

News in Brief

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From the DG's Desk

The ICAR in the recent years has taken a number of initiatives to find solutions to the existing and emerging issues and has taken measures to enhance the system's efficiency. On technological fronts new time targeted research programmes are launched with a new approach to provide technological breakthrough so as to bring agriculture on desired pathway of high growth. In-depth analysis of Strengths, Weaknesses, Opportunities and Threats is undertaken to build an alternate scenario to place research and development efforts in perspective towards year 2025 on a time scale for each of the 95 institutes of the ICAR. In each document researchable issues are identified, strategies drawn and programmes formulated to have projects on five yearly bases coinciding with the 11th Five-Year Plan.



A change in the institutional set up, manpower planning, educational programmes; strengthening/modernizing the infrastructure; human resource development in frontier areas etc., is being brought about. Several NRCs are being put to Directorate mode of operation including Groundnut; Rapeseed-Mustard; Soybean; Sorghum; Coldwater Fisheries; Women in Agriculture; Oil Palm; Cashew; Medicinal and Aromatic Plants; Mushroom; Onion and Garlic; Floriculture; and Water Management. The National Bureau of Agriculturally Important Insects (NBAII) has been established by reorienting the 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.

Research in the basic and strategic areas is accorded priority for harnessing advances in frontier sciences to break the yield and quality barriers. Forty-nine basic and strategic research projects are pursued covering some of the most potential impact making areas like controlling arsenic in food chain, genetic engineering for fixation of heterosis, developing wireless sensor for effective animal management, C_4 photosynthetic system in rice, stem cell research in cattle and buffaloes, nano-technology for higher utilization of native phosphorus in arid soils etc. Scientists are being provided training

Agriculture is becoming more and more knowledge-intensive and market-driven. Hence for more innovative research, efficient policies and effective delivery of services and supplies are imperative.

in advanced laboratories in India and abroad to develop core competencies in select areas. Sixty scientists were trained and over 500 are to be trained abroad in 21 frontier areas during XI Plan and about 1,000 scientists are to be trained in the country. With a massive recruitment drive about 500 scientists have joined ICAR and another over 500 will be joining during 2009 as per the recruitment programme already set in motion.

The Council has initiated several research programmes in Network mode, viz. insect biosystematics, transgenics, impact, adaptation and vulnerability of Indian agriculture to climate change, *Phytophthora*, *Fusarium* and *Ralstonia* diseases of horticultural and field crops, organic farming, farming systems' research, veterinary type culture and Network Programme on Blue Tongue Disease etc. The Network approach would help to avoid duplication of efforts, ensure better use of resources and above all help reducing time lag in technology generation.

The Council has also initiated several other programmes that have an inbuilt component of technology dissemination such as Strengthening molecular breeding in cereals, lentil and mustard, Protected horticulture, National Containment Facilities for Virus and Vectors, National Facility for Insect Rearing and Xenobiotic-cum-Transgenic Bioassays, Research and academic aspects of agribusiness management, Development of export protocol for fresh fruits and vegetables from India, Genetic enhancement of staple food crops for human health, Diagnosis and management strategies for virus and virus like diseases of crops, Genomics-based technology development for designing novel nematode management strategies, Strengthening extension education programme of developing innovative models and techniques for higher productivity and profitability in agriculture, Nutrient profiling, Fish feed, Genetic stocks, Ethno-veterinary medicine, Monitoring of drug residues and environmental pollutants, Zoonotic diseases, Livestock and climatic changes and methane emission.

Agricultural universities are the main centres for human resource development, therefore, it is necessary to keep the course curricula and education programmes abreast with the knowledge and technology needs in agriculture. In this endeavour the IV Deans' Committee Report on reforms in agricultural education has been implemented. The Accreditation of 14 Agricultural Universities for assured quality of education is complete, and for skill development 138 Units have been established in 43 universities for Experiential Learning. An ICAR net has been put in place for connecting the libraries of 35 SAUs, 69 ICAR institutes and 182 off campus colleges. To further enhance capabilities of Deemed Universities and Agricultural Universities, the ICAR has launched a programme to promote Niche Area of Excellence in these institutions. Some important Niche Areas of Excellence include Hi-tech horticulture, Molecular diagnostics of avian diseases, Resource conservation technology, Soil and water management, Biofuels, Buffalo genomics, Arsenic

management in soils, Fin-fish farming, Immunodiagnostics, Tropical home gardens, Agro-based nutraceuticals. Besides, PG course curricula has been revised and is expected to be implemented in all the universities w.e.f July 2009. A new activity on overseas fellowships is put under the continuing HRD programme with a view to develop competent human resources that are trained in the best laboratories in the world (for Indian candidates) and expose overseas candidates to the best of the Indian Agricultural Universities for facilitating future cooperation with these countries. For ensuring quality research technology and human resource development Rs 421 crore is allocated for modernization of the research farm of the universities.

In view of the rapid developments in areas of intellectual property rights, benefit sharing in agriculture, increasing role of private sector in agricultural research and development and to share gains from commercialization, the Council has developed guidelines for Intellectual Property Management and Commercialization of Technologies. To enhance awareness of the IPR more than 570 scientists and other concerned staff from ICAR-SAU system were oriented/trained.

An efficient and effective process of technology delivery is critical and needs to be in a continuum with technology development. Presently there are 562 Krishi Vigyan Kendras that undertake frontline demonstrations, provide training to farmers, rural women and youth, provide improved planting material etc., but in a limited way. The Government has recently approved conversion of existing 8 Zonal Coordinating Units to Zonal Project Directorates. Further, 28 KVKs in newly created districts and one additional KVK in 50 larger districts for wider coverage of KVK activities have been approved. Provision has been made for e-linkage of KVKs, establishment of mobile diagnostic-cum-exhibition units, the soil and water testing labs, rain-water harvesting structures, the basic plant health diagnostics, minimal processing, portable carp hatchery, integrated farming system, and support to Directorate of Extension of SAUs for knowledge empowerment of KVKs.

Agriculture is becoming more and more knowledge-intensive and market-driven. Hence for more innovative research, efficient policies and effective delivery of services and supplies are imperative. In this endeavour timely completion of 11th Plan EFC/SFC meetings for all the schemes under ICAR is expected to provide impetus. This will certainly help us in effective implementation of the research and educational programmes and other activities envisaged so as to place the Indian agriculture on a sustainable path of development paved by generation and infusion of new technologies.



(Mangala Rai)

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WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

Global Potato Conference 2008

New Delhi, 12 December, 2008. Indian Potato Association, Shimla, celebrated the "International Year of the Potato" by organizing the Global Potato Conference in New Delhi from 9 to 12 December 2008. The 2008-09 also happens to be the

Diamond Jubilee year of CPRI, Shimla. The conference was sponsored by a group of 24 public and private institutions from India and abroad. It was attended by over 460 delegates from more than 30 countries like USA, UK, Germany, the Netherlands, Canada, Australia, Japan, Sweden, Hungary, Argentina, Peru, Chile, Uganda, Bangladesh, Sri

Lanka, Pakistan, Bhutan, Nepal, central Asian countries etc. Besides, a mega exhibition was held at the conference venue to showcase the strength of technologies and inputs in facilitating sustainable agriculture with special emphasis on potato. The conference was inaugurated by the Hon'ble Union Minister of Agriculture and Consumer Affairs, Food & Public Distribution, Shri Sharad Pawar on 9 December 2008 in the Plenary Hall of Vigyan Bhavan, New Delhi. Dr Mangala Rai, Secretary, DARE & DG, ICAR; Shri Nanda Kumar, Secretary, DAC, GOI; Dr Pamela Anderson, DG, CIP; Dr Gavin Wall, FAO Representative in India, Dr H.P. Singh, DDG (Hort.), ICAR and Dr S.K. Pandey, Director, CPRI, were also present in the inaugural function. The Hon'ble Union Minister of Agriculture elaborated the success of potato research and development in India and challenges ahead.

Dr Mangala Rai, DG, ICAR, stressed the importance of developing varieties with novel traits, application of

biotechnology for breaking the yield barrier, production of quality planting materials, efficient management of natural resources, and better utilization of potato. Dr Gavin Wall, FAO Representative in India elaborated the purpose of declaring the year 2008 as the International Year of the Potato. Dr Pamela Anderson, DG, CIP emphasized on role of potato as a vehicle for poverty alleviation and as an antidote for global food price crisis.

There were nine technical sessions, viz. (i) genetic resource management for crop improvement, (ii) potato genomics and biotechnology, (iii) resource management for sustainable production, (iv) potato health management, (v) late blight—the perpetual challenge, (vi) seed production and management, (vii) post-harvest management and value addition, (viii) technology transfer and social concerns, (ix) potato trade and industry, and one satellite meeting on RB gene technology for late blight management. There were 75 invited lectures in different sessions out of which about 50 were from outside India. Besides, 284 research papers were presented as posters during the conference.

The major recommendations of the conference are as follows.

- A long-term global commitment is needed to broaden the genetic base of potato varieties through conventional and/



or molecular breeding approaches.

