Ahmedabad. The august gathering comprised delegates from cotton value chain as well as from packaging and particle board-manufacturing sectors. Eminent speakers included scientists from the Central Institute for Research on Cotton Technology, Mumbai; the Central Institute of Cotton Research, Nagpur; and the Central Institute of Agricultural Engineering, Bhopal.

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Visits

Union Agriculture Minister visited IGFRI

Jhansi, 30 January 2011. The Union Minister for Agriculture and Food Processing Industries, Government of India, Mr Sharad Pawar, visited the Indian Grassland and Fodder Research Institute. A scientist-farmer interaction was organized. Shri Sharad Pawar emphasized that new forage varieties should be developed and the seeds should be made available timely at adequate prices. He released the varieties of forage crops and stressed the need for development of fodder and feed resources, so that the huge livestock populations in the country are fed adequately. He added that technologies, such as making fortified feed-blocks should be encouraged to improve feeding standards of animals.

Dr S. Ayyappan (Secretary DARE and Director General, ICAR) said that development of forage resources is high on the agenda of the ICAR.

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Union Agriculture Minister visited IIPR

Kanpur, 29 January, 2011. The Union Minister for Agriculture, Shri Sharad Pawar, inaugurated the Pulse Genetic Resource Centre at the Indian Institute of Pulses Research, Kanpur .He visited the Genetic Stock Management Farm, the experimental fields, and the institute museum. He showed his interest in hybrids of this Institute.

Dr N. Nadarajan, Director of the Institute highlighted the achievements of the Institute in development of new high-yielding varieties and matching crop production technologies. The Union Minister of Agriculture called upon the scientists to develop short-duration varieties of pulse crops to foster multiple cropping system and stressed upon developing high-yielding varieties insulated with pest and disease resistance, with matching crop production and protection technologies. He called for minimizing the post-harvest losses. The Union Minister of Agriculture asked the scientists to develop pulse varieties and matching production technologies keeping in mind the changes in climate and seasons and provided the road map for increasing pulse production by stressing on short-, medium- and long-term research efforts. He added that the cultivable area is shrinking due to urbanization and industrialization.

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Union Minister of Agriculture visited mustard field

Burj village,24 January, 2011. The Union Minister of Agriculture, Sh. Sharad Pawar, accompanied by the Secretary (DARE) and DG(ICAR) Dr S Ayyappan and scientists visited mustard fields of farmer Sh Rajendra Singh in Singna Burj village of Kirawali tehsil of Agra, Uttar Pradesh. The Director General (ICAR) apprised the Union Minister about the first hybrid of Indian mustard, NRCHB-506, developed by the Directorate of Rapeseed Mustard Research, Dr J.S. Chauhan Director informed about the newly developed Indian mustard varieties, viz. NRCDR-2, NRCHB-101, NRCDR-601 and NRCYS 05-02 of yellow *sarson*. The Union Minister of Agriculture was also informet about improved varieties of mustard, cost of cultivation, productivity, return of the crop and the effect of temperature on mustard, potato and wheat crop.

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Disseminate benefits of scientific goat rearing to the farmers— Sharad Pawar

Makhdoom, 24 January 2011.Shri Sharad Pawar, Union Minister for Agriculture and Food Processing Industries visited Jakhrana, Jamunapari and Barbari goat units, and Muzaffarnagari Sheep units of the Central Institute for Research on Goats (CIRG) and also the Rumen Microbiology, Feed Processing, Male Reproduction and IVF Laboratories of the Institute. He asked from the scientists of the CIRG to prepare a road map for state governments for goat breed improvement programme and develop effective vaccines and disease-diagnostic technologies for disease-free flock at farmers level to improve production to meet the domestic and export demands in terms of both quality and quantity of goat meat. The CIRG technologies such as complete feed block,

area-specific mineral mixture, value-added goat milk and meat products (Nimkee, Murukku and Pops), and herbal medicines, were appreciated. He emphasized the need to develop goat gene/semen bank. Shri Pawar advised scientists of the CIRG to standardize basic framework of Artificial Insemination in goat, so that the same can be adopted by State Governments in their Artificial Insemination programmes already in vogue for cattle and buffaloes. He said that livestock production has become more knowledge-intensive, technology-led and demand-driven and asked the scientists to contribute accordingly.

