



# ICAR



# Reporter

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## News in Brief

<b>From the DG's Desk</b>	1
<b>Workshops, Meetings, Seminars, Symposia, Conferences</b>	
51 <sup>st</sup> Annual Maize Workshop	3
XX Meeting of ICAR Regional Committee No. VI	4
National Conference of Ministers of Agriculture and Horticulture	9
<i>Rashtriya Krishak Mela Evam Pradarshini, 2008</i>	14
<b>International Linkages</b>	
Global Agro-industries Forum Meet in India	15
Sixth Board Meeting of Indo-US Agricultural Knowledge Initiative	16
<b>Silver Jubilee Celebrations</b>	
NBFGR celebrated Silver Jubilee	17
Silver Jubilee celebrations of MSEE	17
<b>Farmers' Fair</b>	
Exposure visit of Tribal Farmers' in Meghalaya	18
Mussel Harvest Mela	19
<b>Launching of Projects, Facilities</b>	21
<b>Success Stories</b>	24
<b>Training Calender</b>	26
<b>O&amp;M Reforms</b>	27
<b>Personnel</b>	27
<b>Highlights</b>	28

## From the DG's Desk

Dear Readers,

The fertilizers have played a stellar role in improving crop productivity and production and would continue to do so in future as well. However, presently there is a growing concern about the low use efficiency of nutrients which range from 2 to 50%. Such a low efficiency increases the cost of production and leads to severe environmental consequences. It is estimated that just by raising the nutrient-use efficiency 10%, the country can save almost 20 million ha of land at the current level of productivity.

The impaired soil health and the declined productive potential is primarily due to imbalanced fertilizer use coupled with low use of organic manures. The soils are not being adequately replenished even with the macro-nutrients, let alone secondary and micro-nutrients. The improper nutrient management has, therefore, led to multi-nutrient deficiencies in Indian soils. The deficiencies range from of 3% of copper to 89% of nitrogen with other elements falling in the range. The deficiencies are becoming more critical for sulphur, zinc and boron. About 47 million ha in major cropping systems are deficient in sulphur. The zinc deficiency is rampant in alluvial soils of Indo-Gangetic plain, black soils of Deccan Plateau and red and other associated soils. The boron deficiencies are showing up in red, lateritic and calcareous soils of Bihar,

Orissa and West Bengal. The limiting nutrients not allowing the full expression of other nutrients lower fertilizer responses and crop productivity.

The site-specific integrated nutrient management encompassing conjunctive use of inorganic and organic fertilizers is the most ideal system for maintaining soil health and enhancing nutrient-use efficiency. The country will require about 45 MT of nutrients to produce 300 MT of foodgrains by 2025. Therefore, the



fertilizer industry has to augment fertilizer production substantially from the present level of about 22 million tonnes of nutrients to keep pace with the growing food demands of the country. At the same time, the Government should have adequate provisions for setting up of units of compost and biofertilizers in rural and urban areas of the country.

There is near stagnation in capacity and investment in fertilizer sector since 2000, which has adversely affected the production of fertilizers in the country.

## FROM THE DG's DESK

The existing gap of about 10 million tonnes of fertilizers between demand and supply is likely to grow to 16 million tonnes by the end of 11<sup>th</sup> Plan thus necessitating import which would, obviously, cause drain on the state exchequer.

The fertilizer industry needs to gear up to meet national demands in view of the rise in the cost of raw materials/intermediates and finished fertilizers in the international markets. The country lacks raw materials for manufacturing phosphatic and potassic fertilizers. Large quantities of high grade rock phosphate and phosphoric acid for the manufacture of phosphatic fertilizers are imported. Potassium fertilizer is fully imported as the indigenous sources of potash are not of high quality and uneconomic for exploitation. The present prices of rock phosphate, sulphur and phosphoric acid used for the manufacture of phosphate fertilizers have increased by 3.5, 6.4 and 2.8 times, respectively, compared to the prices of last year.

Appropriate policy initiatives are, therefore, required to restore health of fertilizer industry, and make it a vibrant sector to face formidable challenges of supplying adequate quantities of fertilizers to domestic agricultural sector. The investment friendly policy is the need of the hour to enhance capacity through revamp, expansion, new plants and joint ventures abroad. A start has already been made in developing such ventures with Morocco, Jordan, Senegal, Oman, and UAE with 100% buy back arrangements for the products. A large number of old Naphtha and fuel oil based plants (present capacity being 26%) with about 2.5 times more cost of production compared to gas based plants need to be phased out. Seeing the present and future requirements, the fertilizer sector should have priority allocations of the natural gas. Although the supplies are going to improve soon with the production from the Krishna-Godavari (KG) Basin fields, the demand is likely to outstrip supplies.

The subsidy, hitherto, was fixed product-wise and not as per nutrient content in the product, and hence was a

cause of nutrient imbalance and deterioration of soil health. Also, the fertilizers fortified and coated with micro- and secondary-nutrients could not be produced on a large-scale due to no provision in the fertilizer policy for meeting their additional cost on account of fortification and coating. To promote balanced fertilization, the Government has recently taken historical decisions on moving to nutrient based pricing and subsidy, and allowing additional cost of fortification and coating of fertilizers to manufacturers. The new policy would broaden the basket of fertilizers and enable fertilizer use as per soil and crop requirements. The other policy decisions taken by the Government are on paying freight subsidy for all fertilizers on actual basis instead of uniform basis and allowing higher rate of concession to single super phosphate (SSP) fertilizer. The freight subsidy on actual basis

**By raising the nutrient-use efficiency 10%, the country can save almost 20 million ha of land at the current levels of productivity.**

would ensure wider spread of fertilizers and their availability in distant areas from the manufacturing sites/ports. The upward revision of rate of concession on SSP would revive the SSP industry; suffering sickness for long, due to *ad hoc* and low rate of concession. Needless to say, the SSP containing 11% sulphur would correct widespread sulphur deficiency in Indian soils as well, besides serving as a P source.

Presently, only 15 fertilizers are covered under subsidy/concession scheme and a large number of other fertilizers including the products containing secondary and micronutrients are outside the ambit of subsidy policy. Hence, incentive for their use would be required. Also to reduce dependence on import of fertilizer raw materials/intermediates and finished products, we need to utilize all indigenously available nutrient sources. There are good reserves of low grade

rock phosphate and potassium-bearing mica in the country. The reserves are uneconomic for exploitation as fertilizers could be used for production of enriched manures containing P and K through co-composting. The low grade phosphate rock could also be used for direct application in acid soils.

Phosphogypsum, a byproduct of phosphoric acid based fertilizer industry, contains 16 to 18% S and can serve as a potential source of sulphur to crops. Over 5 to 6 million tonnes of phosphogypsum are generated per annum by the industry. It may be included under FCO as sulphur fertilizer and considered for concession/transport subsidy. The product has a potential to supply about 1 million tonne of sulphur annually. There are also significant reserves of gypsum containing 16 to 18% S in the country, which can be exploited as source of sulphur besides serving as an amendment for sodic lands. The sources of lime like limestone/dolomite, basic slag from steel industries and lime sludges from the paper industries should be used for liming of acid soils to enhance their nutrient/fertilizer-use efficiency. Liming could save half of the recommended fertilizer, especially for legumes and pulses. Mass movement on vermi-composting, residue recycling and green manuring is to be undertaken as a mission in each and every village in the country.

The geo-referenced soil fertility maps including macro, secondary and micro nutrients should be prepared speedily at district and block levels to serve as guide for proper fertilizer allocation, distribution and application. A good number of well equipped and functional soil testing laboratories, at least one in each district, are required to have precise soil test-based fertilizer recommendations. Research needs to be guided towards development of nano-fertilizers for enhancing nutrient-use efficiency, which is still low for majority of nutrients.

  
(Mangala Rai)

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## 51<sup>st</sup> Annual Maize Workshop

Palampur, 6 April 2008. Dr R B Singh, Former Member of National Commission on Farmers, inaugurated 51<sup>st</sup> Annual Maize Workshop on 3 April 2008 at Ch. Srawan Kumar Himachal Pradesh Krishi Vishwa-vidyalaya. Maize has emerged as a forerunner among all the food crops in terms of overall production and annual growth rate in the country.

Dr P L Gautam (DDG, Crop Science) chaired the meet and said that maize has the potential for still further growth and will provide scope for expansion and growth of other allied agricultural segments like feed, poultry, milk and meat production and for a diverse sector of industrial consumers as textiles, paper, pharmaceutical, confectionery, and processed foods. What remains to be properly and eloquently recognized is the outstanding efforts of the maize scientists in developing single cross hybrids not only for the normal maize types but also for the quality protein maize which can be a strong support to the food and nutritional security of the country in the less privileged and the tribal belts.

### Identification of new hybrids and composites

- Eleven hybrids and composites of normal and quality protein maize (QPM) for *kharif* and *rabi* were identified for their suitability to different cropping systems under varying agro-ecological conditions of the country.
- Two single cross hybrids, HKH 1200 and HKH 1188, developed at the Karnal centre of the CSS Haryana Agricultural University, were identified for cultivation on a national basis all across the country. This is the first time that any single cross hybrid of maize has been

identified as suitable for the entire country, which augurs well for the adoption of public bred hybrids that is a new phenomenon.

- Hybrid JH 10704 was developed at the Punjab Agricultural University, Ludhiana.
- Hybrid Pro 368, developed by Private Seed Company, showed more than 22% superiority over best national check in relatively dry belt of Rajasthan, Madhya Pradesh, Gujarat.
- The hybrids of maize were identified for different states in northern hilly states. Hybrid FH 3352, developed at the Vivekananda Parvatiya Krishi Sansthan, Almora, was identified for Uttarakhand, and Jammu and Kashmir.
- High Quality Protein Maize, viz. HQPM 7 of HAU, Karnal, showed more than 10% yield superiority over national check in Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra. Hybrid Vivek QPM 9 of Almora was identified for Jammu and Kashmir, Uttarakhand, Himachal Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra.