- Food and environment safety of promising transgenic lines should be studied on priority as per national regulatory requirements of different countries.
- The potato genome sequencing is being done by a multinational consortium and hopefully the entire sequence of 840 Mbp potato genome will be available by 2010. Gene annotation for potato genome should be initiated as soon as draft sequence is prepared followed by functional validation of each gene by an international community.
- Proper assessment of climate change should be done and emphasis should be given on adaptation and mitigation research.
- Geographical information system must be exploited for site suitability analysis, crop assessment and monitoring, providing information on cropping system and post-harvest management planning to support the decisions in potato production.
- There is need to monitor and study *Phytophthora infestans* population structure on a regular basis using modern molecular tools and disease reaction.
- Several developing countries including India have developed region specific 'decision rules' for forecasting late

blight. It would be appropriate to convert them into web-based late blight forecasting systems using regional weather data.

- Emerging potato diseases like Zebra chip disease in North and Central America and Yellow vein virus in Andes may pose serious threats to global potato sector. Strict quarantine should be enforced to curtail their international movement.
- Traditional structures with or without CIPC treatment and other modifications should be popularized and encouraged.
- For increasing the international trade of potato, there is need for enhanced knowledge sharing among the countries and barriers to be broken. There is need for evolution of a mechanism for easier movement of potato and potato products among SAARC countries.

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XX meeting of the ICAR Regional Committee V

New Delhi, 19 December 2008. XX meeting of Regional Committee No. V of the Indian Council of Agricultural Research (ICAR) was held at NASC Complex, New Delhi, on 19 December 2008. About 125 eminent delegates including Shri A.K. Upadhyay (Additional Secretary, DARE and Secretary, ICAR) Secretaries of Agriculture, Horticulture, Animal Husbandry, Fishery and Forestry Departments from the Governments of Haryana, Punjab and Delhi, eight Deputy Directors-General of ICAR, and senior officers of ICAR and states participated.

Dr Mangala Rai expressed satisfaction over the action taken on the recommendations emerged from the previous meeting and had drawn the attention of the participants to the emerging issues like soil-nutrient imbalancing, conservation agriculture and groundwater depletion, public-private partnership developments to tap National and global markets etc. The Director-General hoped that issues likely to be raised during the

meeting would be effectively addressed to pave the way towards technology and growth in this region known for its significant contribution to National food basket.



In response to the issues raised by the State Development Departments, Deputy Directors-General of ICAR and Vice Chancellors of State Agricultural Universities responded to agenda items raised in the meeting.

Recommendations

1. Network mode participatory research programme to solve water logging and soil salinity problems in Punjab, Haryana and Delhi is recommended. The CSSRI will lead the programme. The concerned SAUs and ICAR Institute's located in the region will collaborate in the programme.
2. A network programme to study heat tolerance of different crops to be initiated in view of recent climatic abrasions. The IARI may develop required infrastructure facilities and initiate initial experimentation. Other concerned ICAR institutes and State Agriculture Universities of the region will collaborate in the programme.



XIX meeting of the ICAR Regional Committee IV

Varanasi, 22 November 2008. The XIX meeting of the ICAR Regional Committee No. IV, comprising Uttar Pradesh, Bihar and Jharkhand was held at Indian Institute of Vegetable Research, Varanasi from 21-22 November 2008.

Dr Mangala Rai (Secretary, DARE and Director General, ICAR, who is also Chairman of ICAR Regional Committee IV) informed that tremendous progress in agriculture and allied sectors has been achieved in last few years, but

increasing the per unit productivity on sustainable basis is the need of the hour. He informed that various steps have been taken up by the ICAR in this direction. The number of KVKs has increased to 562 with a budget over Rs 2,100 crores. Various network projects have been launched, Mega Seed Project is already implemented, massive grant to Agriculture Universities for upgrading the research and educational facilities, etc., are some other areas where ICAR is concentrating. He also informed that to encourage competitiveness among ICAR institutes and SAUs and continuously enhancing the quality of research and education, grading system is proposed to be introduced.

Shri Aness Anasari, APC, Uttar Pradesh, represented the Uttar Pradesh Government along with officers of all the development departments. He highlighted the income gap between industry, services and agriculture sectors, generating awareness about excessive and indiscriminate use of chemical fertilizers and pesticides, low cropping intensity, decreasing soil carbon and microbial dynamism and decreasing the input cost to make agriculture more profitable.

It was decided that animal/poultry experimentation should be done on quality maize of Bihar and awareness should be generated among the public and farmers for the same.

Dr Kummur, DDG, NABARD presented the report of NABARD and urged ICAR Institutions for technological backstopping which was agreed.

The Director-General and all the members expressed satisfaction on the progress made in respect to recommendations of the last Regional Committee Meeting held at ICAR Research Complex-ER, Walmi, Patna from 1 to 2 September 2006.

The meeting was attended by all the Deputy Directors-General (ICAR), Member Secretary of RC, Directors of all the 17 ICAR institutes in the region, Vice-Chancellors/Senior Officers of all SAUs and BHU, Officer-in-Charges of ICAR institutes and centres, Directors of Agriculture, Animal Husbandry, Horticulture and Fisheries of Uttar Pradesh, Bihar and Jharkhand.

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3. Policies for the region to be formulated on different aspects of commercial dairying such as credit, housing (in view of changing climate), feed, marketing, cattle breeding/artificial insemination, cattle clinics, processed milk products, etc.
4. Regularize and standardize agricultural input services such as credit, subsidy, seed, fertilizers, irrigation and equipments as well as agricultural processed industry, products and marketing for strengthening agriculture in the region.
5. Different components of agriculture such as horticulture, floriculture, animal husbandry including dairying, fisheries, poultry, bee keeping, mushroom farming, etc. may be treated at par with farming in the region. The facilities/policies applicable to farming might be made available applicable to these components of agriculture.
6. Strengthen Scientific Advisory Committee (SAC) of KVK. Directors of ICAR institutes in the area should be nominated as members of SAC of KVKs, besides state government representatives. One ADG should be nominated from ICAR side.
7. Technology empowerment of KVKs; e-connectivity among all stakeholders; reforms in agriculture education system; strengthening of agricultural education and research infrastructure, human resources development in SAUs and ICAR Institutes in the region in view of globalization, international collaboration/exchanges and network mode participatory research in emerging areas of agricultural research.

Advancement in organic farming of plantation crops

Kasaragod, 18 October 2008. Dr K V A Bavappa (FAO Consultant) inaugurated a 4-day National Conference on Organic Farming in Horticultural crops with special reference to Plantation Crops at Central Plantation Crops Research



Institute on 15 October 2008. The advancement made in organic horticulture was discussed through nine technical sessions, viz. (i) current status of organic farming: national and international scenario, (ii) current status of organic farming in different states, (iii) technological advancement in organic horticulture, (iv) organic farming in medicinal and aromatic crops, (v) input management through organic recycling and biofertilizers, (vi) soil-health management, (vii) plant-health management, (viii) standards, certification, marketing and export, and (ix) interface with farmers and non-government organization.

The participants focussed on the advancement made in development of package of practices for organic cultivation of coconut, cashew, spices, fruit crops, vegetables, tuber crops and aromatic plants. Vermi-composting technology provided further dimensions in recycling waste biomass of different crops to enable *in situ* generation of organic manure. Vermiwash application proved to be effective to bring about quality improvement in vegetables. The interface with NGOs and farmers served as a forum for discussion of success stories of farmers practising organic farming in different states. The future strategies for accelerating research and development in organic horticulture were formulated in the plenary session.

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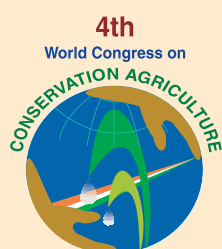
Scenario of agriculture in changing climatic conditions

Meerut, 19 October 2008. A 2-day national symposium on Scenario of Agriculture in Changing Climatic Conditions was inaugurated by Chief Guest Dr S S Khanna (Ex-Member, Planning Commission, Government of India) at Sardar Vallabh Bhai Patel University of Agriculture and Technology, Meerut, on 18 October 2008.



The symposium comprised four technical sessions: impact of climatic changes on potato production, need and importance of maintaining and using quality seeds, fruit diversification in hot arid tropics; the genetic improvement of ornamental crops; prospects of under utilized vegetables; genetically modified crops with their advantages over the conventional crop varieties; and possible threat of GM crops to human, animal and soil, and sustainable utilization and conservation of cattle and buffalo. In technical session, papers presented were on — IP in wheat with special reference to UG 99, molecular markers for crop improvement, rainwater harvesting, malnutrition problems in India, and nano-technology in enhancing agricultural production etc.

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XXVII Biennial Workshop of AICRP on Sugarcane

Visakhapatnam, 19 October 2008. Professor B. Satyanarayana, Vice-Chancellor, Andhra University, Visakhapatnam, inaugurated the 27th Biennial Workshop on Sugarcane under AICRP on 17 October 2008. He pointed out that sugar industry is being managed by untrained personnel and universities can play significant role in imparting training suited to sugar industry requirements. Dr R L Yadav (Director, IISR, Lucknow) and Dr N Vijayan Nair (Director, SBI, Coimbatore) stressed the need for improved cultivation practices of sugarcane.

The varietal identification committee identified 6 sugarcane varieties, viz. Co 0118 (Karan-2), Co 2001-3 (Sulabh), Co 0238

(Karan-4), Co 0232 (Kamal), Co 2001-1 -15 (Mangal), Co 0233 (Kosi), for release by the Central Sub-Committee on crop standards, notification and release of varieties.