Dr S. Ayyappan (Secretary DARE and DG, ICAR) said that the Council is considering initiating outreach programme on goat production as it is the future animal. He added that invention of farmer-friendly technology would go a long way in sustainable livestock production and poverty alleviation.

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Director General, ICAR visits NRC on Pig

Rani, Guwahati, 05 February, 2011. Dr S. Ayyappan (Secretary DARE and Director General, ICAR) visited the National Research Centre on Pig, Rani (situated 12 km away from Guwahati Airport) and inaugurated the research and development slaughterhouse and pork processing plant. The state-of-the-art slaughterhouse is fully equipped with all the modern equipments. It also has facilities for hygienic processing of pork and production of value added products. The Director General, ICAR, also visited the Pig Farm Complex where nearly 600 pigs of different indigenous strains Ghungroo, Niang-megha and exotic Hampshire, Duroc breeds and their crosses are maintained following hygienic good management practices (GMP). He appreciated the initiatives taken for the proper upkeep of animals and suggested that sheds made of locally available material should be demonstrated to the farmers. The Director General, ICAR also visited Gargara village, adopted by the NRC as a model Pig village and the backyard pig units

developed by the farmers under the guidance of NRC. He appreciated the efforts of the centre in popularizing artificial insemination at field level. He interacted with the local pig farmers to know their feedback. Two Piglet units were distributed by the DG, ICAR to the farm families on this occasion. He emphasised that NRC on Pig should also work to develop an integrated farming system involving pig and fish, feeding strategies should be developed for pig farming (based on feeding behaviour of pig) and technologies developed by the Institute may be commercialized.

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Director General, ICAR visits NBSS&LUP, Nagpur

Nagpur. 22 January 2011. Dr S. Ayyappan, Secretary DARE and DG ICAR, New Delhi visited NBSS&LUP (ICAR), Nagpur and appreciated their efforts in generation of database for Soil and Land Resources of the Country using latest remote sensing satellite data as well as computer aided GIS package for formulating Land Use Planning Programme in the Country. These maps helped in identification of soil related constraints as a whole as well as combat measures towards the enhancement of agricultural productivity in the country especially in the Vidarbha Region of Maharashtra State. In his deliberations, Dr S. Ayyappan mentioned about some of the important areas where attention should be given, viz. climate change and its effect on soils properties as well as overall production of major crops, site-specific nutrient management and identification of nutrient deficient soils and their mapping etc. He emphasized to include these areas in the formulation of research programmes for forthcoming XII Five Year plan for the Institute in particular and the country as a whole.He also mentioned about the importance of linkages between ICAR Institutes/State Agriculture Departments/State Agricultural Universities in the areas of utilization of natural resources data set being generated by NBSS&LUP as well as utilization of data for planning and development of the agricultural activities in the country for sustainable food security.

He also emphasized on interface of Soil and Land Resources information for other Divisions of ICAR namely Crop Science, Horticulture, Agricultural Engineering and Animal Science for better understanding of need based cropping strategies etc. for zonal and Regional needs of the country. The importance of climatic data as well as natural resources data viz. soil, water and biota in the process of land use planning and formulation of alternate land use system involving the stakeolders also emphasized.He appreciated the work being conducted by NBSS&LUP in terms of generation of soil and soil related thematic maps on various

scales.He interacted with scientists and also reacted positively on the various questions asked by the staff members for betterment of agricultural production in the Region. Dr A.K. Singh, DDG (NRM), ICAR, also spoke on this occasion especially on rainwater harvesting as well as climate change and its effect on future agriculture specially in the Vidarbha Region *per se*.