Following composite varieties of maize were identified.

1. D 131 maize developed by the GBPUA&T, Pantnagar, identified for Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Rajasthan, Gujarat and Madhya Pradesh
2. Composite R 2005-2 maize from CSAUA&T, Kanpur, identified for Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu
3. WC 236 maize from Banswara, Rajasthan, identified for Srinagar and Uttarakhand.
4. L 201 maize developed in Himachal Pradesh by Bajaura station of CSK HPKV, identified for Uttarakhand and Himachal Pradesh.

### Crop production

For the hybrids and composites may achieve and exhibit their true potential, it is not enough to plant the improved seeds only, but a whole lot of production and plant-protection practices are to be adopted to realize best yields at any given farm.

### Recommendations

- Plant population and planting in rows with 60 cm × 15 cm or 20 cm is of vital significance. Application of 180 kg N, 75 kg P<sub>2</sub>O<sub>5</sub> and 75 kg K<sub>2</sub>O/ha supplemented with farmyard manure (6 tonnes/ha) gave higher grain yield of single cross hybrids. Nitrogen should be applied in 5 split doses for improving productivity and nitrogen-use efficiency, viz. 15 % at sowing, 25 % at 15 days, 30 % at 25 days, 20 % at tasseling, and 10 % at early grain filling. With a view to maximize returns for a unit area, intercropping of *rabi* maize with high value crops (potato, coriander, peas, gladiolus, cole crops, leafy vegetables) resulted in higher profitability compared to sole maize.
- To control soil-borne diseases, either *Trichoderma viride* formulation mixed @ 1 kg/ 10 kg farmyard manure should be applied in furrows 10 days before pre-sowing irrigation or seed treatment with Captan/ Thiram @ 3 g/kg seed.
- To control sorghum downy mildew, treat the seeds with Metalaxyl @ 2.5 g/kg seed. Lower leaves touching the ground should be removed to reduce load of inoculum and spread of BLSB. Spray of Sheethmar, Validamycin @ 2.7 ml/litre water is recommended to control Bacterial leaf and Sheath blight.

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## XX Meeting of ICAR Regional Committee No. VI

Jodhpur, 27 June 2008. A 2-day XX Meeting of the ICAR Regional Committee No. VI was chaired by Dr Mangala Rai (Secretary, DARE and DG, ICAR) at CAZRI, Jodhpur on 26 and 27 June 2008.

The DG, ICAR highlighted the importance of date palm cultivation in the region and focused on the need to develop technology for its propagation on war footing. He said that ICAR institutes and State Agricultural Universities should join hands with the state government officials for large-scale planting of date palm. He also highlighted following points:

- In view of salinity problem in the region cloning of *kharchia* variety be done. The mangroves are important as gene pool for salt tolerance and need to be stored in gene library and utilized for inducing salt tolerance in crops. Arboreta for desert plants need to be developed at Jodhpur.

- The issue of how to promote varieties developed by private agencies was discussed and members expressed concern for too long a gestation period between development of new variety and its actual adoption. This seed replacement is extremely low in tribal dominated area. It was felt that efforts need to be made to hasten the adoption of improved seeds and planting materials. In Gujarat groundnut, castor, cotton are the main crops and their short duration varieties need to be developed. To



identify spurious seeds, seed testing facilities be developed. Efforts may be made to identify desirable traits for onion and garlic crops so that plant breeders may develop desirable lines.

- Adoption of microirrigation, fertigation, vermicompost need to be encouraged. As groundwater is going down, problem of white grub is becoming serious. Efforts are needed to effectively and economically control them. Utilization and value addition to farm waste be attempted so as to turn waste to a useful product. In fruits value-addition needs to be taken up on priority so as to generate income and livelihood.
- Quality seed production needs to be increased and genetic material and new varieties registered. Researches need to be initiated on cold desert.  
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## Regional Meeting of NRC on Pigs

Guwahati, 9 May 2008. Dr K M Bujarbaruah, DDG (Animal Sciences) chaired the regional meeting organized by National Research Centre on Pigs, Guwahati, Asom, and said 'although pigs of the region constitute major share of pig population of the country, which is directly related to the livelihood of poor farmers in general and tribal farmers in particular, it could not take an organized shape till date like poultry and dairy sector'. He also suggested that Physiology and Microbiology departments of College of Veterinary Science, Asom Agricultural University, Khanapara, Guwahati, Asom, to implement two newly developed technologies at field level, i.e. location-specific mineral mixture prepared based on the deficiencies found in north-eastern

region, and cell-culture-adapted lapinised swine fever vaccine, respectively, in collaboration with line departments. He stressed the need for a concerted effort by the Nutrition Department of College of Veterinary Science (AAU), Khanapara, Guwahati, Asom, and ICAR Research Complex for NEH Region, Umiam (Meghalaya) in collaboration with National Research Centre on Pig (ICAR), Guwahati, Asom to produce low cost feed, which even poor farmers of north-eastern region can afford.

Dr Anubrata Das (Director, National Research Centre on Pigs) gave a brief presentation of pig production scenario in north-eastern region. In the meeting various issues related to pig husbandry. viz. feeding, health coverage and breeding, were

discussed. Issue of concern noticed during recent times—transborder movement of animals—was also highlighted. The house emphasized on proper coordination of developmental agencies, research institutes, extension departments in envisaging future strategies related to swine production in north-eastern region.

Dr Ian Wright, country representative of International Livestock Research Institute, Nairobi, Kenya, exuded hope that the huge potential of piggery sector of north-eastern region could be harnessed. It is possible provided the line departments, research institutes, financial institution, insurance agencies and International Livestock Research Centre work in collaboration with one another.

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## Quality Protein Maize for nutritional security

DMR, New Delhi, 3 May 2008. Dr Mangala Rai (Secretary, DARE and DG, ICAR) said that the year 2007–08 was especially eventful for record maize production of 18.54 million tonnes. He mentioned that single cross maize hybrids were first introduced in USA where they have affected a consistent yield increase of 100 kg/ha/annum during last more than 2 decades but in India this year maize productivity has registered a rise of about 400 kg/ha in a single year on a country-wide basis. This quantum jump was the result of a total technology package involving most modern approach of single cross hybrids and advanced crop management.

He further stated that even at the cost of repetition it should be re-emphasized that our fertilizer policy should include an aggressive promotion of balanced fertilizers, and address the deficiency of micronutrients in our soils, resulting from overexploitation of soil and water resources. There are at least eight micro- and secondary-nutrients, which need to be supplemented, viz. zinc, manganese, sulphur, molybdenum, boron, iron etc. This could best be done by developing and distributing fortified fertilizers containing a balanced mix of these deficient elements rather than the traditional urea or diammonium phosphate or potassic fertilizers alone. When soil is deficient in these minerals, the grain is also deficient and creates nutritional problems for the consumers.

The Indian scientists have brought about a mini-revolution in maize – which literally means ‘one that sustains life’ - by developing our own bunch of single cross hybrids which are not only rich in yield but are also

nutritionally superior, a group called “Quality Protein Maize” or simply as QPM.

Dr R S Paroda (Ex-DG, ICAR) said that the Quality Protein Maize, rich in essential amino acids, tryptophan and lysine, is an important source for human nutrition and is a low cost quality feed for poultry, fishery, piggery and livestock. He too stressed that there is need for greater awareness of the role of QPM in human nutrition, as well as for poultry and other allied sectors which are equally important in meeting the growing food needs of the country.

During the deliberations, about 200 scientists from public and private organizations and progressive farmers shared their views.

### Recommendations

Recognizing the inherent and demonstrated potential of single cross hybrids of maize in the country, the symposium came out with following recommendations.

- Maize should be included in National Food Security Mission, more so because of the potential of this crop in meeting both the food and nutrition security, and also the influence it will have on growth of allied sectors, viz. poultry and milk production.
- There is need to target about 80–90% area coverage with single cross hybrids, which at present is low.
- Public-Private Partnership model should be adopted to achieve the seed production and area coverage targets.
- Maize crop has a very wide range of adaptability and has great potential for adaptation to climatic change, as demonstrated by its high growth rate (about 4.5% per year) over the last one decade. There is need to

encourage diversification of rice-rice and rice-wheat cropping systems in peninsular and eastern India, respectively, with maize.

- Currently utilization of maize as food crop is only 25%, whereas its use for animal and poultry feed is almost 60%. Hence, increasing area under QPM could lead to improved human nutrition and availability of low cost feed for which internal demand is increasing very fast. This would demand use of variable maize products and food habit through popularization of various maize recipes. Also, QPM could be a low-priced source of protein for children and can be used effectively as mid-day meal for which Bihar has already taken lead to move forward.
- Maize has also demonstrated its adaptation ability in areas where the *rabi* temperatures have a tendency to rise suddenly, rather than gradually, viz. West Bengal. Single cross hybrids of maize deserve a special thrust in these areas.
- Utilizing maize not only for human food but as more nutritious animal feed would link up growth of bio- and organic fertilizers like poultry droppings which could help minimize the depleting soil nutritional status.
- Poultry sector has a potential for growth at about 15% per annum as compared to the present 11–12% and also as an export industry. QPM for poultry is an industry demand and should be satisfied in the overall interests of the country.
- Provide incentive to those farmers who produce QPM, and Government should take initiative for providing premium prices (at least 10% higher than normal maize) to the QPM growers to accelerate and strengthen the QPM in the country.

## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

In this context, State Department of Agriculture, Government of West Bengal has taken initiatives for seed production of QPM hybrids and their dissemination through Public-Private Partnership in view of ever-increasing demand of poultry feed in the state.