On 19 October 2008, Dr K C Jain, ADG (CC) chaired plenary session and appreciated that the seedling population has increased at many centres, which will help in varietal development work. He laid emphasis on development of early maturing varieties and water-use efficient clones. Mechanization of sugarcane cultivation is now necessary and suitable equipments need to be developed.

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Quality Assurance in Pathology and Disease Diagnosis

Izatnagar, 12 November 2008. A three-day International Symposium on Quality Assurance in Pathology and Disease Diagnosis, and a Satellite Seminar on Descriptive Gross and Microscopic Veterinary Pathology in Necropsy, Biopsy and Certification Examination, were held from 10–12 November 2008, at Indian Veterinary Research Institute, Izatnagar.

Dr Paul C. Stromberg, Diplomat and past-President of American College of Veterinary Pathologists, USA, illustrated that the quality assurance in pathology and disease diagnosis are a major cause of concern today with growing global trade in animal and animal products, and there is an urgent need for quality assurance in disease diagnosis with particular

reference to the exotic and emerging diseases.

Dr T Venkatesh, Principal Advisor, Quality Council of India, New Delhi, presented an overview of Quality control and emphasized the need of accreditation for global recognition of diagnostic laboratories.

In his presidential address, Dr Lal Krishna, Assistant Director-General (AH), ICAR, New Delhi, and President of IAVP emphasized the importance of veterinary pathology and its applicability in quality assurance in disease diagnosis.

Dr R.S. Chauhan, Joint Director, (CADRAD), informed that in India there are 7 veterinary universities, one deemed university and more than 35 veterinary colleges under Agricultural Universities with the required competence of teaching veterinary pathology to the students and developing trained human resource in the country. Besides, for disease investigation in animals, there are Regional Disease Diagnostic Laboratories at Jalandhar, Pune, Bangalore, Kolkata and Guwahati and one Central Disease Diagnostic Laboratory in CADRAD (ISO 9001:2000 certified since 2005) under the Government of India. Each state is also having State Disease Diagnostic Laboratory along with a network of District Disease Diagnostic Laboratories in the State.

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Value chain concept for reservoir fisheries

Cochin, 13 November 2008. A workshop on Benchmark Appraisal of Reservoir Fisheries and Development Strategies under Value Chain Concept, was organized by the Central Institute of Fisheries Technology, Cochin, on 13 November 2008. The workshop was on the benchmark survey that was carried out at Malampuzha as part of the NAIP project on Responsible Harvesting and Utilization of Selected Small Pelagics and Freshwater Fishes. The officials from Department of Fisheries and local fishermen were present along with the CIFT-NAIP team.

Shri M Nasser, Principal Scientist, CIFT and Consortium Principal Investigator explained that the project is intended to reform the existing value chain system by generating and transferring new technologies so that every actor in the value chain, viz. producers, processors, traders and the consumers are benefited. If all these people are properly linked and coordinated, a well structured value chain can be easily established.

Dr M K Mukundan (Director, CIFT and Consortium Leader) mentioned that the productivity in other reservoirs in Kerala

was fairly high when compared to that of Malampuzha reservoir. He stated that if the resources in this reservoir are properly utilized, the economic condition of these fishermen can be improved.

The interactive session had discussions on issues identified during the benchmark survey in the light of interventions proposed in the project. The project had planned introduction of FRP canoes in the reservoir. After discussions it was decided that a non-motorized FRP canoe in which two to three people may go for fishing at a time, may be introduced.

The development of optimized species specific gill nets was the second point identified, and lack of processing was the third issue.

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Wheat stem Rust Ug99 — A threat to food security

New Delhi, 8 November, 2008. Union Minister of Agriculture, Shri Sharad Pawar inaugurated the International Conference on Wheat Stem Rust Ug99 — A threat to food security, organized by Department of Agricultural Research and Education (DARE), Indian Council of Agricultural Research, and Food and Agriculture Organization (FAO) of United Nations (UN) from 6 to 8 November 2008. Dr Mangala Rai (Secretary, DARE and Director General, ICAR) welcomed the delegates and dignitaries. The inaugural event was blessed by the presence of Deputy Minister of Agriculture, Government of Afghanistan and Advisor (Agriculture), Government of Bangladesh. The FAO representative also addressed the conference.



The Technical Sessions commenced with the highly motivating and thought provoking video-address by Nobel Laureate Dr N E Borlaug. He said, "Wheat rust honours no political boundaries, and neither can our commitment to provide food for this planet. The aim of our global rust initiative is to fix the problem of rust we face today, and ensure that we never again are as vulnerable as we are today. In today's world, this takes political will, good science, and most importantly talented young scientists backed up by a commitment to long-term funding". He was also pleased to announce that "India, represented by the Director-General of ICAR will join FAO, CIMMYT, ICARDA and Cornell in the permanent members' group of the executive committee of BGRI. This reflects the commitment of India to pursue this goal The world needs India at the forefront of wheat research and advocacy of wheat research".

The deliberations of sessions indicated that the current situation with respect to stem rust race Ug99 provides a good opportunity for global rust pathogen surveillance and international collaboration, which will underpin efforts to secure food production. It was further noted that whereas Ug99 was initially detected in Uganda in 1998 the race was confirmed in 1999, current surveillance information indicates that it has evolved and that Ug99 or related races are now also present in Kenya, Ethiopia, Sudan, Yemen and Iran. Country

reports by delegations indicated that Ug99 is not present in India, Pakistan, China and Egypt.

The immense contributions of the Ethiopian and Kenyan NARS in support of Ug99 screening were acknowledged.

Roadmap to face the challenge of Ug99

Surveillance

- All concerned countries should join in and contribute to Global Rust Monitoring System for wheat rusts. National surveillance team will be constituted and the national focal point will be officially designated.
- Field surveys should be conducted according to the standard protocol. Isolates collected should be characterised by designated laboratories using internationally accepted uniform race nomenclature system.
- Survey data, trap nursery and race analysis results should be transmitted to the international focal point for incorporation into the global rust monitoring system for data to be accessed by all concerned.
- In most parts of the world, stripe and leaf rusts also pose major threats and efforts should be made to extend surveillance and control measures to include these pathogens as well.

Breeding strategies

- Screening at hotspots should be continued under high disease pressure and facilities should be expanded as needed with adequate human resource and infrastructure.
- Diverse sources of resistance in improved varieties, landraces and wild relatives should be identified and utilized including non-host resistance.
- Molecular marker development should be enhanced and utilized in marker assisted selection for pyramiding major and minor genes.
- Special efforts be made to use non-race specific (durable) adult plant resistance through shuttle breeding.

Seed production and distribution

- Put rapid variety evaluation and release system into operation.
- Devise and implement a system of demonstration, rapid multiplication and distribution.
- All the stakeholders (the extension agencies, farmer associations and others) should be trained/deployed for quality seed production and related aspects.

Infrastructure, capacity building and awareness

- International and regional cooperation should be enhanced to facilitate human resource development. The training opportunities within the CGIAR, NARS, ARI and other specialized institutes should be enhanced.
- Awareness about Ug99 and resistant varieties should be raised among policy makers, researchers, farmers and other stakeholders.
- Strengthening of rust screening facilities at Kenya, Ethiopia, Yemen and other places as per need should be ensured. Adequate race analyses facilities and human resource should be upgraded at national and regional level.

Material exchange and screening

- Germplasm exchange should be promoted, using the standard MTA and/or mutually agreed terms for research purposes. For commercialization purposes, the exchange can take place on case by case basis.

Contingency plan

- Participating countries should develop and implement contingency plans for dealing with Ug99 as soon as possible.
- Other countries that could be important sites for pathogen evolution should also be engaged in the Ug99 strategy.

Funding

- Support from all sources should be made available to national, regional and international programmes for implementing this roadmap.

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National conference on KVKs

Pantnagar, 27 December 2008. Union Agriculture Minister Shri Sharad Pawar inaugurated the Third National Conference on KVKs (Krishi Vigyan Kendra) today at Pantnagar. Chief Minister of Uttarakhand, Major General (Retd.) Shri B.C. Khanduri; State Agriculture Minister, Sri T.S. Rawat; Director General, Indian Council of Agricultural Research (ICAR), Dr Mangala Rai; Deputy Director-General (Agriculture Extension), Dr P. Das; and a number of distinguished guests and delegates graced the occasion.

Shri Sharad Pawar underlined the significance of food security and lauded the contribution of farming community in meeting the needs of a billion-plus population of the country. Shri Pawar said that Krishi Vigyan Kendras (KVKs) provide the technological support to the farmers at village, block and district levels. Further, Shri Pawar emphasized that agriculture is being accorded top priority by the central government and elaborated on various schemes such as Rashtriya Krishi Vikas Yojna (RKVY), and National Food Security Mission (NFSM), launched recently by the Government. He also said that ICAR has been making all efforts to strengthen the KVK system, and also appraised about a series of recent policy measures taken by his Ministry.

is to increase the net return per unit area per year/season. This can only be achieved through developing networking and connectivity links to all the KVKs besides providing need training to farmers and other human resources at village, block and district levels.

