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News in Brief

From the DG's Desk

Dear Readers,

Different models are predicting that the temperature in some parts of India is likely to increase further even up to 4°C coupled with increased uncertainties of weather phenomena like rainfall by the end of this century. Just as abrupt increase in temperature adversely affects agricultural productivity, very high rainfall in short period or short spells of drought during the life-cycle of crops or animals can have similar negative effect. In a country like ours where the farming is predominantly rainfed, the agriculture is at a high risk on account of frequent spells of abiotic stresses. The situation, therefore, warrants technological interventions of advanced nature and highly competent human resource to counter the impact of abiotic stresses on agriculture. A National Network Project entitled 'Impacts, Adaptation and Vulnerability of Indian Agriculture to Climate Change' was launched by the Indian Council of Agricultural Research with focus on a comprehensive understanding of the impacts of global changes on different sectors of agricultural production such as crops, fish, and livestock. The programme is being implemented by the ICAR in a network mode involving 21 research institutes and SAUs. Basic and Strategic Research projects have been launched to understand and mitigate biotic and abiotic stresses in crops, increase feed and energy efficiency of dairy animals, reproductive efficiency of buffalo and small ruminants, and to save seeds and agri-produce. Project in network mode have also been initiated on converting C_3 to C_4 photosynthetic system in rice, Adaptation and facilitation of livestock to impending climatic changes through shelter management (NDRI); Identification of salt

Availability of cutting edge technologies and platform technologies in biotechnology and sophisticated imaging and chemical biology will empower scientists to address given biotic stress-based issues in agriculture using several different approaches

tolerance genes in marine tiger shrimp; Methane emission; gene-based genetic maps and molecular markers for biotic and abiotic stress tolerance in cultivated groundnut; Molecular diagnostics of avian diseases etc. Further, the Council is establishing a National Institute of Abiotic Stress Management, deemed-to-be university in Maharashtra. The important research programme of National Institute of Abiotic Stress Management would be in a matrix mode and conducted through four multi-disciplinary schools. The proposed schools would be on **Drought Stress Management** having primary focus on research for enhancement of abiotic stress tolerance in major crops and livestock; **Atmospheric Stress Management** to study the impact of extreme weather events like elevated CO_2, heat wave, cold wave, freezing injury etc on major crops, livestock and fisheries and developing decision support system for mitigating the effect of extreme weather events; **Edaphic Stress Management** will undertake studies of genetic and molecular basis of tolerance and ion homeostasis under situations of abiotic stress; and **Policy Support Research** for promoting the adoption of mitigation/adaptation strategies for abiotic stresses.

The research in the country to manage biotic stresses in agriculture also has to be addressed through novel scientific approach and requires a sea-change due to rapidly evolving farming systems, climate and impedance of biotic stresses. The recent episodes of disease in important crops and livestock have brought out the inadequacy of knowledge to address basic issues such as generation of pathogenesis in given farming systems. Our existing capability and competence in protecting farm crops and livestock are challenged immensely due to rapid evolution and alterations in the patterns of pestilence and their intensity.

A mini-revolution is essential to tune up the technology of prediction of diseases and pest before overt symptoms appear. Quantifying pestilence-based risk of crop life and metabolism that threaten anticipated crop yields is essential to feature suitable diagnostics and measures of mitigation. Their mitigations demand unconventional approaches, seeking analogies of animal / human health systems in the present times and context. Advances in the fields of biology including molecular aspects as well as in physical sciences have developed cutting-edge knowledge initiatives in nanotechnology and many other areas in material science, provoke intense thoughts for inter-disciplinary interactive research programmes in addressing various applications in protection research.

New forms of therapy for plant-health management such as RNAi derived products, vaccines, novel delivery systems of agro-chemicals and targeted, biological processes could be looked up. Developments in novel biomaterials for micro -and nano-particle encapsulated proteins and other bio-molecules have offered the benefit of targeted delivery and controlled release in human and animal therapeutics. Nano-scale structured materials and devices also hold a great promise for advancement of diagnostics and biosensors. Advances in biosensors and gene amplification are in the offing to enable real time cure of phyto-maladies. Availability of cutting edge technologies and platform technologies in biotechnology and sophisticated imaging and chemical biology will empower scientists to address given biotic stress-based issues in agriculture using several different approaches. Hence, in principle the approval was accorded for the establishment of one institute on each ie **National Institute for Biotic Stress Management** and **National Institute on Biotechnology**. The educational programme is designed to create new opportunities to engage in research and academics by integrating science, engineering and biology to provide tangible protection to agriculture against various stresses and bringing much needed importance in productivity and quality.

It is expected that the state- of -the -art institutions and systems contemplated will provide the necessary protection to our agriculture against the biotic and abiotic stresses through generation of appropriate technologies and also a competent human resource.

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WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

Conservation Agriculture infuses new technologies for sustaining productivity

New Delhi, 7 February 2009. Hon'ble Union Minister of Agriculture, Shri Sharad Pawar, inaugurated the Fourth World Congress on 'Conservation Agriculture', jointly organized by the ICAR and NAAS on 4 February, 2009. Shri Pawar lauded that the theme chosen for this congress, 'Innovations for Improving Efficiency, Equity and Environment' is very relevant and the

Congress is scheduled at an appropriate time as the whole world is seriously concerned with the challenges posed by demands of the burgeoning population. The major concern is to efficiently use irrigation water, avoid problems of water-logging and salinity and at the same time, promote rainwater harvesting and water conservation methods in rainfed areas to enhance their production potential. He added that rainfed agriculture needs a more focused approach on priority because about half of the cultivated area would remain rainfed even after utilizing the irrigation potential fully.

Dr Mangala Rai, Chairman of the International Steering Committee and DG, ICAR, elaborated the role of conservation agriculture in improving efficiency, equity and environment in Indian perspective. He emphasized that by 10% increase in water-use efficiency, country can gain more than 50 million tonnes of foodgrain from the existing irrigated area. Citing nationwide data, Dr Mangala Rai highlighted the success and immense popularity of resource conservation technologies in India and said, it would result in net saving of 1 million barrel oil meaning a net saving of US $44 million. He opined that the deliberations in Congress would develop understanding, strategy and roadmap to address the challenging issues being faced by Indian Agriculture, especially as dwindling natural resources. He highlighted the necessary infusion of new farm technologies to enable the farmers to produce more from per unit of inputs and yet keep the natural resource base and climate in healthy and productive state on long-term basis.

Dr Katherine Sierra, Vice President, World Bank, emphasized that conservation agriculture is an important and prime tool for improving equity and environment.

Dr Thomas A. Lumpkin , Director-General, CIMMYT,

Mexico, regarded conservation agriculture as a means of enhancing resource productivity and efficiency. The basic principles of conservation agriculture include dramatic tillage reductions/zero till, rational crop residue management and diversified crop rotation, that when act together economically benefit the farmers. He opined that conservation agriculture should be brought into the mainstream of crop management research and be closely linked with crop breeders and other agricultural disciplines. Conservation Agriculture must not continue to be sidelined as an alternative development pathway, as it represents our best option for a sustainable future.

While emphasizing the role of conservation agriculture in hunger and poverty alleviation, Professor M S Swaminathan regarded conservation farming as an attitudinal change towards natural resources. Professor Swaminathan stated that the role of Congress in bringing farmers to the forefront as farmers participatory knowledge management is the key to success in Indian agriculture. He appreciated the efforts of Government of India in releasing the first ever National Policy on Farmers.

Technical Sessions were held on various issues: Soil and residue management, Input management, Genetic strategies, Participatory approaches and partnerships, Integrated approach for technology development and dissemination, Capacity building, Enabling policies, and Biodiversity associated with conservation agriculture. An agri-tech exhibition was also organized for showcasing the information, publications, technologies, implements and farm machinery for conservation agriculture.

Field visits

On 7 February, 2009. A field visit was organised by CIMMYT, IRRI/RWC and Sardar Vallabh Bhai Patel University of Agriculture and Technology (SVBPUAT), Meerut. The delegation had 35 scientists belonging to Mexico, USA, South Africa, Australia, Philippines, Uzbekistan, Bangladesh and India. The delegation was accompanied by Directors-General of CIMMYT, Mexico, and BARC, Bangladesh. The delegation visited Matiala and Kajampur villages of Ghaziabad, Gadiana village of Meerut and Sardar Vallabh Bhai Patel University of Agriculture and Technology (SVBPUAT) research farm.