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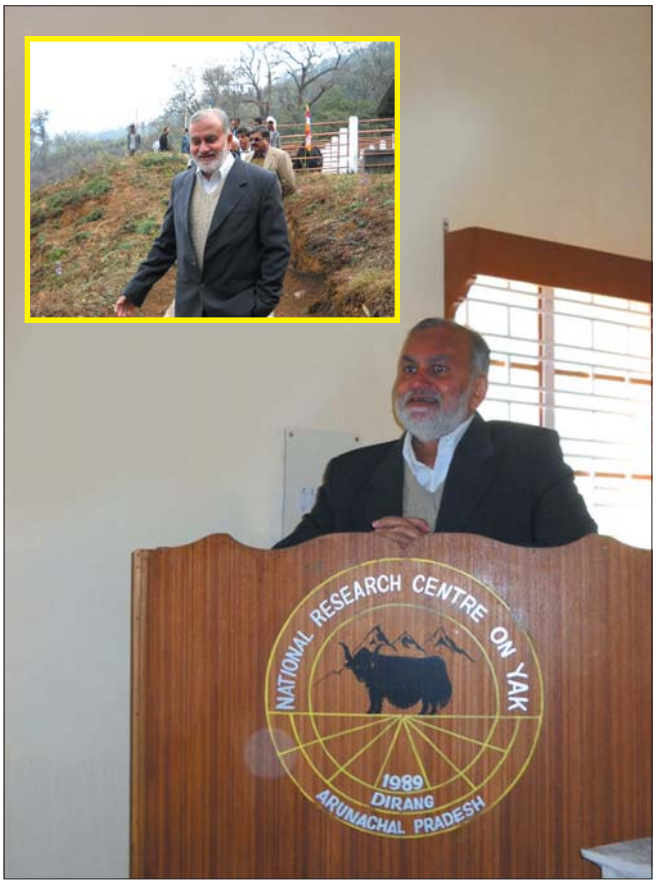
Director General, ICAR visits NRC on Yak, Dirang

Dirang, 26 March 2011. Dr S Ayyappan, Director General, ICAR along with senior officers from ICAR (HQs) and officers of the NEH Region visited NRC on Yak,Dirang. He went round the various laboratories, interacted with the staff and addressed them. During the interactive session he said that ICAR is very much appreciative about the staff working in this very difficult terrain. He emphasized that the institute should develop linkages with Universities within India and in foreign countries who have a major population of this species. He also suggested that the institute should have interface meeting with the state departments and SAUs in stakeholders' meeting involving yak rearers also. Dr K.M.L. Pathak, DDG (AS) welcomed the dignitaries and informed the meeting that Dr Ayyappan is the first DG, ICAR to visit the Centre. Dr K.K. Baruah, Director, NRC-Yak informed about the activities of the institute. Dr S.N. Puri, Vice-Chancellor, CAU, Imphal, Dr A.K. Singh, DDG (NRM), Dr K.D. Kokate, DDG (Agril. Extn.), Dr. S.V. Ngachan, Director, ICAR RC for NEH Region,



Umiam, Dr C.S. Prasad, ADG (ANP) also spoke on the occasion and appreciated the good work being carried out at the institute. The officers of the other ICAR institutes, KVK and state departments and scientists gave their critical inputs.

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New Minister of State for Agriculture and Food Processing Industries

New Delhi, 16 March 2011. A farmer and social worker, Shri Harish Rawat (born on 27 April 1948; B.A., L.L.B) takes over as Minister of State for Agriculture in January 2011. Shri Harish Rawat, a politician from Indian National Congress party, is presently an M.P. representing Uttarakhand in the Rajya Sabha, the Upper House of the Indian Parliament. He has served the nation more than 3 decades in several capacities such as Minister of State for Labour and Empowerment in Government of India from May 2009 to January 2011, Member of Loksabha as well as Rajya Sabha in Parliament.