- The growth of the maize wet processing industry as well as the emerging dry processing industry demand that maize be included in the 'identified' schedule crops of the food processing industry, so that maize consumers have adequate access to their vital raw material and the prices in the market are stable.

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### Litchi for economic prosperity

Muzaffarpur, 8 June 2008. The National Research Centre for Litchi organised a National Seminar on 'Production, Processing, Marketing and Export of Litchi for Economic Prosperity' along with All India Litchi Show.

Shri Sharad Pawar, Union Minister for Agriculture, said that the initiative by National Research Centre for Litchi is timely and assumes significance in view of the various programmes taken



up by the Government of India for improving production and productivity of horticultural crops in the country. Shri Nagmani, Minister of Agriculture, Bihar and Shri Sadhu Yadav, M.P. were present. Dr H.P. Singh, DDG (Horticulture) and Shri A.K. Upadhyay, Secretary, ICAR expressed their views on the occasion.



Shri Sharad Pawar also inaugurated the Administrative-cum-Laboratory building of the National Research Centre for Litchi at Mushari, Muzaffarpur. He expressed concerns on agriculture production, productivity and processing in general and horticulture and litchi in particular. The problems like short duration of litchi harvesting, short shelf life, processing and insect pests associated with litchi were debated in detail, to consider for future line of action by the centre and other related organizations working on litchi.

During the Seminar challenging issues on litchi under major theme areas: scenario of litchi production, genetic resource management and improvement, propagation and planting material, production system management, plant architecture and canopy management, water and nutrition management, plant health management, post-harvest management and value addition and marketing, export and other related issues, were dealt and debated upon.

The lectures covered all aspects of the theme areas and provided critical overview of the latest information on research in litchi and roadmap for the future course of action. All India Litchi

Show was organized on 8<sup>th</sup> June which attracted large number of participants. More than 100 entries had come in the show from Bihar, Jharkhand, West Bengal, Uttarakhand and Tamil Nadu.

Apart from thematic lectures, the seminar included a *Kisan Gosthi* and more than 400 farmers attended and benefited themselves from such interactive open session. An exhibition was also organized as part of the national seminar, depicting the achievements programme of public and private sector organizations for the benefit of end users.

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### Exhibition on career in agriculture

New Delhi, 15 June 2008. The Council along with its institutes participated in the educational exhibitions held at various places such as Gwalior, Jaipur, Hisar and Delhi during May-June. Also Delhi based Indian Agricultural Research Institute participated in the exhibition and displayed about the educational achievements and provided guidance to the students, visitors, etc. The ICAR stall was an interactive platform for students.

The booming Indian economy has opened the doors to multitude vistas of career opportunities for students in the field of agriculture particularly, research and development, marketing of agricultural products, etc. The exhibition provided a platform for students to solve their queries and interact one on one with a large number of academic institutions under one roof. The Council participated in the Sixth educational exhibition titled as Infra Educa 2008, organized at Gwalior, Madhya Pradesh (10 and 11 May); Jaipur, Rajasthan (24 and 25 May); Hisar, Haryana (31 May and 1 June); and Pragati Maidan, Delhi (14 and 15 June 2008).

## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

The exhibition offered students an opportunity to explore and evaluate a wide spectrum of courses ranging from academic to professional and vocational courses. The exhibition also presented a wide selection of courses ranging from graduation, post graduation, vocational, distance learning and part-time courses.

The educational event provided aspirants a single gateway to entire gamut of academic and agricultural courses available in the field of agriculture. The presence of Banks aimed at imparting complete information on education loans and the procedures of the same.

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### Oilseeds for nutritional and economic security

Ludhiana, May 15, 2008. The Annual Group Meeting of AICRP on Sunflower and Castor was jointly organized by Indian Council of Agricultural Research, New Delhi and the Punjab Agricultural University, Ludhiana. Dr V.P. Patil (ADG, Oilseeds and Pulses), said that oilseeds



production in the country has doubled ever since the pre-Green Revolution era but the production levels are far lower than the potential. Dr Patil informed that in the XI Five-Year Plan special efforts will be made to bring more area under oilseeds and pulses. To promote pulses cultivation Rs 2,100 million and to promote oilseeds cultivation Rs 1,370 million have been demanded from the Government of India. Dr M. S. Kang (VC, PAU) said that sunflower and castor are important oilseeds that provide quality edible oil and industrial

oil respectively. Because of the good quality oil it yields, the sunflower cultivation in the country has improved and now India ranks 5<sup>th</sup> in the world in sunflower production. The VC, PAU added, however, there is a need to develop spring season short duration hybrid varieties to fit sunflower in the existing cropping pattern.

Dr D.M. Hegde, Project Director, observed that demand for oilseeds is ever increasing. Dr Hegde said, "To achieve self sufficiency, we must double the present production levels", e mail: vcpau@pau.edu

### Bamboo production and marketing

New Delhi, 15 April 2008. International conference on 'Bamboo Production and Marketing' was inaugurated by Shri S. Reghupathy (Minister of State for Environment and Forests). On the occasion, Shri Reghupathy elaborated about the immense potential of bamboo in improving livelihood of forest dwelling and generating employment.

Dr Mangala Rai (Secretary, DARE and DG, ICAR) stated that bamboo is the fastest growing plant on this planet and provides the best canopy for the greening of degraded lands. Some species of *Bamboo* grow as much as 120 cm/day. Their stands release 35% more oxygen than equivalent stands of trees. Bamboos can also lower light intensity and protect against ultraviolet rays. He further delineated that bamboo is harvested and replenished with no impact to the environment. It can be selectively harvested annually and is capable of complete regeneration without need to replant. Bamboo is an enduring natural resource and provides income, food, and housing to over 2.2 billion people worldwide. He added that bamboo production helps in environment.

Dr P.K. Mishra (Secretary,

Department of Agriculture and Co-operation) presented details of the progress made by the National Bamboo Mission in the last one year. The Mission has been successful in promoting bamboo, especially in the north-east, and generating employment for skilled and unskilled youth. The Mission, he said, has developed specific strategies for different regions. It is promoting bamboo related activities in different spheres, namely, research and development, new bamboo plantations, establishment of nurseries, rejuvenation of old plantations, disease and pest management, bamboo marketing and export. Dr P.K. Mishra also stated that improved technologies for bamboo production and processing are available in northern countries and India can get benefit from them.

Scientists and experts from 35 countries, farmers, entrepreneurs, NGOs and Central and State Governments representatives participated in the conference.

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### Biodiversity regime: Emerging challenges and opportunities

Mangalore, 22 May 2008. Dr N.G.K. Pillai (Director, CMFRI) inaugurated 1-day seminar on 'Biodiversity Regime: Emerging Challenges and Opportunities', organised by Mangalore Research Centre of Central Marine Fisheries



## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

Research Institute, Kochi. The focus was on the importance of biodiversity, and the relevance of sensitizing people about conservation and management was highlighted. He mentioned that destructive fishing practices and over-exploitation had led to the depletion of catfish resources in the coastal waters.

### Recommendations

- Sensitizing public on the importance of biodiversity, promote conservation of biodiversity, evolve exclusive criteria for listing the marine organisms in the Red List.
  - Evolve methods for sustainable utilization for ecosystem services without disrupting its functions.
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### Integrated livestock farming systems in the foot-hills of Himalayas

Mukteshwar, 18 May 2008. A 2-day national workshop on Integrated Livestock Farming Systems in the Foot-hills of Himalayas (HILF 2008) was inaugurated on 17 May 2008 at IVRI Campus, Mukteshwar, Uttarakhand.

The Chief Guest, Dr N K Tyagi, (Member, Agriculture Scientists Recruitment Board) remarked that integrated livestock farming system is the present need of the Himalayan

farmers. He said, they should educate the farmers of the hilly area, how they can be prosperous. They can use the organic fertilizers to increase agriculture production with livestock development.

Dr S P S Ahlawat (Director and Vice-Chancellor, IVRI) stated that there is much to be learnt from independent farming activities as far as augmentation of food production is concerned. Apart from the looming global food crisis, there is also a spiralling increase in prices of inputs. Hence an approach that supports integration and sustainable development should be performed. He further stated that the theme of HILF 2008 is very pertinent as hill agriculture is full of potential and promise. The topography and climatic adversities in this location calls upon an integration of resources and an overall holistic approach. He also said that the emphasis of HILF-2008 is to make the farmers aware as to how best they can use their resources to achieve satisfactory production leading both to sustenance and to overall increase in production of plant and animals products.

The guest of Honour Dr S K Bhadula (Former Director-General, Uttar Pradesh Council of Agricultural Research) expressed the happiness over the workshop and appreciated the organizers of the workshop and advised the scientists to develop suitable agro-techniques for livestock farming system.

The Krishi Vigyan Kendra of Indian Veterinary Research Institute, Izatnagar conducted 30 demonstrations under National Food Security Mission programme on 30 acres of farmers' fields in Nawabganj, Bhojipura and Bheri - Damkhoda blocks of Bareilly district. Out of these, 10 demonstrations were conducted on

System of Rice Intensification (SRI) for resource conservation, 10 on hybrid rice production, demonstrating RH 10 variety along with the integrated nutrient management and 10 demonstrations on package of practices for high yielding paddy varieties. Since Bareilly district is known for the cultivation of scented basmati rice and has been identified as basmati export zone these demonstrations will have long-term and visible impact on enhancement of area, production, productivity and quality of basmati, hybrids and other varieties of paddy.