Prof. M P Yadav and Dr T Lumpkin, DG, CIMMYT, stressed for long-term collaboration with CGIAR on research and dissemination aspects of new conservation technologies for the benefits of farmers.

Participants visited the SVBPUAT-IRRI/RWC long-term experiment on different tillage and crop establishment methods and observed that there was a net saving of water, labour and energy in zero tillage system leading to higher net income.

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Remarkable Growth in Agriculture: 80th Annual General Meeting of ICAR

New Delhi, 20 January 2009. Hon'ble Union Minister of Agriculture, Shri Sharad Pawar chaired the 80th Annual General Meeting of the ICAR Society. He said that timely supplies of inputs provide the impetus for higher agricultural production and productivity. Shri Sharad Pawar, lauded that the ICAR has launched

a unique project on 'More crop and income per drop' in farmers' participatory mode, which will promote efficient and judicious use of irrigation water. He added that annual fish production of over 6.8 million tonnes has become possible mainly through research, capacity building and technology transfer by the ICAR. Shri Sharad Pawar announced that 78 new Krishi Vigyan Kendras including 50 additional KVKs in large districts as a major initiative have been approved. To ensure quick, regular and quality delivery of improved technologies in the present knowledge-intensive era, e-connectivity to 200 Krishi Vigyan Kendras is being established.

Dr Mangala Rai, Secretary, DARE and DG, ICAR said that successful development of first public sector transgenic *Bt* cotton variety Bikaneri Narma (BN Bt) which has been developed for commercial cultivation and farmers can reuse seeds of this variety year after year. He focussed on birth of the world's first

Vice-Chancellors' Conference

New Delhi, 17 February 2009. Hon'ble Union Minister of the Agriculture, Shri Sharad Pawar, inaugurated the Annual Conference of the Vice-Chancellors of the State Agricultural Universities, Central Agricultural University and Deemed Universities on 16 February 2009 at NASC Complex.

Dr S P Tiwari, DDG (Eduation), ICAR, in his welcome address highlighted the agenda for the deliberations

cloned buffalo and also birth of first Mithun calf in India through Artificial Insemination. He added that ICAR has developed 117 varieties and hybrids of different crops.

Dr Mangala Rai focused on functioning of National Research Centres to work in Directorate mode on Groundnut, Rapeseed-Mustard, Soybean, Sorghum, Oilpalm, Cashew, Medicinal and Aromatic Plants, Mushroom, Onion and Garlic, Floriculture, Water Management, Cold-water Fisheries, and Women in Agriculture. The National Bureau of Agriculturally Important Insects was established by reorienting Project Directorate of Biological Control. To protect agriculture from the increasing abiotic stresses through technological intervention, a state-of-the-art National Institute of Abiotic Stress Management is contemplated.

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of the Conference, which besides other subjects included "Restructuring Post-Graduate curricula and syllabi". He briefly stated that the funding has been increased and several new initiatives including that on "Modernization of AU Farms" have been taken consequent upon the CCEA approval for the XI Plan. About a dozen of new initiatives with enhanced funding and educational reforms were noted by him to coincide with the completion of 50 years of formal higher agricultural education in the country. The "Felicitation of scientists/other contributors involved in basmati rice variety/hybrid improvement" by the Hon'ble Union Agriculture Minister followed.

Dr Mangala Rai, Secretary DARE & DG, ICAR, presented a brief account of the new programmes like Modernization of Agricultural University Farms, funding to century-old historical agricultural colleges, Sports Complex, Educational Museums, Overseas Fellowships, faculty exchange, Guest, and Adjunct Faculty, Personality Development, Counseling of students, Tutorials for SC/ST students etc. as approved for the XI Plan. Dr Rai stated that a significant increase in the education budget has been brought about in the XI Five-Year Plan. He stated that Agricultural Universities should not lose sight of long-term goals that may have a long gestation period as is usual with agriculture research to fructify.

Shri Kanti Lal Bhuria, Hon'ble MoS (A) in his address appreciated the Agricultural Universities for their efforts in producing quality human resource required for research, eduation and extension activities in Agriculture and allied sciences. He stressed the need to create IPR awareness and expertise in scientists and students through specific courses and training. The need is to reorient courses for students and provide real-life project situation, he said.

Hon'ble Union Minister of Agriculture, Shri Sharad Pawar, congratulated all the scientists and other contributors involved in 'Basmati' rice improvement. He urged the congregated Vice-Chancellors to bring strategic transformation in agricultural research, education and development systems for an accelerated and inclusive growth in agriculture. He stated that the promise made in the VC's Conference at Pantnagar has been fulfilled and, as demanded, a new initiative on "Modernization of Agricultural

University Farms" has been approved with an outlay of Rs 422 crore. Consequent upon expeditious clearance of the CCEA, this project has been operationalized from this year itself.

Hon'ble Agriculture Minister appreciated the singular and massive exercise of PG Course Curricula revision underaken by the Education Division of the Council in the wake of new cutting-edge technologies and demanding global scenario. He showed his satisfaction with the functioning of experiential learning units and niche areas of excellence programmes started by the Council to serve the cause

of excellence and unifying knowledge and skill in education. Another new initiative i.e. "Overseas Fellowships" was perceived by the Minister as a much needed mechanism to serve a dual objective: (*i*) facilitating education of Indian nationals in one of the best University abroad, and (*ii*) facilitating admissions of foreign students in Indian Agricultural Universities towards demonstrating the strength of Indian agricultural system at global level. He said that in view of rapidly increasing number of girl students, up to 2 girls' hostels to each Agricultural University are to be provided in XI Plan alongwith other girls-related amenities.

Dr Mangala Rai, Secretary, DARE & DG, ICAR chaired the technical session and following important agenda items were discussed:

- Restructuring Post-Graduate curricula and syllabi;
- Issues in the management of Plant Genetic Resources;
- Performance Assessment of Agricultural Universities;
- Revision of ICAR Model Act for Agriculture Universities;
- Parameters for accreditation of Agricultural Universities; and
- Implementation of All-India Coordinated Research Project on Integrated Farming Systems Research.

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Directors' Conference

New Delhi, 16 January 2009. Shri A K Upadhyay, Secretary, ICAR, said that the performance of agriculture sector in the last few years has been impressive, and consequently the role of ICAR has also come in for praise. However, there was no room for complacency. The sector being subject to vagaries of nature and susceptible to climate changes, we have to be constantly moving ahead in research efforts.

On 15 January 2009 Dr Mangala Rai, Secretary (DARE) and DG (ICAR) initiated the meeting with a review of action taken pursuant to deliberations in the previous meeting of Directors held from 16 to 18 July 2007 were made.

Gene bank

Director, NBPGR appraised that the guidelines for conservation of genetic resource have been developed and the gene bank would start functioning by March 2009. The DG, ICAR said that the other bureaus should also develop guidelines for conservation of valuable genes and DNA.

Review of ATR

After review of ATR other items of agenda were discussed and following observations were made:

- Review of progress in settlement of outstanding audit paras
- Review of progress in adjustment of outstanding advances
- Review of progress of settlement of outstanding inspection reports/local audit paras
- Enhancement of powers of Directors of ICAR institutes for security contract

Intelligent reporting system

It was observed that at some of the institutes the Intelligent Reporting System client software has not so far been installed. It was observed by the DG that such institutes should take expeditious steps to ensure installation of the software and all the institutes should start reporting through this system.

Implementation issue of NAIP

The National Director, NAIP appraised implementation issues related to technical, financial

and procurement aspects. The technical aspects related to completion of base-line surveys, constitution of CMU, functioning of CICs, SACs, timely submission of quarterly/half-yearly/annual progress reports, documentation of process reforms, success stories etc. The financial aspects related to preparation of accounts, non-submission/late submission of SOEs, non-opening of separate bank accounts, non-submission of AUCs and poor utilisation of funds etc. The procurement aspects related to non-maintenance of procurement/contract registers in the prescribed format, non-compliance of World Bank procedures and preparation of bidding document in the prescribed format, non-preparation of annual procurement plan etc. It was emphasised that concerned Directors should take note of these points and help to expedite full compliance.