Administrative Building for KVK inaugurated

Poonch, 15 March 2011. His excellency Shri N.N. Vohra, Governor (J & K) inaugurated the Administrative Building, farmer's hostel and Staff quarters of KVK, Poonch on 15 March 2011. The first lady, Mrs Usha Vohra, Dr B. Mishra, VC, SKAUST(J) and senior officers of the district were also present on this occasion. His Excellency also launched the website of KVK, Poonch (www.kvkpoonch.nic.in) for the benefit of the farming community.

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Trainings

- A seven-day training programme on "Post Harvest Technology on Rural Catchments" for participants from SIRD Asom (Khanapara) at the institute campus, was conducted at CIPHET,Ludhiana on 15 February 2011.
- Training programme on Statistical Modeling in Agriculture was organized at Indian Agricultural and Statistical Research Institute, New Delhi from 15 February to 7 March 2011.
- Training programme on 'on-line article processing' was organized under E-Publishing and Knowledge System and in Agricultural lecture at Directorate of Knowledge Management in Agriculture, New Delhi from 3 to 4 February 2011.
- A three day Entrepreneurial training program on "Chicken Products Processing" was successfully conducted at National Research Centre on Meat, Hyderabad during March 22-24, 2011.
- The Rural Artisan Training Course on 'Fabrication of Grain Storage Structures' was organized by the Ministry of Consumer Affairs, Food & Public Distribution under Indian Grain Storage Management and Research Institute, (Field Station)- (IGSM & RI) Hyderabad in collaboration with Krishi Vigyan Kendra, Karda (Washim) for 10 days. From 22 February to 3 March, 2011 at Krishi Vigyan Kendra, Karda (Washim) for selected 20 rural artisans viz. masons tin sheet workers, black smith etc.
- Training Programme on Recent Advances in Production Technology of Commercial Flower Crops, conducted by Directorate of Floricultural Research, Pusa New Delhi, was inaugurated by the Project Director, Dr T.P. Trivedi, and sponsored by the Project Directors, Agricultural Technology Management Agency (ATMA) from the Districts of Jehanabad and Madhubani, Bihar from 07 to 11 February 2011.
- Two six-day Researchers' Trainings, viz. Data analysis using Statistical Analysis System (SAS) under the aegis of National Agricultural Innovation Project (NAIP), entitled "Strengthening Statistical Computing for National Agricultural Research System (NARS)" were organized at the Division of Livestock Economics, Statistics & Information Technology (LES & IT), Indian Veterinary Research Institute (IVRI), Izatnagar.
- Short Course on Nutritional interventions for clean and green livestock production was held from 3-23 February, 2011 at Division of Animal Nutrition, Indian Veterinary Research Institute (IVRI), Izatnagar.
- Short Course on Recent advances in endocrine control of livestock production and reproduction was organized by the Centre of Advanced Faculty Training (CAFT) in Veterinary Physiology, Division of Physiology & Climatology, Indian Veterinary Research Institute (IVRI), Izatnagar.
- International Training Course on Gene based techniques for research in biotechnology was held between 3-23 March, 2011 at Indian Veterinary Research Institute (IVRI), Izatnagar. It was sponsored by the TCS Colombo Plan, India Millennium Fund, Ministry of External Affairs, Govt. of India
- A three-day National workshop-cum-Training Programme on "Bioinformatics tools for genome analysis" was held from 14-16 March 2011 at Indian Veterinary Research Institute (IVRI), Izatnagar.
- Five National training programmes sponsored under the Directorate of Animal Husbandry, Himachal Pradesh, (Shimla) and Directorate of Animal Husbandry, Lucknow (Uttar Pradesh) were organized at Joint Directorate of Extension Education, IVRI, Izatnagar.The 1st training course on "Recent advances in animal disease diagnosis and their treatment" for veterinary officers was held from 7-14 February, 2011. The 2nd training course on "Modern diagnostic methods and innovative techniques" for veterinary officers was held from 17-26 February, 201i. The 3rd training course on "Control of zoonotic diseases and emergency preparedness" for veterinary officers was held from 26 February to 7 March, 2011. The 4th training course on "Animal disease control and management" for veterinary pharmacists was held from 7-14 March, 2011. The 5th training course on "Diagnosis, treatment, control and eradication of animal disease" for veterinary officers was held from 16-25 March, 2011.
- The Directorate of Rapeseed Mustard Research,Bharatpur, organized one day training-cum-awareness programme on "Protection of Plant Varieties & Farmers Rights Act" (PPV &FRA) on 17 February 2011.