Dr P. Das, Deputy Director-General (Agriculture Extension), ICAR, New Delhi, told that there are about 562 KVKs in the country. Their goal is to assess the relevance and potential of new agricultural technology and help in improving productivity and profitability in the backdrop of increasing privatization and liberalization of agriculture. Dr Das emphasized that the main theme of this KVK conference is social, economic and technological empowerment of farming community.

Dr B.S. Bisht, Vice-Chancellor, G.B. Pant University, while welcoming the distinguished guests and delegates of the



Chief Minister of Uttarakhand, Major-General (Retd.) Shri B.C. Khanduri urged the distinguished KVK scientists that they should strive to support the farming community in solving their location-specific and crop-specific problems. Shri Khanduri expressed his gratitude to the Union Agriculture Minister for facilitating in the establishment of 11 new KVKs in the state thereby making one KVK in all the districts. Further, he said that efforts are on to establish a Community Radio Station at all the KVKs.

Dr Mangala Rai, Director General, ICAR, while acknowledging the leadership role of Pantnagar University, talked about accelerating the growth rate of agriculture sector to meet the future challenges. The goal of every KVKs, said Dr Rai,

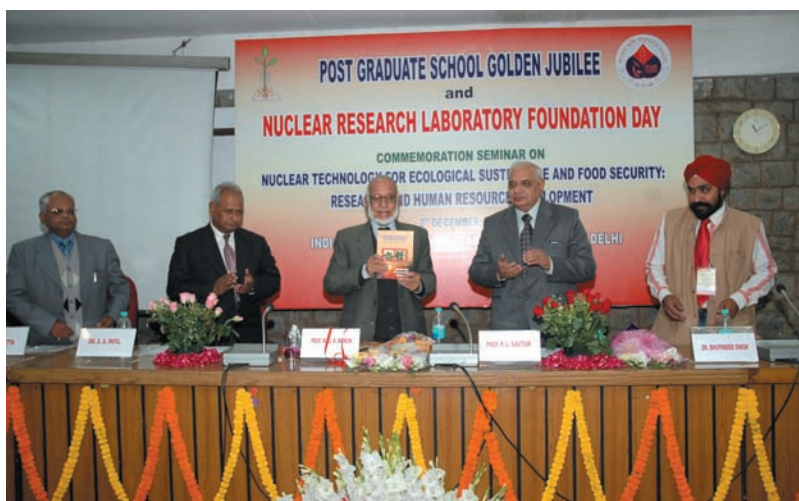
Third National Conference of KVKs, thanked the Union Agriculture Minister Shri Sharad Pawar, Director General of ICAR, Dr Mangala Rai for providing the opportunity to host this important conference. Vice-Chancellor Dr Bisht also received ISO 9001-2000 certificate given to the University Farm.

National Best KVK awards were also announced on this occasion. KVK Puduchery (Pondicherry); KVK, Raichur (Karnataka); and KVK, Gurgaon (Haryana) were given National Best KVK for the year 2005-06; and KVK, Pune (Maharashtra); KVK, Karim Nagar (Andhra Pradesh); and KVK, Jalna (Maharashtra) were awarded for the year 2006-07.

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NRL celebrates PG School Golden Jubilee and Foundation Day

New Delhi, 2 December 2008. Prof M G K Menon (Advisor, ISRO), Prof P L Gautam (DDG, Crop Science), Prof S A Patil (Director, IARI) participated in the Postgraduate School Golden Jubilee and National Research Laboratory Foundation Day Programme at NRL auditorium, IARI, Pusa Campus.



Prof M G K Menon focused on need of Evergreen Revolution, Biotechnology, Genomic Research etc., which will meet the emerging agricultural challenges. He said radiated mutant varieties of agricultural crops have also shown good results.

Dr P L Gautam (DDG, Crop Science) recalled that in 1958, Postgraduate School of IARI became the first institution on Agricultural Science in India. He added that a lot of work on post-harvest technology has been done at the Bhabha Atomic Research Centre, and National Research Laboratory should work jointly with BARC. Publications, viz. *Ionization, Radiation and Agricultural Research; Hydroponics: Grow Plants without Soil*; and *Gamma Radiation* were released.

The seminar on Nuclear Technology for Ecological Sustenance and Food Security: Research and Human Resource Development comprised four sessions—Ecology warning signals, Radio isotopes and radiations, Radioecology and instruments, and Scientists, industry and farmers interface for food security.

Recommendations

- The promising roles of nuclear technology should be more effectively harnessed with adequate infrastructure and capacity building, to support basic and strategic research for ecological warning signals and food and nutritional security.

- A collective vision integrating various disciplines and innovative initiatives should be developed having research focus on use of physical (including nuclear) techniques to address challenges of biotic and abiotic stresses, water scarcity, salinity stress, enhancing nutritional quality and storability, climate change etc.

- Encourage and strengthen the modest and commendable efforts of NRL-Farmers' Partnership in gamma radiation use to improve performance of a promising wheat plant type for increasing number of productive tillers and reducing plant height.
- Scientists should reorient their research on response farming for the benefits of farmers, and social and economic health of the farming community should be foremost on the Government and scientific agenda.
- The procedures and formalities for registration of protection of farmers' rights to plant variety should be made within easy understanding of farmers to complete.
- The farmers should unite and form self help groups and approach with their requests to Government authority and the university in their area or even IARI.
- Strengthen policies for Scientists-Farmers-Industry partnership to bring farmers closer to the market, removing the middle men who make most from the plight of the farming community.

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Patent and IPR Awareness

Karnal, 16 October 2008. A one-day Workshop on Patent and IPR Awareness was held at NDRI Karnal on 16 October 2008. The workshop was inaugurated by Dr A. K. Srivastava, Director, NDRI, Karnal. In his inaugural address Dr Srivastava emphasised the importance of patenting and IPR in the modern era of globalization. He regretted that we have not been able to fully protect our traditional knowledge of medicines, biodiversity and Indian heritage because of the lack of awareness. He cited the examples of neem, garlic and *Basmati* rice, where patenting has been done on many useful properties by western countries.

Dr A. K. Dhawan, Director (Technical), Patent Information Centre, Haryana, stressed on the need to suitably award the inventors of new technologies. He cautioned that patenting of vaccines and other life saving drugs should not make them too costly for people to afford them. Dr Y. D. Panwar, Principal Scientific Officer from Patent Facilitation Centre, TIFAC, New Delhi, explained the introduction of patenting systems in India in the wake of WTO, GATTs and TRIPS. He told that TIFAC provides free search of patent information to help the scientists in filing their patents. Leading patent lawyers and experts made presentation. The Speakers covered the issues of procedural requirements for patenting in India, novelty and inventiveness in patents; and patenting in biotechnologies.

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Genome analysis and structural biology

Karnal, 24 October 2008. A 4-day Workshop on Genome Analysis and Structural Biology was organized at the NDRI, Karnal, from 21 to 24 October 2008. The workshop was inaugurated by Dr S. P. Tiwari, Deputy Director-General (Education), ICAR, New Delhi. Dr Tiwari emphasized on the need to learn the latest techniques in the field of bioinformatics and genomics for young scientists. He expressed the hope that participants of workshop will learn about analytical techniques and tools for comprehension of bioinformatics databases and draw relevant inferences from them. He said that there is single gene pool on this planet and massive data are being generated. He suggested that NDRI should play a lead role in sequencing of buffalo genome.

Dr A.K. Srivastava, Director, NDRI, said that bioinformatics includes not only database development but also its analysis and interpretation. He also opined that the increasing demand for food in coming years can not be met by conventional agriculture and animal production, and biotechnology and genomics have to find novel solutions to meet this challenge.

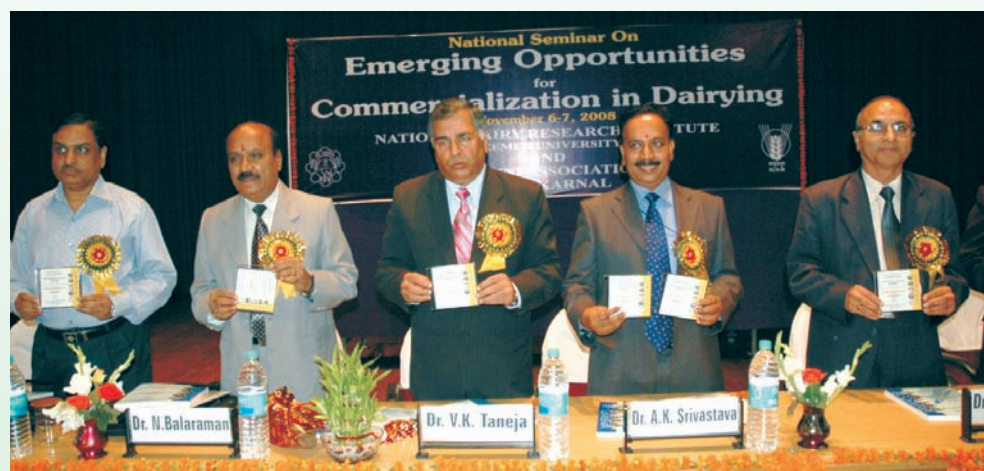
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Emerging opportunities for commercialization in dairying

Karnal, 7 November 2008. A two-day National Seminar on "Emerging Opportunities for Commercialization in Dairying" (Nov. 6-7, 2008) was inaugurated by Dr V.K. Taneja, VC, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana at National Dairy Research Institute.