Role of information and communication in agriculture

Project Director, DIPA made a presentation on role of information and communication in agriculture. The research content of popular magazines may be increased by encouraging scientists working in the institutes to write for these magazines. Success stories should also be incorporated. Efforts should be made to increase the circulation of these magazines, and institutes and KVKs should take steps to popularise ICAR publications.

Collaboration between ICAR institutes and State Agricultural Universities in the field of higher agricultural education

The collaboration between ICAR institutes and State Agricultural Universities would be beneficial for all stakeholders. Matter may be further discussed in the forthcoming Vice-Chancellors conference.

Degree programme at NAARM

It was observed that a degree programme in an appropriate area of management would be initiated at NAARM from the next academic session.

Course on Bio-informatics

It was observed that Director, IASRI may develop a course on Bio-informatics in consultation with Director, IARI.

Development of framework for utilising research at SAUs for collaborative region specific research projects

It was observed that possibility of procuring funds under the *Rashtriya Krishi Vikas Yojana* (RKVY) may be explored for collaborative region specific research at the SAUs.

Bio-security and Bio-safety

Director, NBAIM, made a presentation on Bio-security and Bio-safety. It was observed that there was need to develop good agricultural practices and good laboratory practices. For this purpose, NAARM may initiate a foundation course on good laboratory practices.

The DDG (Edn.) may initiate action to develop course curriculam on Bio-security and Bio-safety for the agricultural universities. There is also need to increase general level of awareness in this regard for which user friendly literature may be produced.

Internet connectivity

It was observed that some of the institutes are facing difficulty in regard to internet connectivity due to unsatisfactory performance by ERNET in some areas.

It was decided that institutes can seek Council's approval for end-to-end solution to increase bandwidth as per their requirement from any service provider. ICAR is in the process of developing intranet connectivity for all the institutes through ERNET for hosting advanced applications incorporating necessary security measures against possible threats to our IT resources. Once ERNET connectivity is in place, it would be expected that the institutes will get the leased line disconnected, unless specific approval is taken on case by base basis for retention of dual connectivity for important operations. For detailed guidelines visit us at http://www.icar.org.in website and browse circular No. 2-3/2005 ARIS dated 23 January 2009.

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Harvest, post-harvest losses in fisheries

Cochin, 13 February 2009. A 1-day Workshop on "Assessment of Harvest and Post-harvest losses in Fisheries in India" was held at Central Institute of Fisheries Technology. Forty-two participants from CMFRI, CIFA, CIBA, CIFE and CIFT attended the Workshop.

Dr B. Meenakumari (Director, CIFT) mentioned about the NATP work performed between 2001 and 2004 on both marine and inland sectors. The house discussed whether the definition as well as the methodology adopted for the study is sufficient or needs any modification for undertaking a project at national level. The modalities of the project was discussed by the group and it was decided to work out a proposal for the assessment of Harvest and post-harvest losses in fisheries in India.

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Protection of plant varieties and Farmers' Rights

Bhubaneswar, 16 March 2009. Dr Ajay Kumar Mohapatra, Chief Executive, Regional Plant Resource Centre inaugurated Awareness Workshop on Protection of Plant Varieties and Farmers' Rights which was organized by the Directorate of Research on Women in Agriculture and was sponsored by Protection of Plant Varieties and Farmers' Rights Authority.

The farm-women, farmers and scientists from OUAT, ICAR Institutes and State Government Departments attended this workshop. The objective of the workshop was to create awareness among the stakeholders, especially farm-women, on the importance of Protection of Plant Varities and Farmers' Right regulations, its implementation and benefits to the farming community.

Recommendations

- More efforts should be made to create awareness among the farmers about their role in registering the land races and farmers varieties and the required information should be made available to the farmers' in local language in simple format and also through media.
- There is a need to involve and train village level workers, members of *Gram Panchayats* and farmers' associations such as *Krishak Sathi* and Self-Help Groups to mobilize and facilitate farmers to take advantage of the provisions of the PPV & FR Act.

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Rural developmental alternatives: sectoral convergence for livelihood security

Farah, 18 January 2009. Dr C.D. Mayee, Chairman, ASRB, Chief Guest, emphasized the need of continuous development of agriculture sector in general and animal husbandry sector especially for the development of the country. A National Seminar on 'Rural India Developmental Alternatives: Sectoral Convergence for Livelihood Security' was jointly organized by Central Institute for Research on Goats, Makhdoom and MOBILIZATION Society, New Delhi on 16 January 2009. The issues and recommendations emerged from Technical Sessions were: (*i*) Sustainable development alternatives: technological options and

innovative methodologies, (*ii*) multiple livelihood avenues, agri-business opportunities, livestock industry and entrepreneurship development, agri-enterprises, rural cottage industries and support system, (*iii*) empowering and enabling farmers for global competitiveness: capacity building, self-help groups and agrarian distress management, (*iv*) ICT and innovative technology delivery mechanism in agriculture and livestock sector- kiosks and information access of farmers, (*v*) sectoral convergence-public, private, partnerships: private extension, marketing and information support and (*vi*) sustainable rural development in livestock and agriculture and gender mainstreaming. Progressive farmers, practitioners and scientists were honoured for their contribution by the MOBILIZATION Society at this seminar in which 300 participants were present.

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Seed production in agricultural crops and fisheries: Annual Review Meeting

New Delhi, 06 January 2009. Annual Review Meeting of ICAR Seed Project "Seed Production in Agricultural Crops and Fisheries", organized by Directorate of Seed Research, Mau, was started on 5 January 2009 at NASC Complex.

Dr Mangala Rai (Secretary, DARE and DG, ICAR) apprised the august gathering of scientists from ICAR-SAU system about the significant impact of the Seed Project in enhancing the availability of quality seed/ planting material and fish seed in the country. He focused on three major factors for successful seed programme— 'Single Window System' for effective management of the programme, 'Revolving Fund' for working and maintenance of the programme, and 'Rolling Plan of Seed Production' for viability of the programme, where obsolete varieties need to be avoided from the programme and productive new varieties are to be added regularly. He further emphasised the necessity of Public-Private Partnership in hybrid seed production. Dr Mangala Rai said that transgenic crops are the order of the day to meet the challenges of climate change, malnutrition and to provide the food security to the ever increasing world population.

Dr H P Singh, DDG (Horticulture) remarked that main focus of Horticulture Division will be on production of disease-free seed of turmeric and potato through tissue culture. Dr S. Ayyappan, DDG (Fisheries) said that 35 co-operating centres operating under this project, 30 were not having even basic facilities for fish seed production and now these centres are capable to produce fish seed. He added that under this project many new species have also been included to the seed production programme for diversification.

Recommendations

1. All Krishi Vigyan Kendras should have demonstration plots of newly released varieties/ planting materials and demonstration for fisheries component also. KVKs located in tribal areas should also include piggery component in their demonstrations.
2. Selection of parents in the process of development of new varieties/hybrids should be done keeping in view seed production of the variety/hybrid.
3. National Research Centre on Cashew, Puttur should produce planting material of those good varieties which private nurseries are not producing to avoid marketing problems.
4. State Agricultural Universities and Research Centres of ICAR should have the information on availability of breeders.
5. State Agricultural Universities should have vermicompost facility on their farms to recycle the farm by-product wastes, and vermicompost thus produced can be used to improve soil-health.
6. Revolving fund is a commercial activity and profit has to be made out of that. Therefore, centres should take seed production programme of only those varieties/hybrids, which are commercially viable and profitable.
7. Seed standards and quality control parameters for mushrooms, fisheries and *Rhizobium* need to be developed.

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Front-line demonstrations of Oilseeds and Pulses

Akola, 31 January 2009. The 3-day State level Krishi Vigyan Kendra's Workshop-cum-Review Meeting on Front-Line Demonstrations of Oilseeds and Pulses was started at Dr Panjabrao Deshmukh Krishi Vidyapeeth, Akola on 29 January 2009. Dr V M Mayande, Vice-Chancellor of this University, highlighted the importance of Front-line Demonstrations to increase the productivity of crops. It is urgent need to make the constraint analysis. Feed back mechanism should be strengthen and due care should be taken for effective implementation of the programme.