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Personnel

Memorandum of Understanding

- A memorandum of understanding (MoU) was signed between Indian Veterinary Research Institute (IVRI) of ICAR and M/s Hester Biosciences Pvt. Ltd., Ahmedabad on 8th March 2011 for commercialization of two technologies of PPR and Goat Pox vaccines, which were developed by IVRI. The technology commercialization was earlier done by NRDC but this time the institute directly commercialized the technologies through Zonal Technology Management- Business Planning and Development (ZTM-BPD) Unit. The agreement was signed by Prof. M.C. Sharma, Director-cum-Vice Chancellor of IVRI and Mr Rajiv Gandhi, CEO and Managing Director of M/s. Hester Biosciences Pvt. Ltd., Ahmedabad

Protocol Activities

- Shri Rajesh Ranjan (Director, Department of Agricultural Research and Education, New Delhi) visited Maputo, Mozambique on 7 February 2011 (excluding journey time) as a member of the Indian delegation being led by Joint Secretary (Natural Resource Management), Department of Agriculture and Cooperation.
- Dr K.B. Hebbar (Principal Scientist, Head, Division of Physiology, Biochemistry and Post-Harvest Technology, Central Plantation Crops Research Institute, Kasaragod) visited USA for the Norman Borlaug International Agriculture Science Technology Fellowship Programme, 2010 at the Kansas State University for 3 months beginning from February to April, 2011.
- Dr V. Kumar (Senior Scientist, National Research Centre for Banana, Trichy) visited Dominica and to provided his expertise on Horticulture to the Commonwealth of Dominica from 20 December 2010 to 24 January 2011 (excluding journey time).
- Two Egyptian scientists (Dr Mohammed and Dr Hosan EL Din Elhoseny, visited CIRCOT, Mumbai under the Work Plan for 2010-11 between ICAR and ARC, Egypt in the field of 'Cotton ginning, chemistry and by-product utilization, for 2 weeks, i.e. from 2 January 2011 to 15 January 2011.
- Dr Eng. Venancio Massingue, Hon'ble Minister of Science and Technology, Government of Mozambique, along with two officers visited Directorate of Maize Research, New Delhi on 20 January 2011.
- Mr M. Chen Guo, Vice Mayor of Guangzhou of the Foreign Affairs office of the Municipal Government of China visited Indian Agricultural Research Institute, New Delhi on 3 March 2011.
- HRH princess Maha Chakri Sirindhron of Thailand visited Indian Agricultural Research Institute, New Delhi on 10 March 2011.
- Mr Ghani Guriani, Minister of Agriculture and Technical Education, Abjanistan visited Indian Agricultural Research Institute as well as met Director General, ICAR on 14 February 2011 at NASC Complex.

Appointments

- Dr B. B. Singh joined the ICAR (Hqrs) as Assistant Director General (Oilseeds and Pulses) on 27 January 2011.
- Dr B. P. Bhatt joined as the ICAR Research Complex of Eastern Region, Patna on 1 January 2011.
- Dr (Mrs) Malvika Dadlani joined as Joint Director Research, Indian Agricultural Research Institute, New Delhi on 1 January 2011.
- Dr N. Gopalakrishnan joined the ICAR (Hqrs) as Assistant Director General (Commercial Crops) on 1 February 2011.

Retirements

- Dr K. C. Jain (Assistant Director General, Commercial Crops) retired on 31 January 2011.
- Dr A.K. Sharma (Principal Scientist) retired on 31 March 2011.

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