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### Socio-economic dimensions of technology development

Rahuri, 25 May 2008. A National Seminar on Socio-economic dimensions of technology development and technology transfer in agriculture was organized by the Maharashtra Society of Extension Education (MSEE), Rahuri in collaboration with PDKV, Akola and Directorate of Sericulture, M.S. at College of Agriculture, Nagpur during 24–25 May 2008. Dr P Das, DDG (Agril. Extension), ICAR, New Delhi inaugurated the seminar. Dr P Das reviewed the agriculture scenario of the country. He called upon the extension scientists to come with appropriate extension strategies to fight the global challenges. Dr V M Mayande, Vice Chancellor, PDKV, Akola, while addressing the delegates said that in view of the food crisis in the world in near future, there is a need for extension scientists to adopt innovative extension methodologies to narrow the gap between technology and farmers. Two issues of *Asian Journal of Extension Education and Abstract Souvenir* were released on this occasion. More than 150 extension scientists from across the country participated in the seminar.

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## National Conference of Ministers of Agriculture and Horticulture



Hyderabad, 26 May 2008. A National Conference on Agriculture and Horticulture was held under the Chairmanship of Union Minister of Agriculture, Consumer Affairs and Public Distribution, Shri Sharad Pawar, at the National Academy of Agricultural Research Management (NAARM), Rajendranagar, in which Ministers of Agriculture belonging to different States were present. The Conference, organized by ICAR, DARE, and Ministry of Agriculture, focused on the technological advances made for enhancing the production of oilseeds, pulses and coarse cereals and the likely impact of climate change in Indian agriculture. The Union Agriculture Minister who presided over the Conference, complemented the Indian farmers, scientists, state governments and everyone associated with agriculture for the record food grains production for the last two consecutive years. The farmer-friendly policies of the government, have a major role in the bringing about this positive scenario in agriculture. He highlighted the importance of pulses, coarse cereals and oilseeds in the overall economy and food security of the country and made special reference to the challenges likely to be faced on account of global climate change and called for concerted action to devise adaptation and mitigation strategies.

Dr Mangala Rai (Secretary, DARE and Director-General, ICAR) in his address, stated that the ICAR has

developed state-specific technologies for enhancing agricultural production including pulses, oilseeds and coarse cereals. He brought out the way 3 major commodities have been growing in respect of their area coverage, productivity, production, processing and trade. Further, ICAR is fully-seized with the likely impact of climate change on agriculture and has initiated major programmes pertaining to technology development, biotic and abiotic stress management.

In two technical sessions, scientists from ICAR and ICRISAT (International Crop Research Institute for Semi-Arid Tropics) made presentations about several technologies and varieties developed, that have huge potential for substantially increasing the production in pulses, oilseeds and coarse cereals. Two presentations on the impact of climate change on agriculture, were also made by scientists from ICAR and Ministry of Earth Sciences.

### The adaptations included the followings:

- New genotypes development
- New landuse systems development
- Value-added management services increased
- Mitigation
- Capacity building

Dr P.K. Mishra (Secretary, DAC) summed up the issues pertaining to policy and development in the areas deliberated in the Conference. Dr Mangala Rai indicated the future thrust areas of research in oilseeds, pulses and coarse cereals and dwelt at length with regard to likely impact of climate change, adaptation and mitigation strategies.

An exhibition on the technological advancements and achievements in the different areas on pulses, oilseeds, and coarse cereals from seed to finished



product, impact of climate change on Indian agriculture had been organized on the occasion. Besides the ICAR institutes and ICRISAT, Acharya N.G. Ranga Agricultural University (ANGRAU) and A.P. Horticulture University participated in the conference and exhibition.

### Recommendations

Based on the deliberations, the action points, categorised under heads of policy, development and research were prioritized.

### Policy

- Pulses and oilseeds are energy-rich, but they are grown in risk-prone and energy-starved conditions. Therefore, ensuring inputs, infrastructure and incentives would be essential to trigger further growth.
- Besides being nutritious food, the demand for coarse cereals is likely to increase significantly for feed and various industrial uses. They possess unique adaptation ability for fragile ecosystems. Further, the hybrid technology is available in maize, sorghum and pearl millet, for enhancing yields substantially. Accordingly, these should receive priority and focus through appropriate programmes/missions.
- Incentives would be essential to capitalize on new generation single cross, high yielding, quality protein and dual purpose sorghum hybrids. For ensuring bioethanol production

## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

to meet likely energy crunch, dual purpose sweet sorghum hybrids needs to be promoted without compromising on food security. Pilot plants for ethanol production and feed block preparation would need to be established.

- Most of the oilseeds except soybean and sunflower are reserved for processing by small scale sector, which hitherto has low efficiency and high costs. Hence it is necessary to explore the possibility of oilseed crops being thrown open to modern processing technologies, to reduce costs and enhance efficiency.
- A large section of Indian population is protein and energy-malnourished, ironically, high quality protein enriched meal/cake of soybean is sold/exported at low prices. Incentives need to be created for utilization of such meal/cake for producing value-added diversified food/feed products. This would help enhanced quality protein availability in the country and also ensure that the farmer gets the worth of his produce, which would be an incentive for such production.
- Incentives be provides for conversion of biomass into bioenergy and by-products into valuable diversified products for better utilization of resources and creation of incentives for triggering growth.
- It is important to ensure the availability of quality seeds of improved inbred varieties. Private sector do not find inbred varieties of much commercial interest and public sector has not been able to meet the enhanced demand. Therefore, there is a need to change the seed production, dissemination and adoption strategy. In this endeavour, immediately after the release of a new pure line variety, seed must be produced for an acre in each village which can work as a demonstration plot as well as seed dissemination unit from farmer to farmer based on

their conviction.

- Incentives be provided so that the parental seed of public bred hybrid varieties could be produced and marketed by the private entrepreneurs.
- Large scale training of farmers be organized for not only quality seed production of pure line variety, but also that of hybrid varieties in crops like maize.
- Suitable incentives for farmers need to be provided to adopt conservation farming and contribute to reduced emissions of greenhouse gases.
- To enhance productivity, it is essential to ensure availability of quality inputs such as seed, fertilizer, pesticide, micro-nutrients, etc. As petrol pumps are available in the rural areas at even block levels, their licensing conditions may make it obligatory to market the above inputs.
- Quality law enforcement is crucial to ensure quality input availability such as seeds, fertilizers and pesticides. It is necessary to revitalize and modernize the state institutions who have the regulatory powers for these tasks.
- Approach to agricultural development should be holistic, incorporating schemes of various departments such as agriculture, horticulture, animal husbandry, rural development, irrigation etc.

### Development

- Deficiency of micronutrients like sulphur, zinc, boron etc. is rampant. Nutrients like sulphur not only enhance the seed yield but also impart resistance to diseases like powdery mildew and increase oil content in oilseeds. Government has taken a path breaking policy decision for fortification of fertilizers with such micronutrients. Hence, efforts be intensified for making such products available in forms which could be applied, and awareness created

about them

- Promotion of biofertilizers in leguminous crops is critical. Similarly, biocontrol agents for integrated pest management are important. There is an urgent need for developing a mechanism and system for the production, storage, transport, application and quality control.
- Oilseeds, pulses and coarse cereals are often grown under rainfed conditions. Their yields can be substantially enhanced if one protective irrigation is given. Hence emphasis be laid on water harvesting and efficient utilization of water to enhance water productivity and consequently, increased yields
- For the North-Eastern states, QPM maize has high potential as food, feed and fodder and hence may be promoted.
- Effective utilization of schemes such as NREGS for agricultural activities must be ensured.
- There is a need for effectively utilizing the national advisory weather information networks by developing a system where value addition to such information could be made by formulating advisories on do's and don't's for the farmers. This would require setting up a multidisciplinary network of specialists who could assess various aspects and make actionable recommendations for the farmers.
- Progressive coverage of majority of farmers through weather insurance against climate risk and weather extremes merits consideration
- A publication illustrating key strategies for farmers for adoption and mitigation of climate change in different agroclimatic regions be brought out that could be translated into regional languages and distributed to farmers.

### Research

- For managing increasing different

## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

biotic and abiotic stresses, research efforts are required to be intensified utilizing modern tools and techniques of crop improvement. For those traits of economic significance, where options of conventional tools do not exist, biotechnological tools of genomics, proteomics, marker assisted selection and transgenics be resorted to. In this endeavour for example, *Helicoverpa* resistance, transgenic chickpea and pigeonpea need to be developed.

- Hybrid research and development efforts be intensified in crops like pigeonpea, safflower, rapeseed mustard, castor and sunflower.
- Assessment of the impacts of elevated greenhouse gases and extreme weather events on crops, livestock, fisheries and microbes using field and controlled environmental facilities and simulation models.
- Mitigation and adaptation strategies involving both genetic improvement and management practices.  
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### IARI-MPKV joint venture

IARI, New Delhi and MPKV, Rahuri have been jointly working on a national level extension programme to develop village-based models of market-led agriculture for farmer-to-farmer extension. A similar MoU was signed last year between the two institutes under seed exchange programme. In this connection a *kharif* planning meet of Farmer-Scientist Forum of MPKV, Rahuri was organized at Deolali Pravara on farmers fields. Dr S A Patil (Director, IARI, New Delhi) while addressing the farmers emphasized on curtailing the cost of agricultural production. He put forth some examples of profitable successful farmers who are earning lumpsome through market-fed-production. Dr Patil urged the farmers to go for market intelligence before crop planning. Dr R B Deshmukh (Vice Chancellor) said about the concept of Farmer-Scientist forum and focused on regular interactions of farmers and scientists have accelerated the research-

extension linkage, thereby achieving the motto of increased economic benefits to farmers. Dr Baldeo Singh [JD (Extn), IARI, New Delhi] lauded the concept of FSF of the University.  
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### Consultation Meeting for Nodal Officers

New Delhi, 28 May 2008. A consultation meeting for Nodal Officers designated by the State Agricultural Universities (SAU) for filing of applications for State-released plant varieties, was held at NBPGR. The meeting was attended by Project Directors/Project Coordinators, Officials from ICAR and NBPGR. Dr P L Gautam, DDG (CS) chaired the meeting and emphasized that after the enactment of Protection of Plant Varieties and Farmers' Right Act, ICAR has initiated the process of registration of extant-notified varieties released at Central level, which now needs to be extended to State released varieties.  
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### Lac cultivation for Jharkhand forests

IINRG, Ranchi, 14 June 2008. Dr Bangali Baboo (Director) showed Institute Research Farm, lac insect and host plant gene bank, lac crop on *kusum* trees and newly developed lac host tree plantation of *Flemingia semialata* and *Ziziphus mauritiana* to Sri Sudhir Mahato (Dy C M, Jharkhand), who showed special interest in Surface Coating Laboratory, Quality Evaluation Laboratory, Museum and Lac Processing Unit. A *kusum* sapling was also planted by him in the Institute campus.