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Gastro-intestinal parasitism

Avikanagar, 6 January 2009. The 2-day Annual Scientist Meet of Network Project on 'Gastro-intestinal Parasitism' was started on 05 January 2009 at CSWRI under the chairmanship of Dr Lal Krishna, ADG (Animal Health), ICAR.

Recommendations

- Epidemiology of different Network programmes focused on the following: gastro-intestinal parasites in different agro-climatic zones revealed moderate to severe infestations amongst different livestock.
- A forecasting software model 'FORGIN' has been developed for arid and semi-arid region of Rajasthan and predictions for haemonchosis was made.
- Garole sheep for breed resistance did not reveal absolute resistance against *Haemonchus*, however, low egg count was seen.
- Western blotting to detect infection in prepatency phase in *Haemonchus* and *Bunostomum* has identified specific polypeptide.
- 36 kDa of excretory antigen of *Ascaris suum* has been found diagnostic and H-11 polypeptide of gut antigen of *H. contortus* showed protective immune response.

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NABARD stresses on aquaculture for rural development

Bhubaneshwar, 17 January 2009. As many as 22 District Development Managers of NABARD, the apex refinancing agency for agriculture and rural development attended the "Scientists-Managers Interface Meet' held at CIFA, Kausalyaganga. Welcoming the Managers, Dr Ambekar E Eknath, Director of CIFA, complimented the liasoning provided by the NABARD between credit agencies and development departments and urged them to be the 'change agents' and improve the life of millions living in rural areas. Shri M K Mudgal, General Manager NABARD said that DDMs would generate greater demand for institutional credit. Composite carp culture, prawn farming, fish seed production, ornamental fish farming etc. are becoming popular and would pave for fast socio-economic development. They were familiarized with the 'transferrable technologies' developed by the institute for dissemination.

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XII Meeting of Research Advisory Committee

Bharatpur, 7 February 2009. The 2-day Research Advisory Committee of the National Research Centre on Rapeseed-Mustard Meet was started on 6 February 2009 under the chairmanship of Dr J.B. Chowdhury (Ex-Vice-Chancellor, GBPUAT, Pantnagar). Dr Chowdhury said that scientists should take up the challenge, re-orient their research programmes focussing on the need of the farmers of all mustard-growing tracts of the country. Low cost technology should be developed which can easily be adopted by the farmers. The ultimate objective of any research programme is to develop useful technology for farmers, therefore, research programme should be oriented to develop technology that can be suited to the needs and resources of the farmers. He also emphasized that there should be better and effective coordination among various line departments to augment the transfer of agriculture technology to the farmers.

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Stakeholders' meet for farm-women

Bhubaneshwar, 31 January 2009. Shri U P Singh, Commissioner-cum-Secretary, Department of Agriculture, Government of Orissa inaugurated the meet as the Chief Guest and released a background paper. Directorate of Research on Women in Agriculture has organized 1-day Stakeholders' Meet on "Strategy for gender sensitive extension for agriculture and allied field". About 70 participants from different states attended stakeholders' meet. Dr Srinath, Director explained the challenges relating to empowerment of women in agriculture including the role of agriculture information and technology transfer. The one day programme consisted of three technical sessions that covered scenario, regions specific changes, research and development strategy, gender issues in extension, innovative practices, methods, system and institutional mechanism for a gender sensitive extension.

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E-Publishing and Knowledge System in Agricultural Research Launch workshop

New Delhi, 19 March 2009. Dr Mruthyanjaya, National Director, NAIP, inaugurated 1-day launch workshop on 'E-Publishing and Knowledge System in Agricultural Research' and focused on the efforts of Directorate of Information and Publications of Agriculture in developing the project through which a suitable software solution for the e-journal publications, production, archival will be developed to provide improved communication link among information generators i.e. public research organization, and its users, viz. researchers, farmers' groups *Panchayati Raj* Institutions, private sectors and other stakeholders. He added that parameters should be formed so that progress may be evaluated in the end of the Project. Dr N T Yaduraju, National Co-ordinator, NAIP, hoped that this project may also connect agriculture communiity like other social IT networks.

Dr T P Trivedi, Project Director, DIPA informed that an effective marketing and promotion strategy will also be implemented through outsourcing, so that the e-journals are visible through other important databases as well. Shri Himanshu, Principal investigator informed that project is for 3 years and 5 months with total outlay of Rs 346.09 lakh. He added that probable outcomes of the project are: Global visibility of technologies generated by NARS/ ICAR; enhanced clientele subscriber base and

revenue; database will help reducing the duplication of research efforts; easy flow of information through e-channels, to help policy makers and information users to take advantage of it for harnessing the knowledge benefits; automation of processes saves time and resources and enables faster information dissemination; and trained manpower in e-publishing.

In the technical session papers were presented on E-publishing its Research Journals and Business Models, Governance of Research Journals Publishing Electronies Repositores and Archival, and Governance of ICAR Journals.

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Allele mining and bio-prospecting in genetic resources

New Delhi, 30 January 2009. The National Academy of Agricultural Sciences and National Bureau of Plant Genetic Resources jointly organized a workshop on 'Allele mining and bio-prospecting in genetic resources' with the objective to exchange ideas on scientific, financial and policy aspects of allele mining and bio-prospecting and bringing out recommendations for operationalization at central and institutional levels. The significant aspect of the workshop was that shared as well as exclusive demands of different systems (plants, animals, fishes, insects and microbes) were taken into account throughout. The topics discussed comprised regulatory guidelines; choice of species; identification of problems; expected outcome; techniques and methodologies framework; human resource development; and budgetary requirements of research on allele mining and bio-prospecting. It was concluded that instead of developing a new institute and duplicate infrastructure, scientists gain by exploiting the expertise of different ICAR institutes on the related areas to achieve a common objective necessitating intra- and inter-institutional collaborations. The major criteria were availability of genomic resources, phenotyping efficiencies and indigenousness of the species (comparative advantage). Discussions resulted in deciding that allele mining as well as bio-prospecting is to be done in plants, whereas only the latter to be emphasized in animals, microbes, insects and aquatic resources.

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Technology gap analysis study for food processing industry cluster of Malda, West Bengal

Malda, 28 January 2009. Central Institute for Subtropical Horticulture, Lucknow organized a Validation Workshop of the project "Technology Gap Analysis Study for Food Processing Industry Cluster of Malda" at Malda on 28 January 2009. The project was sponsored by Technology Information, Forecasting and Assessment Council (TIFAC), New Delhi. The Chief Guest, Shri Sailen Sarkar, Minister of Parliamentary Affairs and Environment, Government of West Bengal while inaugurating the workshop said that food processing industry has tremendous potential in providing employment and increasing incomes. It is in position to absorb the surplus production of fruits and vegetables and convert it into value added products. These products need to be of very high quality for the international markets. He assured the commitment of the West Bengal Government towards the creation of necessary infrastructure and pave the way for increasing the exports.

Dr B M C Reddy, Director, Central Institute for Subtropical Horticulture, Lucknow presented the theme of the workshop and the activities of the institute for the benefit of the participants. He informed the house that the institute conducts trainings on production, protection and post-harvest management including value addition of subtropical fruits under sponsorship of various agencies. The funding could be from the National Horticulture Mission, State Horticulture Mission, National Horticulture Board etc. Er. M D Singh, Project Consultant and Head, PHM, CISH presented the detailed survey report undertaken under the active supervision of Co-consultants. The technology gaps, identified during the survey by CISH team, were lack of knowledge of good cultivation practices, proper harvesting stage, storage and transportation for export, unavailability of proper packaging materials, poor sanitation and hygiene in processing industries, inefficient marketing etc. Very few processing industries had registered themselves with the Government and amongst them only few had FPO license. Establishment of R&D laboratory including quality control and food processing laboratories and irradiation facility were recommended to bridge these gaps. The project also recommended exhaustive training of the entrepreneurs in order to upgrade their technical skills.

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Challenges of providing potable water to the islands

Port Blair, 20 January 2009. The National Water Seminar on the theme 'Challenges of providing potable water to the islands' was inaugurated by Dr Alok Saxena, Managing Director, Andaman & Nicobar Islands Forest and Plantation Development Corporation Ltd. He said that water is the essence of life and wherever there is more forest, there is more water. Though these islands have unpolluted water resources, still water- borne diseases are prevalent; and called upon the stakeholders, to think seriously about the initiatives in bringing about an affective management of safe drinking water. He opined that the seminar would come out with positive results and recommendations for better management of safe drinking water in these islands.