In his inaugural address Dr Taneja highlighted the role of

buffaloes in milk production in our country. He told that buffalo milk accounts for more than 55% of total milk in the country and buffalo should receive the kind of priority it deserves. Concrete steps must be taken for improvement of the buffalo breeds in the country. Dr N. Balaraman in his key note address reviewed the scenario of chronic shortage of feeds and fodders in the country.



Dr A. K. Srivastava, Director, NDRI, stressed the need to meet the requirement of concentrate in the animal ration. He said that projected demand for concentrate feed is around 50 million tonnes per annum whereas, the present market size is around 6 million tonnes only. This gap needs to be bridged.

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Strategies for disease diagnostics

Izatnagar, 26 November 2008. A two-day National Symposium on Newer Concepts and Strategies for Disease Diagnostics and Immunoprophylactics for enhancing Livestock Health and Production, was jointly organized along with 23rd Annual Conference of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Disease (IAVMI) from 25 to 26 November 2008 at Indian Veterinary Research Institute.

Dr C.D. Mayee, Chairman, ASRB, New Delhi, the Chief Guest called upon the scientists and university teachers for undertaking state-of-the-art technologies on research on diagnosis of infectious animal diseases for enhancing livestock health and productivity. In his keynote address, Dr S.P.S. Ahlawat, Director, IVRI, emphasized on the use of frontier technology for the development of cost-effective specific and sensitive immunodiagnostics and immunoprophylactics for control of infectious diseases of the animals.

In his brief report, Dr M.P. Yadav, President, emphasized that



microbiologists should pay more attention to the priority areas like safety of vaccines to the pregnant animals and also find solution to the new threats of bioterrorism.

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AICRP on Farm Implements and Machinery

Kharagpur, 21 December 2008. The All India Coordinated Research Project on Farm Implements and Machinery, CIAE, Bhopal, organized its 27th Workshop and a Tractor & Allied Machinery Manufacturers' Meet during 18-21, December 2008 at Indian Institute of Technology.

Research Engineers from AICRP on FIM Centres, along with tractor and farm machinery manufacturers from different

parts of the country, Farm Machinery Manufacturers' Associations from different States, agricultural engineers from the different State and Central Government organizations, representatives from the Bureau of Indian Standards and farmers participated in the Tractor & Allied Machinery Manufacturers' Meet. On this occasion a Tractor and Farm Machinery Exhibition was also organized.

There were two-keynote lectures from Shri K C S Bisht, Director (Food & Agri.), BIS, New Delhi and Professor K P Pandey, Professor, IIT, Kharagpur. Speakers were from the industry also.

A panel discussion on Design Standards, Quality Control and Safety Engineering was held in view of the importance of these issues for sustainable growth of farm mechanization in India. Research Engineers from FIM scheme presented the progress reports of their centres and technical programme for 2009-10.

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Soybean and its Utilization

Bhopal, 14 December 2008. The CIAE organized the Fifth International Soybean Processing and Utilization Conference (ISPUC-V 2008) during 10–14 December 2008. The Conference was inaugurated by Dr Mangala Rai, Secretary, DARE and Director-General, ICAR on 10 December, 2008.

Dr Nawab Ali, Deputy Director-General (Engineering), ICAR and Chairman of the Organizing Committee for ISPUC-V emphasized the objectives of the Conference and importance of the soybean. In his inaugural address Dr Mangala Rai emphasized that there is a need for greater role of public private partnership in creating greater awareness among policy makers and consumers to promote the use of soybean as nutritious, cost effective and healthy food in developing countries, fighting malnutrition in majority of their poor population. At the same time, industries and institutions need to work together for globally competitive and high quality soy-products.



Dr Ramesh Chandra Agrawal, Chairman, Soybean Processors' Association (SOPA) of India, stressed the need of promoting soy meal as cheaper source of good quality protein for humans. Dr Karl Weingartner, Chairman of Continuing Committee of ISPUC-V and Director, International Soybean programme, University of Illinois, USA informed global importance and promotion of food uses of soybean.

Dr Michael D Goblirsch, Regional Director – IM, American Soybean Association (Asia), New Delhi, said that along with edible oil, food and feed uses of soy meal at affordable cost need to be promoted for higher returns to soybean growers.

Total eight technical sessions were organized during the Conference. Visit to Soybean Processing Industries were also organized. Exhibition of soy-products and processing technologies were organized in which 20 entrepreneurs participated.

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IRRI-ICAR Collaborative Projects

From genes to farmers' fields

ICAR-IRRI collaborative BMZ (German Government) supported project "From genes to farmers' fields: enhancing and stabilizing productivity of rice in submergence-prone environments" IRRI, Philippines, organized a site visit followed

Therapeutic potential of ion channel modulators

Izatnagar, 17 October 2008. A one-day seminar on Therapeutic Potential of Ion Channel Modulators was organized by Division of Pharmacology and Toxicology on 17 October 2008, at the Indian Veterinary Research Institute.

The Chief Guest, Dr S.K. Garg, former Vice-Chancellor, Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Viswavidyalaya Evam Go Anusandhan Sansthan, Mathura, stated that in recent times, emerging new diseases have raised significant concern in terms of their preparedness for timely diagnosis and control.

In his presidential address, Dr S.P.S. Ahlawat, Director, IVRI, exhorted the need for intensification of research in the area of pharmacology and toxicology and greater attention to be required in key areas of ion channels.

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by one day wrap-up workshop at CRRI, Cuttack from 6 to 8 November 2008.

The entire team having participants (24) from Philippines and India (8) visited on-farm trials in Nuagaon village of Jaipur district on 6 November to see the performance of Swarna-Sub 1 followed by the interaction with the farmers. About 50 farmers including women farmers participated in this interaction meet.

A wrap-up workshop was organized to discuss about the progress made under the project on 7 November 2008. It was followed by the presentations regarding recent development on sub 1 research.

Eastern Indian Rainfed Lowland Shuttle Breeding Network Selection Activity

Under ICAR-IRRI collaborative Eastern India Rainfed Lowland Shuttle Breeding Network (EIRLSBN), breeders from eastern India along with programme leader Dr D J Macill from IRRI, Philippines, participated in the selection activity (Selecting single plants from the segregating populations) from 18 to 19 November 2008 at CRRI, Cuttack, a co-ordinating centre for this network activity.

Promotion of bio-energy should not be at the cost of food security

New Delhi, 16 October 2008. Hon'ble Agriculture Minister, Shri Sharad Pawar, reiterated India's stand that promotion of bio-energy should not be at the cost of food security. The message of Agriculture Minister was read by Dr Mangala Rai (Secretary, DARE and DG, ICAR) on the occasion of the World Food Day function at IARI Auditorium. The World Food Day is observed on 16th October every year. This year's theme of the World Food Day is World Food Security: the Challenges of Climate Change and Bio-Energy. In his message on the occasion of the World Food Day, Shri Pawar said 'Conversion of foodgrains and edible oil seeds for producing bio-fuel will create food security concerns, as is already evident. While the quest of the world community for finding sustainable alternatives to fossil fuels is well appreciated, manufacture of bio-fuels at the cost of food-grains needs to be examined in more depth. The impact of diversion of land, which grows cereal for human consumption into production for bio-fuels

is likely to be self-defeating. India's policy, therefore, has been for the use of non-cereal biomass, crop residues and for cultivation of jatropha on degraded and wasteland for bio-fuel production.' Highlighting the need to prepare the country to tackle the adverse impact of climate change, Shri Pawar called for higher investment in agriculture, especially in research, and making research products easily available to the farmers.

Dr Mangala Rai (Secretary, DARE and DG, ICAR) stated that India has taken a number of steps to cope with the challenges posed by climate change. He informed that India is capitalizing on its vast genetic variability to find new ways to reduce the impact of climate change. He mentioned that a number of projects have been initiated on climate change, relating specifically to food and non-food crops, animals and microbes. Dr Mangala Rai discussed about network project on methane emission, importance of conversion of C3 plants to C4 plants. He also talked about the threat by UG 99 rust line and development of 6 varieties of wheat which have shown resistance to this. He also said that pin-pointed attention needs to be given to Research and Development in microbes and biomass. Dr Mangala Rai further emphasized that food, feed and environment security are to be thought in unison. Earlier, Dr Shalini Dewan read the message of UN Secretary-General Ban Ki-moon, and Dr Gavin Wall read message of FAO Director-General. In his message, UN Secretary-General expressed, World Food Day is an opportunity to build on this momentum by exploring its theme of climate change and bio-energy in the context of global food security. Climate change affects everyone but the poorest regions are already its first victims, said FAO Director-General in his message. He further added, their situation is likely to worsen in the next decades. Keynote address by Dr P K Aggarwal was on Food Security—Managing the Challenge of Global Climate Change, and of Dr H C Joshi was on—The Challenges of Bio-energy. World Food Day provides an occasion to highlight the plight of 862 million under-nourished people in the world. Most of them live in rural areas and their main source of income is from agriculture. Global warming and the bio-fuel boom will threaten these hungry people even higher in the coming decades.