The Dy Chief Minister focused on the need to promote the lac cultivation as the State is suffering from insurgency problems, and it can be

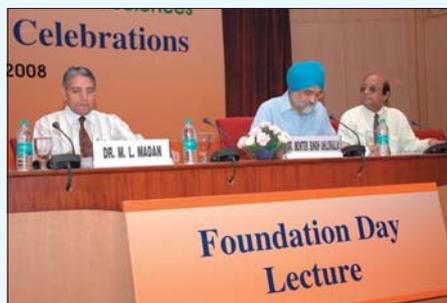


minimized to a large extent by promoting employment through lac cultivation in rural and forest areas where plenty of host trees are available besides suitable environment for the growth of lac insect. He directed the officials of his ministry to extend maximum co-operation to the Institute and make conducive atmosphere to use expertise of scientific lac

cultivation developed by the Institute. He said that Rs 7,000 million has been allocated to forest department for plantation under NREGA and large chunk of fund will be allocated for development of lac in the state. While presenting the status of lac in Jharkhand, the Institute Director stated that several number of broodlac farms under state forest department are lying idle as no activity is being carried out despite availability of plenty of host trees. He stressed the need for ecological approach for economic utilization of forests. The revival of broodlac farms in the state by forest department will be helpful for availability of sufficient broodlac to farmers and thereby increasing overall production in the state.

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## NAAS Foundation Day



New Delhi, 5 June 2008. A two days programme was started with Technical Sessions in which newly elected Fellows and Associates gave the presentations at NASC Complex on 4 June 2008. The focus was on Global food crisis: causes implications and outlook; Quality protein maize for nutritional security: rapid development of short duration, QPM hybrids through molecular marker-assisted breeding; Blue-tongue virus and its impact on animal health and production in India; Trends in crop monitoring from space; Cryogenic technology for food processing; Opportunities and challenges for trade of livestock products of India; Development and evaluation of conservation agriculture based resource conserving technologies in different cropping system; and Development and application of genomic tools for legume improvement etc.

Dr Montek Singh Ahluwalia (Deputy Chairman, Planning Commission) delivered Foundation Day lecture and focused on "Rejuvenating Agriculture: The Challenges Ahead". He said that land is the constraint. Farming inputs should be decreased to obtain more food production benefits. Farmers, those have done well, should be appreciated and ICAR can give a platform to such progressive farmers. He said that University of Agricultural Sciences, Dharwad, is a Model University particularly for *Rashtriya*

*Krishi Vikas Yojna*. He highlighted National Action Plan on 'Climate change' which will be put up by Government of India very soon. Dr Ahluwalia emphasized on processing of agro-products.

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## Workshop-cum-Training Programme on *Rajabhasha*

Makhdoom, 17 April 2008. Shri Harish Chandra Joshi, Director (*Rajabhasha*) inaugurated 1 day *Rajabhasha* Workshop-cum-Training, organized by the Central Institute for Research on Goats, Makhdoom, Farah, Mathura, under the provisions of the guidelines for accelerating the use of *Rajabhasha* in day-to-day working of the Institute. He said that the provisions of the guidelines for use of Hindi as the official language should be made and the procedures be adopted for compiling the periodical reports and filling up the report proforma. He also briefed on the progress made and activities on the publications prepared by different Institutes of the ICAR. He clarified queries, questions and doubts raised by the Institute employees in the use of Hindi as the official language in our day-to-day functioning.

Dr Narendra Pal Singh, Director of the Institute, presided over the Inaugural Function and said that all the sign/display boards, names plates, official stamps, proforma, applications, banners, file covers etc. have been prepared in Hindi and provided for use by the Institute staff and the outsiders. The target of almost 100% noting on the files in Hindi has been achieved during the last 3 years. A number of Seminars, Interviews Interactive Meets and Meetings have been organized in Hindi, and their proceedings were also prepared and circulated in Hindi.

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## XV Dr B.P. Pal Memorial Lecture 2008

New Delhi, 24 May 2008. To pay tributes to the outstanding contributions made by Dr B.P. Pal to Indian Agriculture, IARI organized Dr B.P. Pal Memorial XV Lecture. The speaker Prof. Anil K. Gupta, Professor, Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad, spoke on 'Rethinking the Priorities for Indian Agricultural Research Institutions and Policy: Learning from the Grassroots'.

In his very inspiring lecture Prof. A.K. Gupta highlighted four very important and burning issues, viz. (i) Managing genetic resources, (ii) rethinking sustainability, (iii) redesigning research organizations for sustainable, accessible and affordable outcomes, and (iv) ethical and institutional issues in agricultural research. Prof. Gupta emphasized that the quality of education, development of entrepreneurial spirit, monitoring ecosystem health and developing longitudinal research facilities are some of the other important concerns in the agricultural research system. When plant breeding got dominated by the practice of making selections in international nurseries and releasing varieties instead of painstaking seven to eight year breeding cycles of complex crossing programmes, the faster mortality of such rapidly released varieties was inevitable. In his lecture Prof. Gupta also mentioned that there are large number of areas where wisdom of common people can help in revitalizing



## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

Indian agriculture. He also mentioned that incentive systems for scientists unfortunately have not been upgraded and calibrated in a manner that social, professional and individual interests can converge. He also focused on the lessons learnt from the grassroots innovators as the public awareness about innovations by common people is very low. Dr Ashok Gulati elaborated the importance of innovative research and traditional knowledge in the international scenario.  
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### NRCWA conducts tribal women's meet

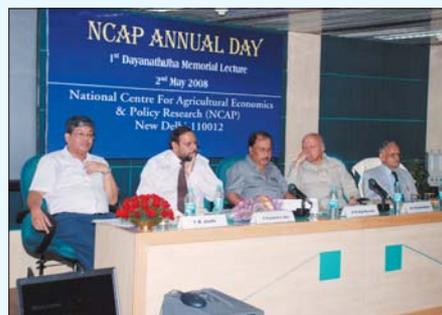
Bhubaneshwar. A Tribal Women's Meet was organized at NRCWA, Bhubaneshwar, in connection with the 12<sup>th</sup> Foundation Day celebrations of the Centre. Twenty tribal women from Cuttak specially invited for the Meet participated in the day-long programme at the Centre. Considering their role in conservation of biodiversity and the



related traditional wisdom tribal women need special attention in gender mainstreaming efforts in agriculture. In the Tribal women- scientists interaction held on the occasion, the tribal women with great enthusiasm shared their concerns in their lives as well as in food production. They displayed some of the tribal products including *hundis* for carrying lunch to farms, made of dried bottlegourd, processed 'bakher' roots for preparation of local wine, broom made of weed grass, and medicinal plants.  
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### National Seminar and Annual Day of NCAP

New Delhi, 2 May 2008. Dr K M Bujarbaruah (Deputy Director-General,



Animal Sciences) chaired Annual Day of NCAP and stressed for an integrated farming system approach to augment farm incomes, minimize risk and improve the sustainability of natural resources. Dr Mahendra Dev, Chief Guest listed number of obstacles including those of declining resources, falling investment in agriculture, stagnating yields, missing markets and small holdings and deliberated how the cost of key commodities has grown over the years due to growing transaction costs of small holders. He suggested for higher investment in agriculture, and stressed for connecting farmers with the growing and remunerative markets. Dr M S Swaminathan (MP) appreciated the programme of the Centre and advised them to take up research to uplift the welfare of farmers. He stressed for providing solutions and developing an implementation plan for the National Farmers' policy. Dr H K Jain, Chancellor (CAU) advised for a strong linkage between agro-biological and policy research. He was of the opinion that farmers must be given remunerative prices to make agriculture viable. New opportunities need to be created to enhance the farm income. Dr Mahendra Dev in his lecture delivered the 1st Prof Dayanatha Jha Memorial Lecture.

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### WTO issues

New Delhi, 25 June 2008. To sensitize the farmers and exporters and enhancing of the farmers, the NCAP, New Delhi, in collaboration with State Farmers Commission, (Government of Bihar) and National Agricultural Marketing Federation Limited, New Delhi organized 2-day training workshop on WTO issues, Codex Standards and Sanitary and Phyto-sanitary Measures: Implications for Agricultural Producers and Exporters at Deep Narayan Singh Institute of Agriculture, Patna. Minister of Agriculture (Bihar) inaugurated the workshop.

The farmers and exporters stressed the need for more such trainings, which could help them to take rational decisions in view of emerging challenges and opportunities. It was one of the 6 training programmes being organized by NCAP and National Agricultural Marketing Co-operative Federation Limited, New Delhi. Similar



training workshops are being organized in Karnataka, Kerala, Meghalaya, Rajasthan and Uttar Pradesh. The main objective of the training workshop is to create awareness about WTO issues, Codex Standards and Food Safety Measures and their implications for the farmers and Agro-Exporters. This in turn would be helpful in enhancing the competitive-ness of farmers and Agro-Exporters to face the new challenges and tap the emerging opportunities in the global market.