The seminar was designed to bring together government, NGOs and people from the grassroot level to examine the complexities of providing potable water in an island environment with three focuses: water resource development, water quality and community management.

Dr R C Srivastava, Director, CARI in his presidential address underlined the need for transfer of technological methods in finding suitable location for developing groundwater resources such as wells etc. to the stakeholders and to entrust the management of the existing resources to them as also to ensure quality and quantity as well as proper management. This will change the mindset of the stakeholders and also lead to self-dependence, self-sufficiency and safe drinking water, he said.

The Chief Secretary, Shri Vivek Rae who graced the function as the chief guest on the valedictory day said that analyzing the problems prevailing in these islands is very important while preparing recommendations for solving the drinking water problems. There is need to address the drinking water problem at the micro, village and panchayat level wherein the PRIs have a greater role to play in mitigating the drinking water problem

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XVIII Workshop of AICRP on Home Science

Hisar, 20 February 2009. The 3-day XVIII Workshop of AICRP on Home Science was inaugurated by Dr H P Singh, Deputy Director-General (Horticulture) and In-charge, Agricultural Extension, ICAR at CCSHAU, Hisar on 18 February 2009. Dr J C Katyal, Vice-chancellor, CCSHAU presided over the inaugural function. The AICRP on Home Science, initiated during the VIII Plan, was transferred to Directorate of Research on Women in Agriculture, Bhaubaneswar in 2007 from the Agricultural Education Division, ICAR, New Delhi. Presently the project has nine co-ordinating centres including CCSHAU, Hisar; PAU, Ludhiana; UAS, Dharwad/Bangalore; MPUAT, Udaipur; ANGRAU, Hyderabad; GBPUAT, Pantnagar; MAU, Parbhani; AAU, Jorhat; and CSKHPKV, Palampur.

The 3-day workshop reviewed the progress of the work carried out on Food and Hutrition, Family Resource Management, Child Development, Clothing and Textiles, and Home Science Extension Education for 2007-2009. The salient achievements include creation of gender specific database of farm families, extension methodologies, drudgery assessment in farming operation and validation of tools and equipment promotion of nutritional knowledge to farm families, development of vocational skills among adolescent girls, value addition to under utilized natural fibre resources and utilization of degradable and non-degradable farm waste.

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Weed Control, AICRP Meet

Bikaner, 28 February 2008. Dr Pratap Narain, Vice-Chancellor, RAU, Bikaner inaugurated Annual Group Meeting of All India Co-ordinated Research Project on Weed Control, organized by Directorate of Weed Science Research, Jabalpur on 27 February, 2009 at Rajasthan Agricultural University. He emphasized on weed biomass utilization particularly aquatic weeds for the generation of energy. He asked the planners to bring about public participatory programme on *Parthenium* control.

Recommendations

1. Weed survey and surveillance should always be carried out after bench mark survey. The change in weed shift should always be correlated with cropping pattern, herbicide use and climatic conditions. The record of weed survey should be properly maintained. Besides scientific analysis the farmers' view point may also be taken into consideration.
2. IWM module should be developed for different crops under varied situations. Weed control technology should not be only herbicide dependent.
3. Tillage studies should always be discussed in the light of soil type.
4. Crop residue management studies should be strengthened.
5. Recommendations available in parasitic weed management can be further tested particularly for Striga management in Tamil Nadu.
6. Water hyacinth could be used for energy generation.
7. For avoiding the ill effect of herbicides if any, for longer duration proper crop and herbicide rotation should be adopted.
8. The studies on secondary metabolites should only be carried out at headquarter or at the centres where advance or sophisticated facilities are available.
9. No herbicide should be recommended for registration without residual toxicity and data on soil microbial properties. Decision is to be conveyed to Chairman, Registration Committee.
10. Success stories, based on technology development can be brought in record for wide circulation.

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International Linkages

India-Nepal signed a 'Co-operation Work Plan'

New Delhi, 3 February 2009. India and Nepal signed a Work Plan for 2009-10 on Co-operation in Agriculture. The MoU is made between the Indian Council of Agricultural Research and the Nepal Agricultural Research Council, Nepal. Dr Mangala Rai (Secretary, DARE and DG, ICAR) and Mr Parashuram Lal Karna, the Executive Director, Nepal Agricultural Research Council signed the MoU.

Signing the agreement, Dr Mangala Rai said, the technical co-operation between the two countries would be implemented in various areas in agriculture. Under MoU, exchange of germplasm and biological material for research purpose will be mutually agreed upon. The exchange of germplasm would be subject to regulatory regime in the respective countries.

The Work Plan for 2009-10 between ICAR and NARC will provide for study visits, exchange of scientific information and training of scientists and experts. The Nepalese scientists and officials will get training in the areas of hybrid seed production technology in vegetable seeds, ginger and grape improvement, carpet wool production, animal and veterinary biotechnology, fish breeding, etc. Both countries will co-operate with common objectives to promote and accelerate the progress of research and training in various fields of agriculture, such as exchange of scientists and technologists; germplasm and breeding material, programme of common interests. Such co-operation shall be implemented by establishment of mutual relation between the scientific and technical divisions of the organizations of the ICAR and NARC.

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IRRI agreement strengthens India in rice research

New Delhi, 20 January 2009. An international agreement, signed between Indian Council of Agricultural Research and International Rice Research Institute, Philippines, will support and facilitate India's rice research for the next three years.

The present Work Plan (2009-2012) includes agreements on three major projects supported by the Bill and Melinda Gates foundation: Stress-tolerant rice in Africa and South Asia (STRASA) for poor farmers ; the Cereal systems initiative for South Asia (CSISA); and Creating the Second Green Revolution by supercharging photosynthesis: C_4 rice.

STRASA aims to develop and distribute improved varieties of rice that can be grown in rainfed ecosystems, where farmers have little or no access to irrigation and withstand environmental stresses such as drought, submergence and salinity.

CSISA's 10-year goal is to produce an additional 5 million tonnes of grain annually and increase the yearly income of 6 million poor rural households by at least $350. The initiative will employ innovative public-private partnerships for delivery of technology to farmers.

Dr R. S. Zeigler, Director-General, IRRI said, "the agreement will develop, promote and accelerate rice research and training efforts between IRRI and ICAR." The renewed collaboration will also provide important support for India's other investments in agriculture and help India to strengthen its science capacity.

Dr Mangala Rai, Secretary, DARE and Director-General, ICAR stated that the Work Plan for the next 3 years will focus on genetic resources conservation, evaluation, and enhancement; enhancing productivity and sustainability of intensive cereal systems; improving productivity and livelihood for fragile environments; and strengthening linkages between research and development. Dr Mangala Rai further stated that by converting rice from C_3 to the more efficient C_4 photosynthesis, more carbon dioxide could be utilized and more grain could be produced. There will be enhanced crop information management system through Indo-IRRI Collaborative breeding programmes.

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Foreign scientists visited at NRC on Rapeseed Mustard

Bharatpur, 4 February 2009. Scientists (21) from Poland, Czech Republic, Australia, Britain, France, Germany, China, Denmark, Canada and South Korea working in rapeseed-mustard research visited National Research Centre on Rapeseed-Mustard. Dr Arvind Kumar (Director, NRC on Rapeseed Mustard) informed about the research programme of reducing Erusic and Glucosinolate acid in Indian mustard for world market and said that breeder seed of different rapeseed-mustard varieties are produced in sufficient quantity by the research centre, while required quantity of foundation and certified seeds are produced by different seed agencies for making them available to the farmers.

The group of scientists also visited experimental fields of hybrid development, germplasm evaluation, insect and disease management, etc. at National Research Centre on Rapeseed Mustard and a private oil processing unit at Bharatpur.

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H E President of Chile visited NBPGR

New Delhi, 16 March 2009. H E President of Chile, Michelle Bachelet led 15-member delegation, visited National Bureau of Plant Genetic Resources. His visit

will strengthen the linkage between India and Chile in the areas of Science and Technology and Agriculture particularly the plant genetic resources and conservation of genetic diversity. They evinced a great interest in visiting the National Seed Genebank and Cryobank where they were explained/ demonstrated as to how various conservation strategies are being followed for different crops.