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EPMR team visits CRRI, Cuttack

An External Programme and Management Review (EPMR) team comprising Dr G O Edmeades (Chair), Dr R B Tripp and Dr U S Singh from International Rice Research Institute, Philippines, visited CRRI for 3 days from 28 to 30 November, 2008. The EPMR team visited farmers' field at Niali block of Cuttack district. A discussion meeting was held with the scientists/collaborators of IRRI sponsored projects in operation at CRRI under IRRI-ICAR collaborative programme. The EPMR team, IRRI expressed their satisfaction over the progress of the project work. A visit to the institute experimental fields was conducted to review research progress in the area of salinity, submergence, upland and drought.

Dr Noel Magor (Head, Training Division of IRRI, Philippines) also visited CRRI along with the IRRI-EPMR team in relation to Rice/Cereal Knowledge Bank. Dr Noel made a presentation before the institute scientists about Rice/Cereal Knowledge Bank and had a discussion with ARIS team to identify the areas in which IRRI could be associated to develop India's National Rice Portal. All the experts also visited the newly inaugurated *Oryza* Museum and appreciated Central Rice Research Institute's effort to disseminate information through this museum to various stakeholders.

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SAARC Countries agreed for cooperation

November 5, 2008 New Delhi. The Extraordinary Meeting of the SAARC Agriculture Ministers was held in New Delhi on the directive of the 15th SAARC Summit and the Colombo statement on Food Security. Minister for Agriculture, Shri Sharad Pawar, chaired the proceedings. All eight member states of SAARC were represented at the meeting. The Ministers shared their views on increase in food production, investment in agriculture and agro-based industries, agriculture research and prevention of soil health degradation, development and sharing of agricultural technologies, sharing of best practices in procurement and distribution and management of the climatic, and disease-related risks in Agriculture.



SAARC Ministers of Agriculture approved the Reports of the Special Session of the Technical Committee on Agriculture and Rural Development, New Delhi, 3 November 2008 and the Senior Officials Meeting, New Delhi, 4 November 2008. Noting that intra-regional cooperation among the SAARC Member States was critical to address the current challenges in food shortage affecting the world, the Ministers urged early implementation of the

- Operationalization of the Food Bank
- SAARC Agricultural Vision 2020 and its Roadmap
- Co-operation in trans-boundary animal disease, especially avian flu
- Network on harmonization of quarantine and capacity building.

The intent to harmonize bio-fertilizer standards through the SAARC Regional Standards Organization was signed. Two declarations one on UG99 and the other on food security were agreed.

The SAARC agriculture ministers also reiterated the importance of tapping local talent and resources to achieve the objectives set. They also directed that regional and sub-regional projects identified at the meeting are to be immediately implemented. The Meeting are underlined the tremendous goodwill existing among SAARC Member States in using the multi-lateral dialogue process to realize the South Asian people desire for economic development and food security.

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MoUs/Work Plans

A work plan for 2009–2010 between the Ministry of Agriculture of the Government of Republic of India and the Ministry of Jihad-e-Agriculture of the Government of the Islamic Republic of Iran was signed on 2 November, 2008.

A contract was signed between the Embassy of Sultanate of Oman, New Delhi, and the Indian Council of Agricultural Research, New Delhi on 5 November, 2008 to participate in Mango Tree Encyclopaedia Project.

A Memorandum of Understanding between the Government of Republic of India and the Government of Republic of Ecuador was signed on 17 November 2008 for cooperation in the agricultural research and education.

Major events

Organized workshop on Rural Development and IIInd Indo-China Joint Working Group Meeting from 15 to 16 October 2008.

Krishi Ratna conferred on Shri Sharad Pawar

His Excellency Governor of Maharashtra and Chancellor, Shri S C Jamir conferred the Honorary title Krishi Ratna on Shri Sharad Pawar, Hon'ble Union Agriculture Minister during the XXV University Convocation, in appreciation to his distinguished public service and outstanding achievements and in recognition of his special support and contributions to agricultural research, education and upliftment of the farm communities across the country. Hon'ble Shri Sharad Pawar (Union Minister of Agriculture, Consumer Affairs, Food and Public Distribution) addressed XXV Convocation at Mahatma Phule Krishi Vidyapeeth, Rahuri, and said that the challenge today before us is to insulate our crops against biotic and abiotic stresses. Hence, we have to develop resistant or tolerant varieties. In this context, modern sciences of biotechnology, molecular breeding and marker aided selection have become critical.



Degrees were conferred on 1,866 candidates of different faculties. Dr R B Deshmukh, VC (MPKV) said that modern facilities will be established for post-graduate, and doctorate fellows to mitigate adverse climate changes and enhance the productivity of dryland farming systems in western Maharashtra.

Shri Sharad Pawar (Union Minister of Agriculture, Consumer Affairs, Food and Public Distribution) unveiled the bust of Dr Annasaheb Shinde (former Union Agriculture State Minister) at Mahatma Phule Krishi Vidyapeeth, Rahuri. Shri. Sharad Pawar also inaugurated the Farmers' Guest House. Shri Pawar hailed the great contribution of Dr Annasaheb Shinde to Indian agriculture and said that this great visionary was one of the architects of Green Revolution and a great parliamentarian.

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Shri Sharad Pawar conferred Honorary Doctor of Science

New Delhi, 12 December, 2008. A well known agriculturist, Union Minister of Agriculture and President, ICAR Society, Sh Sharad Pawar, was conferred the honorary degree of Doctor of Science by Orissa University of Agriculture and Technology



for his outstanding and path-breaking contributions in the field of Agriculture and Horticulture development in the country as a progressive farmer. While conferring the honor His Excellency the Governor of Orissa, Shri Murlidhar Chandrakant Bhandare, highlighted the noteworthy contributions of Shri Sharad Pawar in national agriculture perspective. The honorary degree was presented at a graceful function organized at the residence of Shri Pawar in the presence of Dr Mangala Rai (Secretary, DARE and DG, ICAR) and Professor Debi Prasad Ray (Vice Chancellor, OUAT).

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ICAR Vichar Manch

New Delhi, 18 December 2008. Professor Kaushik Basu shared his views on contemporary Economics Crisis in days to come, under ICAR Vichar Manch Lecture series. He focused on Economic activities in India with reference to Global Economy.

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Foundation stone laid for Yashwantrao Chavan building

Mumbai, 1 November 2008. Library building of CIRCOT was inaugurated by Hon'ble Union Agriculture Minister, Shri Sharad Pawar, in the presence of Dr Mangala Rai (Secretary, DARE and DG, ICAR). Shri Sharad Pawar (Union Minister for Agriculture) laid Foundation Stone for Yashwantrao Chavan building, CIRCOT. In his presidential address, Shri Sharad Pawar eulogistically referred to the contribution made by Late Yashwantrao Chavan to the country's growth and development.



Shri Pawar emphasised on the need to continuously develop technologies that benefit the farming community and the user industry. The inauguration ceremony was attended by Dr Mangala Rai (Secretary - DARE, DG, ICAR), Deputy Directors-General and a large number of representatives from cotton traits and industry, textile ministry, academic institutions and media.

Publications, viz. *Cotton Ginning-Technology, Troubleshooting and Maintenance* and *Handbook for Methods of Tests for Cotton Fibres, Yarns and Fabrics - Part 3*, were released by Shri Sharad Pawar. Dr Mangala Rai (Secretary, DARE and DG, ICAR) while highlighting the cotton scenario and the Institute's contribution to the development of high quality cotton in the country, hoped that additional space made available at the Institute would go a long way in carrying out diversified activities in future.

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Second convocation of Sardar Vallabh Bhai Patel University of Agriculture & Technology, Meerut

Meerut, 17 October 2008. Second Convocation of SVBP University of Agriculture and Technology, Meerut, was graced by His Excellency, Governor of Uttar Pradesh and Chancellor of the University Shri T V Rajeswar. He presided over the Convocation function in which 291 students were awarded degree.

His Excellency Governor, Uttar Pradesh Shri T V Rajeswar advised the degree recipients to contribute their knowledge gained in the University towards realizing the dream of prosperous India. He also expressed concern over the present levels of productivity of major field crops and continuous decline in the contribution of agriculture sector in national GDP.



The Vice-Chancellor, Professor M P Yadav, urged to His Excellency Governor, Uttar Pradesh, for providing better financial and administrative support as this University is in the initial stages of establishment and needs special attention from policy makers, Government of Uttar Pradesh and Government of India.

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Mithun Festival 2008

Medziphema, 3 December 2008. Two-day Mithun Festival 2008, was started on 2 December, 2008 at 2 locations, viz. NRC on Mithun, Jharnapani, Medziphema, and KVK-NRCM, Porba, Phek, Nagaland. A Farmers' Workshop on Recent Advances in Mithun Husbandry, was organized on 2 December 2008 at the Institute, Jharnapani. Several mithun farmers from Arunachal Pradesh, Manipur and Nagaland and scientists and extension professionals from the different North-Eastern states attended the workshop and shared their views. The workshop was inaugurated by the chief guest, Professor Imnayongdang (Dean, SASRD, Nagaland University, Medziphema) and presided by Dr Y. Yisao Lotha (Director, Veterinary and Animal Husbandry Department, Government of Nagaland).

Dr Y. Yisao Lotha (Director, Veterinary and Animal Husbandry Department, Government of Nagaland) expressed the need to take special care as the forest area is shrinking. This is creating a shortage of fodder for the mithuns. Dr K.C. Panda, DGM, NABARD, Nagaland, expressed that NABARD is supporting the programmes on various aspects of agriculture and animal husbandry, since this animal has prospect so steps should be taken to harvest its potential. Dr B.P. Bhatt, Joint Director, ICAR Research Complex, Nagaland Centre, expressed his concern over the increasing deforestation and its adverse impact on mithun population. Carrying capacity of forests is decreasing due to denudation



of forests.