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## WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

### *Rashtriya Krishak Mela Evam Pradarshini, 2008*

CISH, Lucknow, 20 June 2008. The Central Institute for Subtropical Horticulture organized the *Rashtriya Krishak Mela Evam Pradarshini, 2008* (National Agricultural Fair and Exhibition, 2008). The *Krishi Mela* was inaugurated by Shri A K Upadhyay (Secretary, ICAR) who was the Chief Guest. Speaking on the occasion Shri Upadhyay suggested that the horticulture sector could attain a growth rate of 4%, if the scientists, farmers, banks, industry and other responsible come together and make integrated efforts.

The ICAR is working on the interface so that the novel approach could be implemented in right earnest. Dr H P Singh (DDG, Hort, ICAR), who presided over the deliberations, emphasized the three major challenges, viz. reduced availability of land for cultivation, reduction in watertable and climate change including global warming. He exhorted the scientific



community to ponder over these challenges and evolve suitable technologies for higher productivity within the given circumstances/limitations. He said that farmers should know about the benefits of carbon credit accumulation and its conversion into monetary benefits. He cited the example of traditional cow dung manure preparation in villages, which released lot of methane, led to global warming and reduction in the accumulation of carbon credits. On the other hand, production of wormy compost and wormy wash produced

high quality manure, with low methane release and higher carbon credit points.

Shri A K Upadhyay (Secretary, ICAR) and Dr H P Singh (DDG, Horticulture) inaugurated the mango exhibition. The newly developed hybrids, Ambica (Amrapalli × Janardan Psand), CISH-M-2 (Dashehari × Chausa), H-39, H-949 etc. The display also included Alphonso, Tomy Atkins and other exotic varieties available in the Institute's Field Gene Bank. which largest in the world.

During farmer-scientist interactive session the farmers were invited to raise their problems after brief introduction of technologies. The main queries were on the suitability of varieties, irrigation management, insect pest and diseases. The problem of thrips on mango in this region was a new phenomenon and the experts suggested the control measures. Similarly the farmers were quite interested to know the control measures of mealy bug.

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### **Groundwater development in waterlogged areas of canal commands**

Karnal, 13 May 2008. Dr A K Singh (DDG, NRM) inaugurated a 1-day workshop on Groundwater development in waterlogged areas of canal commands which was organized at Central Soil Salinity Research Institute. About 85 delegates consisting of officers and scientists from Haryana.

Dr A K Singh, Chief Guest, emphasised that irrigated agriculture is under considerable stress due to reduced water supplies, falling productivity of crops caused by waterlogging, soil salinity, declining groundwater and climate change. About 2/3<sup>rd</sup> area in Haryana and 1/3<sup>rd</sup> area in Punjab is underlain by brackish to saline groundwater at shallow depths. He highlighted the need to treat the waste water as a resource and develop

interventions for its safe use in agriculture. The deliberations were on irrigation, agriculture, groundwater, drainage for collation and synthesis of soil and groundwater data and its easy availability for user groups.

Dr Gurbachan Singh focused on waterlogging and soil salinity problems



in different irrigation commands of the country and available technical, chemical and biological interventions. He also discussed the concept and scope of multi-enterprise agriculture studies based on multiple use of water for combining conventional crops along with aquaculture, horticulture and cash crops and animal husbandry. Such study is being conducted at the institute at Karnal and its regional stations for improving water productivity and farmers' income.

The need for large-scale propagation of individual farmer based groundwater recharge technologies and interventions for declining water table areas and for improving groundwater quality, was called for.

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## Global Agro-industries Forum Meet in India

New Delhi, 11 April 2008. A 4-day First Global Agro-industries Forum was inaugurated by Shri Sharad Pawar (Union Agriculture Minister). It was hosted by Government of India in close co-operation with FAO, UNIDO, IFAD of the United Nations on 8 April 2008.

The main objective of the GAIF was to highlight the role of agro-industries in production catchment in relation to the enhancement of farm income and rural employment. There are other related advantages of promoting agro-industries in production catchments such as reducing the migration from rural to urban areas, cleaner environment and greater prosperity. About 550 delegates and resource persons from 120 countries attended the four-day deliberations.

Shri Sharad Pawar in his inaugural address said that agriculture has globally made spectacular progress. Productivities have gone up several-fold. Better inputs and application machineries are available. Better quality of agricultural produce is also available for consumption/ processing. Besides, better production technologies are being developed continually to meet the contemporary needs of food, feed, fibre, fuel and other renewable commodities.

Shri Pawar added that promotion of agro-industries in rural areas and production catchments could create livelihood opportunities and the agricultural produce would undergo the required processing without much loss of time thus minimizing the post-harvest losses. While a part of the processed products is retained in the production catchments for consumption, the surplus is suitably transported to urban areas for consumption or further value addition. In doing so, a large part of residual biomass is retained in the production catchments which not only reduces urban pollution but, actually



enriches the soil leading to further improvement in productivity. It now appears that a significant fraction of the residual biomass could be further value added to convert it into livestock feed and industrial products and thus benefit farmers and rural population.

Shri Sharad Pawar said that the experts here at the Global Forum will further add value to these ideas and the vision of Mahatma Gandhi, while churning available information to derive knowledge. We are convinced in India that agro-industries in rural areas and production catchments need to be promoted for sustainable agricultural growth. We are launching a pilot project this year with a modest budget of Rs 40 crore (US\$ 1.0 million) to test the proposal. He hoped that the Global Agro-industries Forum will be able to deliberate threadbare the successes and failures of agricultural transformations under different socio-economic conditions, and develop a holistic vision for removing hunger and poverty from this planet and restoring respectability to agriculture. The United Nations Organization may then take up the agenda with member Nations for successful implementation of the shared vision to bring peace and prosperity all around.

### Pilot project to promote agro-industry in rural areas

Dr J. Diouf, Director-General (FAO) and Shri Sharad Pawar (Union Minister of Agriculture, India) discussed on the importance of agro-industrial sector in the economies of developing countries particularly those where agriculture sector is dominant, viz. India. They shared the views that agro-industry can play important role not only in bringing about a more inclusive growth but also poverty reduction through increased employment and income. The Global Agro-Industries Forum being organized will ensure sharper focus on development of agro- and food-processing industries.

Discussions were also held on low levels of world stocks, especially for wheat and maize. Besides, agricultural markets are becoming increasingly intertwined with non-agricultural markets, viz. energy, manufacturing, finance etc. They also focused on climate change and resource constraints that are influencing overall food supply and demand.

### Prime Minister addresses Global Agro-industries Forum

The Prime Minister of India, Dr Man Mohan Singh, in his address said that the potential for agro-based industrialization, especially labour intensive industrialization, is truly enormous.

He said that the welfare of our farming community as well as the livelihood of farmers and agricultural workers will be better ensured through higher investment in rural infrastructure and in agricultural development. Farmers and workers seek income, not subsidies. They seek markets and employment, not hand-outs. While some subsidies are useful and helpful, especially when targeted to those in distress, what our rural households

## INTERNATIONAL LINKAGES

seek is higher investment in land development, water management, in seed technology, output storage and in marketing. They also seek investment in rural infrastructure. Investment therefore is the key to development. We need much greater global and national efforts to increase investment in rural areas in developing world, in agriculture and agricultural technologies, in farm and off-farm economic activities.

### Prime Minister of India receives highest FAO's Award

Dr Jacques Diouf (Director-General, FAO) conferred FAO's Highest Award the Agricola Medal, on Dr Man Mohan Singh for his support to agricultural and social development programmes that benefits not only Indian farmers but also show a path to the rest of the developing world. Agricola Medal is awarded to distinguished personalities working towards alleviation of poverty and hunger.

Dr P.K. Mishra (Secretary, Department of Agriculture and Co-operation) suggested that any strategy for sustainable development must address issues related to the small and marginal farmers. Dr J Diouf hoped that the implementation of programmes

undertaken by the Government of India would demonstrate to the world at large the way of eliminating poverty and hunger. President, IFAD, Mr Lennart Bage, cautioned about the impending food shortages and higher prices on account of increasing population and alternate uses of food crops.

Dr Yumkella, DG, UNIDO emphasized the need for South-South Cooperation. He hoped that India and Africa combined could become the granary of the world.

Dr Mangala Rai (Secretary, DARE and DG, ICAR) opined that the direction given by Prime Minister of India and the deliberations of the forum would lead to an implementable road map.

### Poverty reduction in rural sector

Shri Subodh Kant Sahai (Union Minister of State for Food Processing Industries) committed to go all out to support any initiative leading to the poverty reduction in rural sector. He indicated that his Ministry would whole-heartedly support the implementation of agro-industries programme whenever the expert groups make the action plan available.

### Recommendations

- The main outcome of the Global



Shri Subodh Kant Sahai, Minister of State for Food Processing Industries

Agro-Industries Forum has been the consensus on development and implementation of programmes for promoting agro-industries in production catchments as a potent today—rural development leading to alleviation of poverty and hunger.

- The Forum was unanimous in recommending the creation of adequate infrastructure by various governments to facilitate the promotion of sustainable agro-industries benefiting the vulnerable sections of rural society.
- FAO, UNIDO and IFAD in the organization of the Global Forum will make efforts to implement the recommendations in different member countries.

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## Sixth Board Meeting of Indo-US Agricultural Knowledge Initiative

New Delhi, 16 April 2008. A 2-day VI Meeting of the Indo-US, AKI Board was started on 15 April 2008 in New Delhi. Dr Mangala Rai (Secretary, DARE and DG, ICAR) from the side of Government of India and Mr Michael W. Yost (Administrator, Foreign Agricultural Service, USDA) from USA, both Co-Chaired this meeting. It was also attended by Board Members and experts from Indo-US sides. Dr Mangala Rai expressed satisfaction over the progress made so far in the four identified focus areas i.e. (i) Human Resource and Institutional Capacity



Building, (ii) Agro processing and Marketing, (iii) Biotechnology, and (iv) Water Management.