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Indo-US Agricultural Knowledge Initiatives

New Delhi, 18 March 2009. Shri A K Upadhyay, Additional Secretary, DARE and Secretary, ICAR inaugurated 2-day workshop on 'Linking Farmers and Agro-based Small and Medium Enterprises to Markets' under Indo-US Agricultural Knowledge Initiative, organized by National Centre for Agricultural Economics and Policy Research on 17 March 2009. Shri Upadhyay emphasized the need for better agricultural marketing and higher efficiency, in such a way that farmers are able to enhance their income and receive greater share in consumer price. The specific objectives of the workshop were to: (*i*) take stock of research and development in agribusiness and future opportunities in education and human resource development in agribusiness in India and the USA, (*ii*) identify agribusiness models linking research and development system with farmers and agro-based small-medium enterprises in India and the USA; and (*iii*) develop mechanisms to adapt and up-scale the successful models for sustainable growth of agribusiness in India. The workshop was attended by about 100 delegates representing agricultural professionals, policy advisors, research managers, corporate leaders and representatives of NGOs from India and the USA.

Ms Holly Higgins from US Embassy in India, remarked that Indo-US partnership under AKI is moving in right direction and hoped that agribusiness would help small farmers to improve their livelihood. Dr Mort Neufville, leader of the US delegation, emphasized the need for strengthening existing partnership among academia-institution-farmer to learn from each other and help farmers to move out of hunger and poverty.

The workshop was organized into four technical sessions: (*i*) overview of agribusiness in India and US, (*ii*) successful models: research-industry-farmer interface, (*iii*) regulatory and quality issues in agri-marketing, (*iv*) agribusiness education and human resource development. The concluding session was devoted plan to future partnership between India and United States of America on agri-business related issues in research and education.

Recommendations

The major recommendations of the workshop are as follows:

- *Internship programme in agribusiness*: A team from both India (SAUs and ICAR institutions) and US (land-grant universities) should develop internship programme in agribusiness for students after visiting institutions each other.
- *Models of linking farmers—Research and Development Systems and Agribusiness:* Some well tested models of linking-farmers research and development system and agribusinesses in the US may be pilot tested in selected places in India and based on experiences, appropriate models may be evolved for a large-scale promotion. NAIP experiences in India of linking different stakeholders may be institutionalized.
- *Capacity building of faculty in agribusiness:* There is a need to develop programmes for capacity building of teaching faculty in agribusiness in consultation with US counterparts. The course should be blend of technical, communication skill and behaviourial sciences.
- *Knowledge sharing:* Research and Development system and universities from India and US should share knowledge by holding joint workshop.
- *Joint Research Programmes:* Joint research studies may be conducted in the area of agribusiness to evolve successful models and case studies.

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HRD/Capacity Building/Awards

Following trainings were conducted at ICAR research organizations

Molecular markers and their applications
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Current techniques for genotoxicity assessment in fish
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Biosecurity and Biosafety : Policies, Procedures and Issues
e mail: director@nbpgr.ernet.in

Integrated citrus orchard management
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Skill-upgradation programme conducted
e mail: cift@eiftmail.org

Rumen microbial diversity in domesticated and wild ruminants
e mail: dirivri@ivri.up.nic.in

Molecular diagnostic techniques for zoonotic and food-borne diseases
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Necropsy technique and animal, poultry diseases
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Economic appraisal of livestock disease control
e mail: dirivri@ivri.upnic.in

Recent advances in livestock health and management
e mail: dirivri@ivri.upnic.in

Commercial goat farming
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Veterinary Officers trained
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Fish culture in polythene-lined farm ponds
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Banana fibre extraction and products making

Rajahmundry, 6 February 2009. The Krishi Vigyan Kendra of Central Tobacco Research Institute opened 7-day training programme on Banana fibre extraction and products development sponsored by Zonal Coordination Unit, Zone-III, Barapani, Meghalaya on 31 January 09. Twenty Subject Matter Specialists working in different KVKs of North-Eastern Hills Region participated in the training programme.

The training programme covered the following technology components: selection and processing of raw materials, banana fibre extraction by manual methods, fibre extraction from banana pseudostems and peduncles, products and uses from banana fibre, maintenance of banana fibre extractor machine, machine adjustments, Do's and Don'ts in machine operation, utilization of by-products, and feasibility analysis of the enterprise.

Further training programme has covered "Incense stick making from bamboo at home steads" considering North-eastern region as hub of bamboo.A low cost machine suitable for home-scale unit was developed and its utilization was demonstrated to the trainees. Plates and cup making from bamboo sheaths was also demonstrated by using leaf plate/ cup making machine. Dr.V.Krishnamurthy, Director, CTRI presented certificates to the participants.

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Farm School on AIR

Izatnagar, 28 January 2009. A prize distribution ceremony of two Farm Schools on All India Radio (*Krishi Pathsala Karyakram*) was held at Joint Directorate of Extension Education, Indian Veterinary Research Institute, Izatnagar. This programme was organised in collaboration with All India Radio, Bareilly and All India Radio, Rampur, wherein various farmers and livestock owners from Bareilly, Rampur, Moradabad, Sahajanpur and Badaun participated.

Shri R Ramesh Kumar, District Magistrate, Bareilly emphasised on the need to propagate technological programmes based on IVRI research and development through AIR so as to reach the livestock owners and common masses with most effective manner. Dr S P S Ahlawat (Director, IVRI) opined that the Nation's progress depends upon the development of villages.

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Gene based techniques for research in biotechnology

Izatnagar, 28 March 2009. A three-week VIII International Training course on 'Gene based techniques for research in biotechnology', sponsored under India Millennium Fund, Government of India and Colombo-Plan Secretariat, Sri Lanka, was started on 7 March 2009 at Indian Veterinary Research Institute, wherein 11 selected participants from Iran, Afghanistan, Maldives, Myanmar, Sri Lanka, Phillippines, Nepal and Vietnam participated.

Speaking at the inaugural function as the Chief Guest, Professor Satya P. Gautam, Vice-Chancellor, MJP Rohilkhand University, Bareilly emphasized that all possible questions can be answered with the help of science and technology. He further emphasized that gene-based techniques for research in biotechnology involve basic techniques of molecular biology and biotechnology, that demand well trained competent scientific manpower being the primary need of a country engaged in research.

Delivering the presidential address, Dr R S Chauhan, Director, IVRI called upon the participants to utilize the expertise knowledge acquired during the course for increasing livestock production and removing the poverty at their own countries.

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Post-graduate syllabi of ICAR revised

New Delhi, 5 February 2009. In view of the changing national and global agricultural scenario due to advances in technology, requirements for enhancing and sustaining the agricultural production, globalization, and changing food and nutrition habits, the Indian Council of Agricultural Research recognized the necessity of restructuring of the Post-graduate (Masters and Doctoral) course curricula and syllabi of agriculture and allied sciences at national level. The Council constituted a National Core Group of 12 academicians, and 18 Board Subject Matter Area Committees of experts from all over the country. The report was presented by Dr J C Katyal, Chairman, National Core Group to Shri Sharad Pawar, Union Minister of Agriculture in the presence of Dr Mangala Rai (Secretary, DARE and DG, ICAR).

Dr J.C. Katyal informed that the report includes recommendations on common academic regulations for Post-graduate (Master and Doctoral) education, course curricula and syllabi of 83 degree courses and some general recommendations to build excellence and relevance in higher agricultural education.

The restructured curricula besides revising the existing courses, also include courses like bioinformatics, microbial biotechnology, genomics, food technology, computer applications, eco-friendly agro-chemicals, climate change, agro-met advisories development, crop-weather modelling and risk management, post-harvest technology, commercial entomology, crop and animal including fish-health management, aquatic environment management, fish business management, fisheries engineering and health, veterinary clinical epidemiology, veterinary forensic medicine, bio-security, bio-safety, etc. Non-

credit compulsory courses in library and information services, technical writing and communication skills, IPRs, etc. are also recommended.

Dr Mangala Rai, Secretary, DARE and DG, ICAR said that the new course curricula and syllabi would be put to implementation from ensuing academic session from July 2009. He appreciated the massive effort and hoped that the likely human resource would be internationally competitive.