A Farmres' Fair was organized on 3 December 2008, at KVK-NRCM, Porba, Phek. The fair was inaugurated by Chief guest of Farmers fair Mrs. Jarjum Ete. A mithun show and an exhibition on different aspects of scientific mithun farming and other related agricultural activities were organized during the fair. Farmers were awarded for maintaining the best mithun bulls, cows and heifers. More than 2,500 farmers from different locations of Arunachal Pradesh, Nagaland and Manipur attended the fair.

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Women in Agriculture Day - 2008

Bhubaneswar, 4 December 2008. The Women in Agriculture Day-2008 was observed by the National Research Centre for Women in Agriculture. About 150 farm women and farmers of Orissa, from 8 villages where NRCWA research projects are implemented, participated. Shri U P Singh, IAS, Commissioner-cum-Secretary, Department of Agriculture, Government of Orissa, inaugurated the programme.

An exhibition on the improved agricultural technologies was organized. In the interactive session with the scientists the farm women appreciated the technological support provided by NRCWA for empowerment of women self-help groups in deriving social, economic and human resource benefits through the projects and

setting models for other native women in farming. Farm women further expressed that major problems generally hindering the development of women in agriculture, were natural disaster, gender insensitive social systems, inadequate knowledge and skill in farming and non-availability of women friendly technologies and other inputs at right time and conspicuous absence of women in rural development planning and implementation.

The ICAR sponsored Winter School on Participatory Research for Mainstreaming Gender Concerns in agriculture, was also inaugurated on the occasion.

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Farmers' corner

Success Stories

Mushroom production in Mudiyani

Nirmal Kumar Vishwakarma is a 31-year-old progressive farmer of Mudiyani village of District Champawat (Uttarakhand). He was always curious to raise his agricultural income for which he got an opportunity in 2007, when his village was selected under NAIP. He was the first person who came forward to attend a three-day training programme on mushroom production at Experimental Farm, Hawalbagh. After that, he was provided with five quintal synthetic compost with spawn of button mushroom in December. He started it in a room of 3 m × 4 m × 2 m adjacent to his house. He was provided technical assistance by the concerned specialist. He did not encounter any disease problem. Now he is famous as mushroom man in his locality. By the end of April he was able to harvest 94 kg of button mushroom. He earned an income of Rs 7,000 (approximately) by selling the produce @ Rs 75/kg. He spent his earning on purchase of stationary, books, paying of school fee of his children and medical treatment of his family members. He visited nearby district headquarter town, Champawat 8 km away from his village for selling the mushroom to vegetable retailers. Initially, he faced the problem of marketing because of mushroom being a new vegetable crop. People were unfamiliar with the taste. He established direct linkage with more than 20 consumers of Champawat town. These consumers directly placed their orders over Cell phone to him. The farmers noted it as low risk crop (not dependent on outside weather of open field) and needed less water in comparison of green vegetable like tomato, cauliflower etc. and not damaged by wild animals. In 2008, he put 10 compost of button mushroom. He has also learned the techniques of pickles making from mushroom to deal with the problems of marketing. In this way, he has proved that a person can raise his agricultural income by diversifying the farm activity by lowering the risk and generating the self employment.

Agro-processing Centre developed at farmers' field

An agro-processing centre (APC) at *Taluka* village in Almora district was established by VPKAS, Almora, to develop entrepreneurship among unemployed educated rural youth. The location of the APC was decided on the basis of raw material, infrastructure and availability of market. The entrepreneur selected had most of the qualities of a good businessman.

The major objectives of the APC were value-addition, processing and to provide regular source of income to the farmer. Initially flour grinder, oil expeller, millet dehuller, mini rice mill and plastic sealing machines with an initial investment of Rs 2.5 lakh were provided. Processing of cereal crops (wheat, paddy, barnyard and finger millet), oil seed crop (mustard), pulse crop (*urd*, *bhatt*, horsegram and rajmash) and other crops (buck wheat, turmeric, capsicum and coriander) were carried out at agro-processing centre. After running the APC for almost three years, the average operational cost per year was Rs 4.88 lakh, while the average gross return was Rs 5.89 lakh per year resulting in a net profit of Rs 1.01 lakh per year. Economic indicators revealed that APC can be a very good option for investment. Forward and backward linkages were established and a fair degree of direct (3.5 full time employment) and indirect employment was generated. This activity has also generated farmers' interest in adopting new varieties and modern agro-techniques for enhancing yield, marketable surplus and income. This can be replicated in other regions provided proper care in selection of entrepreneur and location are ensured.

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Farm School on commercial goat farming through All India Radio

Makhdoom, 5 December 2008. The Central Institute for Research on Goats, Makhdoom, has started Farm School on commercial goat farming through All India Radio, Mathura. In all 30 radio talks have been prepared on different aspects of commercial goat farming in Hindi by the scientists of the Institute and recording of these talks is being done by the AIR, *Akashwani*, Mathura. All the lectures are being recorded and prepared to a series of 30 episodes. The first episode of Farm School on commercial goat farming was broadcast on 5 December 2008 (Friday) at 6:15 pm through All India Radio, Mathura, under its *Kisanwani* programme. The radio talks have covered all aspects of commercial goat production including goat breeds, breeding, feeding, management (shelter, kid and health) extension education, socio-economic and marketing aspects. About 150 farmers/goat farmers were registered for competition.

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Farmers' fair

Lembucherra, 1 November 2008. Shri Aghore Debbarma, Minister of Agriculture, Government of Tripura, inaugurated a farmers' fair organized in the campus of ICAR Research Complex for NEH Region, Lembucherra, in which Soil Health Card was released and a training on farming technologies developed at ICAR was imparted to the members of the



farmers' club. The Soil Health Card was released by Shri Debbarma, Minister of Agriculture, and distributed to 100 farmers present in the fair. Dr P D Sharma (ADG, NRM, ICAR) emphasized on the need of Soil Health Card to recommend the doses for both macro- and micro-nutrients for the crops. Farmers' club from Jirania, Kalikapur, Lefunga, Bamutia, Bishalgarh attended the programme. The Soil Health Card could be used to recommend the fertilizer/manure/bio-fertilizer/lime doses for various crops/fruits/vegetables etc.

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Farmers visit ICRISAT, Hyderabad

Karda, 5 December 2008. A 2-day visit of 25 farmers to ICRISAT was conducted on 4 December 2008 under the collaborative research project entitled, Enhancing grain legume productivity and production and income of poor farmers in drought prone area of Sub Saharan Africa and South Asia, jointly implemented by ICRISAT, Pulses Research Unit, Dr P.D.K.V., Akola, and Krishi Vigyan Kendra, Karda on pigeon pea crop in Washim district of Maharashtra. The farmers visited model watershed field developed by ICRISAT. The guidance was given to farmers regarding watershed importance and need of watershed development programme in rainfed area and also provided tips for *in situ* soil and water conservations.

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National agricultural machinery and organic farming exhibition

Dharwad, 7 October 2008. University of Agricultural Sciences, organized Krishi Mela 2008, from 4 to 7 October 2008. This *mela*, year after year has become popular, and is attracting a large number of farmers from distant places of native and adjoining states.

This year *mela* attracted more than 4 lakh farmers, rural youths, scientists, extension personnel and officers of various development departments/NGOs, representatives of various input dealing agencies/organizations etc. from various parts of the country. This *mela* created a common platform to discuss various developments and field problems of agriculture and allied enterprises and suitable remedies further for overcoming the same.

Innovative farmers, input agencies, agricultural implements/ machinery manufacturers/dealers, agro-processors, Research stations/Schemes and TOT centres of UAS, Dharwad, various Developmental Departments/NGOs, Self Help Groups etc. exhibited/demonstrated their products, technologies and publications in over 410 exhibition stalls. Adequate arrangements were also made for the visitors to see technologies depicting demonstration plot on UAS farms. Consultancy Cell was also arranged to facilitate farmers to discuss their problems directly with the scientists of various disciplines to seek redressal.

Farmer-to-farmer interaction sessions were organized on all the four days. The experiences of successful farmers in sustainable agriculture through organic farming, integrated farming systems and subsidiary enterprises, agriculture activities in water tank catchment area, hi-tech agriculture, export of horticulture products, marketing network, enterprises for women etc. were discussed.

On the first day, Shri B.S. Yediyurappa, Chief Minister, Government of Karnataka inaugurated the *Krishi mela*. The touch screen Agricultural technology information KIOSK was inaugurated by Sri S.A. Ravindranath, Minister for Agriculture, Government of Karnataka. Considering the contribution made by 22 "Shreshtha Krishik" and "Shreshtha Krishi Mahile" identified from 12 districts of Northern Karnataka were honoured. During the *mela*, business transaction of crore of rupees was made.