Based on the extensive discussions, joint activities in the form of deliverable

were identified, which include 15 Indo-US Borlaug Fellowships for training of Indian scientists/faculty in USA, internship programme for students and faculty, capacity building in teaching and learning excellence, bio-security and library strengthening and information system, and joint research on virus resistance in horticultural crops, genomics, abiotic stress management in crops, water management and agro-processing etc. These are available in the ICAR website [www.icar.org.in](http://www.icar.org.in)

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## SILVER JUBILEE CELEBRATIONS

### NBFGRC celebrated Silver Jubilee

Lucknow, 27 April 2008. Dr Mangala Rai (Secretary, DARE and DG, ICAR) inaugurated a 2-day National Conference on 'Aquatic Genetic Resources', which aimed to address various researchable and management issues related to aquatic biodiversity, on 26 April 2008 at National Bureau of Fish Genetic



Resources. Dr E.G. Silas (Former Vice-Chancellor, Kerala Agricultural University), delivered Silver Jubilee lecture in academic session. The technical sessions included discussions on Aquatic Germplasm Resources, their Conservation and Taxonomy and Systematics.

The newly constructed modern temperature controlled indoor hatchery complex was also inaugurated by Dr Mangala Rai on this occasion. He emphasized that National Bureau of Fish Genetic Resources should take initiatives and lead in registering the fish germplasm of the country; and capacity building and research in new areas of fish genomics and bio-security.

Dr Mangala Rai was awarded Fellowship of Academy of Science, Engineering and Technology (FASET), Bhopal, and Dr S. Ayyappan, DDG (Fisheries), received Special felicitation from the Academy for their outstanding contributions in agricultural research management. Aquatic Biodiversity Conservation

Society honorary fellowships were given to Dr S. Kannaiyan, Dr S.N. Dwivedi, Dr E.G. Silas, Dr S.A.H. Abidi, Dr P.V. Dehadrai, Dr M.Y. Kamal, Dr J. Gopakumar and Prof. H.R. Singh.

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### Silver jubilee celebrations of MSEE

Akola, 25 May 2008. National Seminar on "Socio-economic Dimensions of Technology Development and Technology Transfer in Agriculture" was jointly organized by Dr Panjabrao Deshmukh Krishi Vidyapeeth (Akola), Maharashtra Society of Extension Education, and Directorate of Sericulture, Maharashtra from 24 to 25 May 2008 at College of Agriculture, Nagpur.

Dr P. Das (DDG, Agriculture Extension), the Chief Guest, in his inaugural speech expressed that research should develop the technology based on socio-economic dimensions of the farmers. The extension personnel should have sound knowledge of the technology for effective transfer. He



highlighted the need of development of new scales for the measurements in social science as the previous scales were outdated. Researcher should think in different angles for innovating different methods in research in extension. Further, he expressed that practices of the crops should be followed in view to avoid the glut in the market.

Dr V M Mayande (Vice Chancellor, Dr PDKV) pointed that most of the researches in the action were in the area of Agriculture Extension and the Social Scientists should shift their researches to the areas of Extension Education. He also delineated that the University was bound to extension research rather extension of the technology.

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### Farmers' fair organized

Almora, 3 April 2008. A Farmers' fair was organized at Hawalbagh Campus of the VPKAS in which more than 800 farmers from various districts of Uttarakhand participated. Padmasri Shri Anil Joshi, Chairman, HESCO, Dehra Dun was the Chief Guest. He emphasized that "farmer fair" policy for agricultural development is the need of the hour. He appreciated the efforts of the institute in successful implementation of research agenda for hill farming and developing eye opening extension modules for extension agencies, NGOs, farmers specially women, who are the backbone of hill agriculture.

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### Farmers' field day

Almora, 11 May 2008. The VPKAS, organized a farmers' field day at village Bhagartola near Jageshwar in Almora, to show the impact of improved technologies developed and demonstrated by the Institute for enhancing the farm income and to obtain sufficient foodgrain production. Emphasis was laid in the village on crop diversification involving major farming components comprising vegetables, fruits, cereals and pulses, protected cultivation, water harvesting, fisheries, white grub management and apiary.

Shri Harish Rawat (MP) was the Chief Guest who expressed great

## FARMERS' FAIR

satisfaction on demonstrated technologies and stressed that the technologies should be disseminated on largescale by concerned departments/agencies. More than 650 farmers from 12 villages of Nainital, Almora, Bageshwar and Champawat districts participated. Apart from the farmers, MLAs, Block Pramookhs etc. also participated in the fair.

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### Exposure visit of Tribal Farmers' in Meghalaya

Lembucherra, 9 April, 2008. Tribal farmers' exposure visit -cum -tuber crops planting material distribution under NABARD (FIPF) project was organized at the ICAR Research Complex for NEH Region, Tripura Centre, in collaboration with National Bank for Agriculture and Rural Development. About 60 farmers from 6 villages of Bishramgaj Block and Mohanpur Block participated. Dr N.P.Singh (Joint Director, ICAR Research Complex for NEH Region, Tripura Centre) briefed the importance of tuber crops for livelihood opportunities in tribal areas and also stressed cultivation of tuber crops in the state. Minister for Co-operation and Fisheries, Shri Khagendra Jamatia, Government of Tripura, appreciated the efforts taken by the ICAR and NABARD in popularizing the tuber crops in tribal areas for uplifting the economic standards of the people in West Tripura. Earlier, Dr S.V. Ngachan (Director, ICAR Research Complex for NEH Region, Umiam, Barapani, Meghalaya)



stressed the importance of integration of tuber crops in the integrated farming system in Meghalaya. The high -yielding varieties in tuber crops, viz. tapioca, sweet potato, elephant foot yam, greater yam, colocasia, xanthosoma and arrow root were exhibited. The training was imparted to the tribal farmers about production techniques for major tuber crops and at the end planting materials of tapioca, sweet potato, elephant foot yam and greater yam were distributed to tribal farmers.

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### Public, Private Partnership: A Commercial Outlook

Almora, 25 April 2008. A meeting on Public Private Partnership was organized at Almora, to discuss various aspects of commercialization of the technologies developed by the VPKAS, Almora. The meeting was attended by the representatives from Dhanuka Seeds, Kesar Enterprises, Nath Seeds, Venture and Krishi Dhan. All the seed companies showed great interest in the technology developed in maize hybrids developed by the institute especially 'Vivek QPM 9'. All the participants were interested to test this new material in their targeted market area and as a follow-up, the hybrid seed of the maize hybrids were supplied by the institute to all the participants. To show the performance of maize hybrids and seed production ability of inbred parents of these hybrids, a meeting will be organized

in future, a step forward in commercialization. All the participants interested in maize hybrids as well as other composites and inbred varieties in other crops will be invited to this field meeting and brain storming session.

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### Climate change: Moving towards low carbon economy

Kausalyaganga, 5 June 2008. World Environment Day was celebrated at CIBA, Kausalyaganga. Dr A.G. Ponniah (Director, CIBA) in his presidential address, outlined the purpose of World Environment Day, and also elaborated various steps like effective usage of electronic devices in offices, use of fluorescent tubes, vehicle pool sharing, avoiding plastics and number of other useful tips to create more awareness and promote action towards low carbon economy and the lifestyle at changing Central Institute of Brackishwater Aquaculture.

Dr P.G. Lavanya (Head, Agricultural Policy and Planning, Tamil Nadu State Planning Commission, Chennai) focused on the Fishery Development Programmes in XI Five-Year Plan in Tamil Nadu along with the emphasis on the environmental conservation including the schemes planned for eco-restoration, well being of coastal communities and coastal area development to reduce climate and market risks. Dr K. Ponnusamy (Senior



## FARMERS' FAIR

Scientist, CIBA) highlighted the impact of climate change on farming systems and livelihoods and emphasized on the causative factors of climate change, its likely impact on human settlement, farming systems including agriculture livestock as well as the mitigation and adaptation strategies to get along with ramifications of climate change.

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### Earth Day celebrated

Lambucherra, 22 April 2008. Indian Council of Agricultural Research has organized the celebration of International Earth Day in collaboration with the Ministry of Earth Sciences, Government of India. A poster painting competition was organized and 436 students from the schools across the state participated.



The prize distribution programme was chaired by Shri Joy Gobinda Deb Roy (Minister for Science and Technology, Government of Tripura), Shri Jitendra Chowdhury (Minister for Forest and Rural Development, Government of Tripura) was also present in the programme as Chief Guest. Dr M Datta, (Principal Scientist, ICAR, Tripura Centre, Lambucherra) vividly described the Climate Change on a Global Platform with various photographs. A concern for climate change in entire globe was expressed by all in the meeting with an appeal to keep the environment clean and eco-friendly for the future generation.

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### Mussel Harvest Mela

Kochi, 22 May 2008. A Mussel Harvest *mela* was organized by the Central Marine Fisheries Research Institute between 15 May and 22 May 2008, as part of the Front line Demonstration Programme of its Krishi Vigyan Kendra located at Narakkal, Kochi.

The culture was undertaken by a group of 10 women, under the leadership of Mrs Liza Paul Dominic, who were given training by the Institute. The mussel seeds that were deposited 4 months back have grown to maturity and are expected to fetch good prices in both domestic and international market. Each rope had 3 kg of seeds attached to them when they were deposited in the backwaters at Gothuruthu. The 250 ropes dipped in the backwaters weighed about 4.5 tonnes at harvest. The Institute had been supporting the farmers in providing seeds and facilities for the farming. The farmers including women trained by the Institute in mussel culture would share their knowledge they acquired among the women fisher folk at their respective village and encourage them to take up the initiative, thus creating a new chapter in the extension of knowledge from the research labs to fields.