Dr S.P. Tiwari, DDG (Education) said that the Council mooted the revision, adoption of the uniform curricula and syllabi, academic regulations with regard to admissions, starting date of session, course credit requirements and evaluation and grading system, and degree nomenclature in the agricultural universities which will enhance the acceptability and transferability of graduates both at national as well as international levels.

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Capacity building of Home Science research workers of KVK

Bhubaneswar, 5 March 2009. Three-day workshop of Home Science research workers of Krishi Vigyan Kendras of Zone VIII was started on 3 March 2009 at Directorate of Research on Women in Agriculture. Through the various sessions the participants were explained the present agricultural scenario with regard to women's role, problem analysis, gender sensitization strategies and development of action plan to address the issues.

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School of Agricultural Biotechnology foundation stone laid

Ludhiana, 16 January 2009. Dr Gurdev Singh Khush, Adjunct Professor, University of California, Davis, USA, the Chief Guest of the event, laid foundation stone of School of Agricultural Biotechnology at Punjab Agricultural University. He stated that PAU has great reputation within the country and abroad for contributing in Green Revolution and many other agri-produce enhancing technologies. Further he added that new programmes had to take shape as *status quo* was not sufficient. Citing the examples of golden rice and pharmaceuticals, he quoted that biotechnology offers realm of enormous possibilities in various areas. The doubts of public about the safety and benefits of Genetically Modified crops need to be cleared through education and creating awareness through media, said Dr Khush.

Dr Manjit Singh Kang, Vice-Chancellor, PAU, In his presidential remarks, said that biotechnology holds great potential in solving the farm problems, strengthening sustainable agriculture, addressing natural issues of environment and food and nutritional security.

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Progressive Farmer Award

New Delhi, 26 February 2009. Sri Gundala Konda Reddy of Singarabotla Palem village is a progressive farmer. He has been cultivating promising FCV tobacco variety Siri released by CTRI that has given an average productivity of 25 q/ha of tobacco. He is also cultivating pulses crop like chickpea and red gram. He has achieved significant success in achieving higher levels of productivity. The Indian Agricultural Research Institute conferred the Progressive Farmer Award Sri G Konda Reddy at Pusa *Krishi Vigyan Mela*.

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Prof. M P Yadav receives Award

Lucknow, 1 March 2009. *Krishi Evam Gramin Vikas Samiti*, Lucknow (Uttar Pradesh) conferred Padma Vibhushan Dr M S Swaminathan Agricultural Scientist Award, 2009 to Dr (Prof.) Mahendra Pal Yadav, Vice-Chancellor, Sardar Vallabhai Patel University of Agriculture and Technology, Meerut for recognition of his excellent work in the field of Animal Sciences.

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Harvesting, processing and value-addition of natural resins and gums

Ranchi, 9 February 2009. Dr Mangala Rai, Secretary, DARE and DG, ICAR inaugurated the All India Network Project on Harvesting, Processing and Value-addition of Natural Resins and Gums at its lead centre, Indian Institute of Natural Resins and Gums. The project has seven centres for networking research activities pertaining to harvesting, processing and value-addition of natural resins, gums and gum-resins as an out reach activity of the institute. During XI Plan activities would focus on resin (*Pinus roxburghii*), *guar* gum (*Cyamopsis tetragonaloba*), *karaya* gum (*Sterculia urens*), gum Arabic (*Acacia senegal*), *guggul* (*Commiphora mukul*) and agroforestry models based on resins and gum producing trees. Further to establish strong-linkages with related institutions the project will capitalise on the complementaries of on-going programmes like All-India Co-ordinated Research Projects on Arid legumes, Agro-forestry, Post-harvest technology, On-farm implements and machinery and at the Institute on gums, resins and gum-resins by working in a network mode.

Dr Mangala Rai also inaugurated the Quality Evaluation Laboratory for Natural Resin and Gums of the Institute. This laboratory would develop quality evaluation methods and standards for all gums and resins besides rendering quality evaluation services on the subject.

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Sarson Vigyan Mela

Bharatpur, 25 January 2009. Shri A.K. Upadhyay, Secretary, ICAR and Chief Guest at the XV *Sarson Vigyan Mela*, appealed to the farmers that increase in production alone is not sufficient, but better management of marketing of crop produce is also important aspect in farming. He informed that ICAR had prepared a comprehensive programme of "Market Intelligence" on 20 crops including rapeseed-mustard, through which farmers would get the desired information about, climate, crop varieties, market prices, etc. and also urged that all the departments of central and state governments should

work in better co-ordination for the welfare of the farming community.

Dr Arvind Kumar, Director (NRC on Rapeseed Mustard) said that scientists had developed hybrid and other improved varieties of mustard, and farmers should select appropriate varieties suitable to their farming conditions. He also informed that "Combined Harvester" for harvesting and threshing of mustard on low cost was available at the centre which could be made available to the farmers at appropriate cost.

More than 800 farmers, farm-women, extension personnel and media participated.

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IX *Rashtriya Kisan Mela*

Nagpur, 26 February 2009. *Rashtriya Kisan Mela* on Citrus was inaugurated on 25 February 2009 by Dr V M Mayande, Vice-Chancellor, Dr PDKV, Akola. It was jointly organized by National Research Centre for Citrus and Technology Mission on Citrus for Vidarbha and Marathwada.

The chief guest, Dr V M Mayande in his inaugural address drew the attention of the scientists and citrus growers towards a variety of problems of citrus industry, which ranged from quality planting material to suitable soil, use of macro- and micro-nutrients and plant-protection measures. He was categorical in saying that to replace Nagpur mandarin with any other exotic varieties may not be a wise step.

In technical session scientists presented technologies viz. production of disease-free planting material - conventional and through STG, Orchard

establishment, soil and nutrition, water and drainage management, control of fruit drop and weed control, integrated pest management of citrus, disease management, viral disease and their preventive measures, rejuvenation of declining orchards and post-harvest technology.

The citrus growers were also taken to field visit to governemnt citrus nursery at Susundri (Mohpa) followed by Kamleshwar *Santra mandi*. *Vichargoshti* was also organized.

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Goat camp-cum-field day

Farah, 5 March 2009. A total of 112 goats were vaccinated against ET and 45 were treated for different ailments in a Goat health camp-cum-field day in the village Jalal of Farah under transfer of technology programme.

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VII Convocation celebration of NDRI

Karnal, 19 January 2009. The National Dairy Research Institute (Deemed University), Karnal held its VII Convocation which was graced by Professor Sukhadeo Thorat, Hon'ble Chairman, University Grants Commission as the Chief Guest who awarded the degrees to 408 students and delivered the Convocation Address. The function was presided over by Dr Mangala Rai, Secretary, DARE and DG, ICAR.

Dr Mangala Rai, highlighted the outcome of Green, White and Blue Revolutions which have made India self-sufficient in food. The year 2008 saw India achieving record production of 230 million tonnes of grain and over 100 million tonnes of milk with similar achievements in production of fresh fruits, vegetables, eggs and fish. He told that livestock sector (animal husbandry and dairying) accounted for about 35% of total agriculture income in the country. The total income from milk alone is estimated at over Rs 1,000 billion. He appealed that there is urgent need for improving quality to meet international standards for enhancing our share in the global milk market.

On this momentous occasion, Dr A K Srivastava, Director NDRI said that NDRI is taking lead in research in different areas like stem cell technology, wireless sensor network for herd management, nanopartical, nutraceutical and health foods, digital dissemination of agriculture information (agro-web), e-learning, buffalo cloning and reproduction, proteomics and semen cryopreservation.

During this VII Convocation, the degree recipients included 92 B. Tech. (Dairy Technology), 207 Masters in Dairying and 109 Ph.D. in Dairying. A total of 79 girls and 14 foreign students were amongst the degree recipients. A total of 12 Gold Medals/ Director's Medals and 12 Merit Certificates were also awarded to meritorious students in different academic programmes.

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Rabi Kisan Mela and Foundation Day celebrated

Karnal, 14 March 2009. Dr J S Samra, CEO National Rainfed Authority, New Delhi inaugurated *Rabi Kisan Mela* organized by Central Soil Salinity Research Institute and appreciated the achievements made by the Institute. He also emphasized on conservation of natural resources, rainfed farming, and effecient water management with crop intensification to achieve higher input use efficiency, increased crop productivity and food security.