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Modernised ICAR library opens

New Delhi, 16 October 2008. Krishi Bhavan located ICAR (Hq) Library has been modernized and developed with Information Kiosks, internet surfing, on-line catalogue etc., by using the latest ICT tools. Dr Mangala Rai (Secretary, DARE and DG, ICAR) appreciated the efforts to make it a modern computerized library using latest information and communication technologies. The database profiles of members with photos was developed and given on-line user log-in facility to see their status of circulation. Barcode technology has been implemented in circulation process by bar-coding library publications and membership cards. Shri A K Upadhyay (Secretary, ICAR), Dr P L Gautam (DDG, Crop Sciences), Dr Nawab Ali (DDG, Engg), Dr S P Tiwari (DDG, Education) and other personnel from the Council, NIC, etc visited library. The housekeeping activities of library have been automatized by using *e-Granthalaya* software developed by the NIC. ICAR Library is a member of DELNET and British Council Library. The membership cards and user name and password for on-line access received from British Council Library were distributed to various users. ICAR library provides Borrower's On-line profile facility through its web site.



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Monitoring and evaluation workshop for NAIP sub-projects

Cochin, 21 October 2008. A monitoring and evaluation workshop for the NAIP sub-project, Responsible harvesting and utilization of selected small pelagies and freshwater fishes, was organized by the Central Institute of Fisheries Technology, Cochin.

The constitution of Consortium Monitoring Unit, its functioning and the periodic reports, the benchmark survey report, the results framework of the project and the M&E plan for 2008–09, the half yearly report of the project were presented to NAIP. The NAIP (Consultant team) demonstrated the working of Project Monitoring and Tracking System (PMTS), available in the NAIP web site for online monitoring of inputs, outputs, environment and social safeguard. The Consortium members appreciated the functioning of the

PMTS and they found it user friendly and easy to input information. The system can be used to regularly assess the activities of the sub-project staff, and to evaluate the output and outcomes at mid-term and prior to completion.

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Launch of NAIP sub-projects

Izatnagar, 6 December 2008. A launching workshop of two NAIP sub-projects, namely Rumen Microbial Diversity in Domesticated and Wild Ruminants and Impact of Additives on Methanogenesis and Utilization of Poor Quality Fibrous Feeds and Study on Herbal Acaricides as means to overcome the Development of Resistance in Ticks to Conventional Acaricides jointly organized by Division of Animal Nutrition and Division of Parasitology, was inaugurated by Dr S.K. Ranjhan, Former Joint Director, IVRI

and Chairman, Consortium Advisory Committee of NAIP on 6 December 2008, at Indian Veterinary Research Institute (IVRI), Izatnagar. Dr A. Bandyopadhyay, National Co-ordinator, NAIP, informed as to how these innovative projects could contribute to the changing scenarios in their respective research domains.

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Assessment needs of web sites of Animal Sciences

Karnal, 3 October 2008. A National Workshop on Assessment needs of web site of Animal Sciences and Dairy Science, Education and Research along with Transfer of Technology was organized at NDRI, Karnal, under the aegis of Agroweb sub-project funded by NAIP during 3-4 October, 2008. The workshop was attended by 75 participants drawn from partner Institutes, associate Institutes, nominated scientists from various disciplines at the National Dairy Research Institute, progressive farmers and representatives from dairy industry besides the project team.

The whole programme was divided into four Technical Sessions with the plenary session in the end. The Technical Sessions were: Technical Session I: Issues for Web Content Development and Management; Technical Session II: Farmer, Industry and Institute Interface; Technical Session III: Content Development for Agricultural and Dairy Education; Technical Session IV: Web Content Development for Animal Sciences.

Recommendations

- All ICAR institutes' web sites should have uniform URLs and should be affordable and sustainable.
- Databases should be shared through AGROWEB.
- All university activities should be online with centralized control system in place.
- Information for farmers should be given high priority on the proposed web site of Animal Science and Dairy Research and Education along with Transfer of Technology.

The web site should have information on—latest economically viable technologies along with methodology, package practices of animal management, animals to be auctioned,

database on livestock market, success stories, superior germplasm, sources of semen availability, fodder seed availability, solutions to farmers' problems (between developers/resource persons and stakeholders), milk product prices, list of progressive farmers, cost of milk production, forthcoming events (training, seminar and conferences, products/patents, awards, consultancy etc.).

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Launch workshop of NAIP Project

Makhdoom, 30 October 2008. Dr K M Bujarbaruah, DDG (Animal Sciences) inaugurated the launch workshop of National Agricultural Innovation Project (NAIP) on Goat Husbandry based integrated approach for livelihood security in disadvantaged districts of Bundelkhand region at CIRG. Dr



Bujarbaruah emphasized on need to improve the livestock in the country to fulfill the demand of increasing human population, particularly in those areas, where the rural farmers are facing the adverse natural conditions for agri-livestock farming to livelihood security.

In recent years, climatic changes taking place at the global level have become a cause of concern. Frequent occurrences of droughts or floods, often co-existing, are severely affecting agriculture and livestock production. Under the present and emerging scenario, a holistic concept of bio-security is of direct relevance to the sustainability of agriculture, food safety and the protection of the environment.

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Trainings

Conservation of plant genetic resources

New Delhi, 29 November 2008. An international training course on *In vitro* and cryopreservation techniques for conservation of plant genetic resources, was inaugurated by Dr P L Gautam, DDG (Crop Science) on 17 November 2008 in which 16 participants from 12 countries were trained. This was the third training conducted under the Center of Excellence programme of the ICAR and Biodiversity International.

The training course comprised lectures and practicals related to use of *in vitro* conservation and cryopreservation techniques for conservation of vegetatively propagated and non-orthodox seed species and use of molecular tools for PGR management. The important aspect of this training was the hands-on-training related to cryopreservation of *in-vitro* cultures in specific crops like banana/yams, sweet potato, garlic, pear and *Bacopa* sp. using vitrification, encapsulation dehydration and droplet freezing. Cryopreservation of non-orthodox seeds, buds and pollen was also taught.

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Molecular biology and biotechnology techniques

Izatnagar, 14 November 2008. An International Training course on Molecular Biology and Biotechnology Techniques was organized from 16 October to 14 November 2008, at Indian Veterinary Research Institute, Izatnagar, wherein participants attended from different Asian countries. The Chief Guest of the inaugural function Prof. Rajendra Prasad, Rector, Jawaharlal Nehru University, New Delhi, delivered a lecture on Multi drug resistance: from Microbes to Man. He emphasized the need for such international training courses to share advanced techniques with other countries. Dr S.P.S. Ahlawat, Director, IVRI, highlighted the importance and need of modern molecular biology and biotechnology to improve the productivity of animal and crop production systems to address the problems of food crisis and malnutrition faced by the country. This course has been designed for mid-career scientists/researchers and technical officers who may not have much knowledge about molecular biology techniques but are interested to learn these techniques for their ongoing research and teaching.

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Personnel

VIP delegations

His Excellency the Rwandan Minister of Agriculture and Animal Resources visited NDRI, Karnal and IARI, New Delhi on 11 Nov. 2008.

Delegations hosted

Ms. Manal Mahammad Attiya and Dr Muhammad Atef El-Shobky (Scientists, Agricultural Research Centre, Egypt) visited CIPHET, Ludhiana from 3 to 15 Nov. 2008 in the field of Pre-Cooling.

Dr Muhammad Abdulfatah Abdul Khalek and Dr Ashraf Mahfouz Mashraky (Researchers, Agricultural Research Centre, Egypt) visited CIPHET, Ludhiana from 20 Oct. to 2 Nov. 2008 in the field of Pre-Cooling.

Dr Mahar Abdel Mon'em Maghraby and Dr Abdel Aziz Hagraas (Researchers from Agricultural Research Centre, Egypt) visited Directorate of Wheat Research, Karnal, from 10 to 21 Dec. 2008.

Retirements

Dr S.K. Dwivedi (Director, NRCE, Hisar) retired on 31 Oct. 08.

Shri V.K. Joshi, Shri B.S. Bisht and Shri Kitab Singh, all Under Secretaries retired on 31 Oct. 2008.

Shri R.P. Goel, Section Officer, retired on 30 Nov. 2008.

Dr S.N. Pandey [ADG (Hort.)] retired on 30 Nov. 2008.

Dr S. Edison (Director, CTCRI) retired on 30 Nov. 2008.

Dr P. Das (DDG, Extn) and Dr Nawab Ali (DDG, Agril. Engg.) retired on 31 Dec. 2008.

Dr P L Gautam (DDG, Crop Sciences) relieved on 31 Dec. 2008.

Dr G.S. Chauhan (Director, NRC for Soybean) retired on 31 Dec. 2008.

Dr R.P. Tiwari (Director, NRC for Mushroom) retired on 31 Dec. 2008.

Dr B.M.C. Reddy (Director, CISH, Lucknow) retired on 31 Dec. 2008.

Shri R.K. Saini and Shri D.S. Negi, both Section Officers retired on 31 Dec. 2008.

Shri S.K. Ahuja, Private Secretary, retired on 31 Dec. 2008.

Appointments

Dr B. Meenakumari has been appointed as Director, CIFT, Kochi, on 26 Nov. 2008.

Dr T.K. Adya has been appointed as Director, CRRI, Cuttack, on 1 Oct. 2008.

Dr S.K. Naskar has been appointed as Director, CTCRI, Thiruvananthapuram, on 22 Dec. 2008.

Dr. R.K. Singh has been appointed as Director NRC on Equines, Hisar, on 24 Dec. 2008.

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