In *Rabi Kisan mela*, the farmers were introduced about the technologies developed at CSSRI for reclamation of sand affected soils, use of poor quality irrigation water, crop diversification, medicinal and aromatic plants and salt tolerant variety etc. Seeds of paddy were sold during the *Rabi Kisan Mela*. The soil and water samples brought by farmers were tested free of cost in this *Mela*.

At this occasion of *Rabi Kisan Mela* exhibition *Kisan Goshthi* and field visits were organized, in which scientists solved farmer's emerging agricultural related problems. About 1000 farmers and school students were benefited from this important function.

The progressive farmers (11) belonging to Haryana were felicitated during the *Rabi Kisan Mela* besides prize were awarded to three best exhibition stalls. Special discussion/visits in the area of biotechnology, meteorology groundwater recharge and aromatic and medicinal plants were organized particularly for the students.

In the evening, foundation day lecture was delivered by Dr S L Mehta. He pointed out the importance of crop biotechnology particularly for agrarian states like Punjab and Haryana for breaking yield barrier to feed increasing population and securing national food basket.

In his presidential address of Foundation Lecture Dr J S Samra told that next green revolution would emerge from improvement in rainfed agriculture technology. He pointed out that time has come for development of systems with low water requiring crops like pulses etc. He said that this institute has made remarkable contribution to safeguard the interest of the farmers and advised the farmers to adopt integrated farming model.

Dr Gurbachan Singh, Director of this Institute welcomed the audience and said that about 1.7 million ha land has been reclaimed by the institute in Punjab, Haryana and Uttar Pradesh.

About 10 million tonnes food grains being produced annualy from these reclaimed soils. Dr Gurubachan singh also elaborated the recent initiatives taken by the institute particularly in the field of multiple use of water from multi-enterprising agriculture, resource conservation technologies like zero tillage, bed planting, groundwater recharge, energy plantations for biosaline agriculture like Jatropha and Pongomia medicinal plants in salt-affected soils.

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Kisan Mela, 2009

Ghazipur, 1 March 2009. The chief guest Dr Mangala Rai, Secretary DARE and DG, ICAR inaugurated 2-day *Kisan Mela* on 28 February organized by Krishi Vigyan Kendra, Post-graduate College, Ghazipur.

Dr Mangala Rai visited stalls of the potato seed potato Chip Sona-2, field pea variety M-15, samples of crops (wheat var. PBW-502, mustard var. NDR-8501, pigeon pea var. NA-2, and field pea var. M 15), horticultural crops (vegetables and medicinal plants) and modern agricultural implements, animal show etc. at KVK, Ghazipur and assessed advancement of technology made in the country. He focused on quality potato production variety Chip Sona-3 and importance of tendrils in field-pea and other pulses. Dr Rai quoted an example of bumper production of potato in country which resulted less profit due to poor storage and marketing. About 1,500 farmers attended *Kisan Mela*, 2009. The crop competition, animal show,

horticulture competitions and latest agricultural implements were main centres of attraction.

Dr Mangala Rai also inauguragted the newly well furnished '**Kisan Bhawan**' (farmers' hostel) constructed in Krishi Vigyan Kendra, PG College, Ghazipur.

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Kisan Mela evam Pashu Vigyan Pradarshini

Izatnagar, 19 March 2009. The VIII "*Kisan Mela evam Pashu Vigyan Pradarshini*" was started on 17 March 2009 at Indian Veterinary Research Institute in which around 100 stalls representing ICAR Institutes, agro-industries, banks, insurance, fertilizer seed companies, large number of farmers, livestock owners, animals lovers and agripeneurs from Uttar Pradesh and other neighbouring states participated.

Inaugurating the *Kisan Mela*, Dr S K Garg, former Vice Chancellor, Uttar Pradesh *Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya avam Go Anusandhan Sansthan*, Mathura emphasized that the organization of *Kisan Mela* will go a long way in increasing the awareness of the rural farmers and livestock keepers for profitable animal husbandry.

Dr R S Chauhan, Director, IVRI stressed the need of traditional organic farming by adopting scientific methods and proper utilization of animal waste. He stated forthcoming programmes of the institute like providing 24 hours diagnostic and clinical services for the treatment of animal under the Veterianry Referral Polyclinic; publication of a quarterly magazine "*Pashupalan*" and its distribution at district and block level, etc.

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Annual Cashew Day

Puttur, 21 February 2009. The Directorate of Cashew nut and Cocoa Development, Kochi sponsored Annual Cashew Day at Experimental Station of National Research Centre for Cashew, Shantigodu and its theme was "Improved cashew production technologies for higher yields". About 300 farmers and other dignitaries from Karnataka, Kerala and Assam attended the programme. A seminar was organized on " Improved cashew production technologies for higher yields".

Sri Srihari , Director, *Sri Kshetra Dharmasthala* Rural Development Programme, the Chief Guest on the occasion, said that the farmers should make use of the available technologies at the NRC so that they can get maximum profit from cashew by spending least compared to other plantation /perennial crops. He also felt that it is not proper to replace the entire cashew area with rubber.

Dr M.G. Bhat, Director of NRC on Cashew, who presided over the meeting informed the farmers to grow all the possible plantation crops in his land in which cashew should also be one of the component crops.

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Personnel

ICAR Vichar Manch

New Delhi, 16 January 2009. Dr Abid Hussain, Member of Asia Society, New York shared his vast and rich research experience with august audience of the ICAR at NASC Complex. He is recipient of Padam Bhushan in 1988.

New Delhi, 27 February 2009. Dr Rekha Morris, Director of Save our Species Programme and Editor of the *Save Our Species* Newsletter of the Begonia Society of North America, has documented species begonias of the eastern Himalayas in Arunachal Pradesh, Western Ghat of Karnataka and has also explored the Khashi and Jantia Hills of the Meghalaya. She shared her views with ICAR audience at NASC Complex.

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Appointments

Dr Manjit Singh joined as Director, NRC on Mushroom, Solan on 1 January 2009.

Dr J B Mishra, joined as Director, NRC on Groundnut, Junagarh on 12 January 2009.

Dr A S Sidhu, joined as Director, IIHR, Bangalore on 9 February 2009.

Dr S K Srivastava, joined as Director, NRC on Soybean, Indore on 5 March 2009.

Dr M M Pandey, joined as DDG (Agricultural Engineering), ICAR (Hq) on 27 March 2009.

Retirements

Dr Mruthyunjaya, National Director (NAIP), ICAR retired on 31 January 2009. However, he has been granted re-employment up to 30 September 2009.

Dr J P Mishra, ADG (Coord.), ICAR retired on 31 January 2009.

Dr S K Bhattacharya, Director, NIRJAFT, Kolkata, retired on 28 February 2009.

Dr S S Duhoon, Project Coordinator (Sesame), Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur retired on 28 February 2009.

Dr Ram Chand, ADG (KVK), ICAR retired on 31 March 2009.

Dr S A Patil, Director, IARI, New Delhi relived on completion of his re-employment on 31 March 2009.

Dr S P S Ahlawat, Director, IVRI, Izatnagar was relieved on his selection as Vice-Chancellor, Vikram Univesity, Ujjain on 17 February 2009.

Delegation abroad

- Dr Mangala Rai, Secretary (DARE) and DG (ICAR) visited Mexico from 17 to 20 March 2009, to participate in the Borlaug Global Rust Initiative Workshop 2009.
- Dr Ajai Kumar, Director, DARE visited Serbia from 2 to 5 March 2009 (excluding journey period) as a part of the delegation led by Shri T Nanda Kumar, Secretary (Agriculture and Co-operation), for signing of an agreement between India and Serbia on co-operation in Agriculture and Allied sectors.
- Dr K C Bansal, Principal Scientist, National Research Centre on Plant Biotechnology, IARI, New Delhi visited Paris, France from 17 to 19 March 2009 to attend Indo-French Workshop on 'Plant Genomics, Transgenetics and Biotechnologies'.
- Dr A T Sadashiva, Principal Scientist, Indian Institute of Horticultural Research, Bangalore visited Paris, France from 17 to 19 March 2009 to attend Indo-French Workshop on 'Plant Genomics, Transgenetics and Biotechnologies'.

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