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### World Veterinary Day celebrated at KVK

Bud Bud, 26 April 2008. World Veterinary Day was celebrated by the Krishi Vigyan Kendra, Burdwan, under Central Research Institute for Jute and Allied Fibres (ICAR). On this occasion an animal health and vaccination camp was organized, where 150 farm-families attended with their farm animals like cattle, goats and ducks. The animals were vaccinated, treated and



free packs of region specific mineral mixture, calcium supplements and deworming bowls were distributed among animal owners with the help of private animal medicine companies. A 1 day seminar was also held on importance of veterinary service for better animal health and animal productivity, which is essential for rural prosperity. In the seminar, Dr F H Rahman (Programme Coordinator, KVK) addressed the stack holders and encouraged them to adopt the improved animal husbandry practices along with crop cultivation. Dr C Jana [SMS (AH&VS)] explained the importance of World Veterinary Day and conveyed the latest package of practices to the animal owners for sustainable livestock production.

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### World Veterinary Day at IVRI

Izatnagar, 28 April 2008. One-day National Seminar on Uniform Diagnostic Methodology in Animal Diseases. Diagnosis was organized by the Centre for Animal Disease Research and Diagnosis, Izatnagar, to mark the World Veterinary Day as well as 'Shallhotra Jyanti'.

The Chief Guest, Prof. R N Sreenivas Gowda (Former Vice-Chancellor, Karnataka Veterinary Animal and Fisheries Sciences University, Bidar) applauded the key role of veterinarians in the national progress and economy and listed out many areas in animal as

## FARMERS' FAIR

well as public health.

Dr S K Garg (Ex-Vice Chancellor, Veterinary University, Mathura) desired that the veterinarians should become well equipped to meet the challenges of global warming and WTO regime.

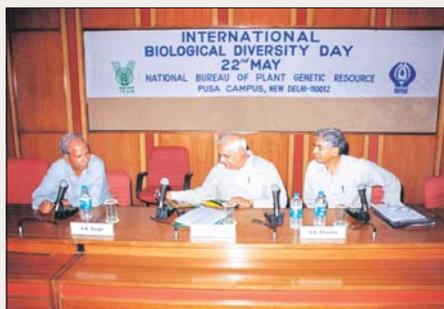
Earlier, Dr R S Chauhan (Joint Director, CADRAD) emphasized on the need of uniform diagnostic methodology to be followed by all the animal disease diagnostic laboratories of the country.

As a part of World Veterinary Day, a Free vaccination programme was organized at Referral Veterinary Policlinic of India Veterinary Research Institute. On this occasion vaccination against rabies was done in 150 dogs, followed by a quiz competition and cultural programme.

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### International Biological Diversity Day

New Delhi, 22 May 2008. The International Biological Diversity Day (World Biodiversity Day) was celebrated at NBPGR (Hq.) and all its regional stations. Agro-biodiversity



exhibitions were also organized. The participants were given an opportunity to see germplasm diversity in several crops. At NBPGR in New Delhi, the function was attended by children from 45 schools who not only visited the National Genebank facilities, but also interacted with Dr P L Gautam, DDG (Crop Science), ICAR, during the prize

distribution valedictory function. Dr Gautam enthused all the young participants about the joys and importance of biodiversity in general and crops in particular. Dr K S Varaprasad, Principal Scientist and Head, NBPGR Regional Station, Hyderabad, was felicitated by Dr Y S Rajasekhara Reddy, Chief Minister of Andhra Pradesh on this occasion at Kadapa for his dynamic service in bringing awareness among people about biodiversity.

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### Regional Kharif Review

MPKV, Rahuri. The Regional Kharif Review Meeting of Pune and Nasik revenue divisions of Maharashtra state was organized at MPKV, Rahuri. Shri R R Patil (Deputy Chief Minister of the State) presided over the meeting. In his address he assured of proper supply of chemical fertilizers in the state and added that strict action would be taken on illegal storage of chemical fertilizers. Shri Patil lauded the contribution of farmers and scientists for record agriculture production of the state. Speaking on the occasion, Shri Balasaheb Thorat, Minister of Agriculture said that the state has recorded the highest foodgrain production of 155 lakh tonnes since independence. The ministers Shri Dilip Walse Patil and Shri Babanrao Pachpute also expressed their views. On this occasion, Vice-Chancellor, Dr R B Deshmukh made a lucid presentation about the location specific technological interventions to increase the productivity of different crops to achieve targeted agricultural growth rate in Western Maharashtra. Divisional Commissioners of Pune and Nasik divisions also presented their reports. The MLAs and President of Zila Parishads from these divisions put forth the problems of their locality.

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### Organic Farming Policy

MPKV, Rahuri. The state level committee for framing organic farming policy of Maharashtra state under the Chairmanship of Dr R B Deshmukh, Vice-Chancellor, MPKV, Rahuri, submitted its report to Shri Vilasraoji Deshmukh (Chief Minister of Maharashtra) during the recently held Joint Agricultural Research and Development Committee Meeting - 2008 at College of Agriculture, Nagpur. The committee has suggested 20% more agricultural price for organic farm produce. It has suggested for establishment of a state level organic farming federation for coordinating the production of organic produce, its processing, marketing and guiding the farmers on export. Further, the committee has recommended establishment of organic farming research centres in SAUs of Maharashtra. Development of minimum 20 ha certified organic farming area in each tehsil, declaration of organic farming sector in tribal and hilly area, setting up of biological fertilizer and pesticide laboratories in SAUs and other important recommendations have been made by the committee.

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### ICAR Vichar Manch



New Delhi. Smt Juhi Sinha, an eminent script-writer-cum-Director-cum-Producer, focused on 'Bismillah Khan and Benaras' and showed a Documentary on him.



Dr K K Chakravarty, Member-Secretary, IGNCIA in Ministry of Culture, spoke on Tribals and Issues of Bio-cultural survival.

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## NAIP reviewed the Project Progress

New Delhi, 3 June 2008. The First Annual Workshop of NAIP was held to review the programme of project implementation and plan of work. So far about 50% projects are from non-ICAR-SAU System. Project highlights agricultural development, livestock and fisheries production, genetic resources, bio-prosperity, natural resource management, IPM, post-harvest procurement, policy analysis and market intelligence. It was emphasized that the investment on research in consortium mode is going to give high dividends. E-courses in agriculture and horticulture, and Information Communication Technology Management of some of the important programmes are getting priority.

Higher number of diverse partnership with non-conventional partners like general universities, IITs, IIMs, CSIR labs, private sector, NGOs as reflected in the approved projects/consortia are expected to contribute to collaborative development and application of agricultural technologies/innovations.

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## AGROWEB: Digital dissemination system for Indian agricultural research

NBPGR, New Delhi. A network project on AGROWEB-Digital dissemination system for Indian Agricultural Research, in the sub-component 'Information, Communication and Dissemination System (ICDS)' of Component 1 of the NAIP was sanctioned. The project is approved for NBPGR, New Delhi, as Lead Centre, and eight Cooperating

centres namely DIPA (ICAR Hqrs); CIBA, Chennai; CRIDA, Hyderabad; IARI and NCIPM, New Delhi; IIHR, Bangalore; NAARM, Hyderabad and NDRI, Karnal. The total cost of the project is Rs 526.87 lakh for 2 years, starting from June 2008. Dr R C Agrawal (NBPGR, New Delhi) is the consortium Principal Investigator of the project. The main objectives of the project are to—identify standards, develop uniform guidelines, content management strategies and a model template for websites of ICAR institutes. Other objectives are development of model websites of all consortium partners, design and development of ICAR Portal and integrating the websites of consortium partners, and capacity building of personnel in ICAR institutes in design, development and management of websites.

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## Water saving campaign

PAU, Ludhiana. The Punjab Agricultural University, in collaboration with the Directorate of Extension Education, Punjab Agricultural University, launched a "Water Saving Campaign" in May 2006 under the aegis of the ICAR-funded Niche Area of Excellence for "Soil and Water Management in High Intensity Cropping Regions". Initiated from the village Mastuana Sahib in district Sangrur, this campaign aimed not only at creating awareness but also employing irrigation water saving technologies. The campaign emphasized the immediate necessity to start rice transplanting from 15 June onwards rather than in May as practised by a large majority of the farmers for many years.

### Impact of water saving campaign

Transplanting of rice from 10<sup>th</sup> June onwards in about 57% of the rice area during *kharif* 2006, saved about 0.74 million ha-m water. It resulted in

arresting the rapid fall in the water-table, particularly the central districts of Punjab. In 2007 transplanting of rice was started from 15 June onwards in 63% of the rice growing area, which saved about 0.82 million ha-m water. Having got convinced with the outcome of the campaign launched by the Punjab Agricultural University, the Punjab Government has issued an ordinance this year vide which the farmers are advised not to transplant rice before 15 June onwards to avoid wasteful withdrawal of groundwater. On-farm demonstrations, on use of a simple version of a tensiometer, were conducted to educate farmers about applying need-based irrigation to rice by using tensiometer. Average paddy yield in the fields irrigated with the use of tensiometer and with the farmers' practice was 66.7 and 66.5 q/ha, respectively. Average water use was 150 cm in fields irrigated with the use of tensiometer and 199 cm when the irrigation was applied following farmers' practice. Thus even if only 20% of the farmers of the state adopt this practice, there can be a saving of about 0.26 million (ha-m) of water leading to a saving of 260 million kwh of electricity costing about Rs 1,040 million.

On-farm demonstrations were carried out to educate the farmers about scheduling irrigation to enhance water use efficiency in rice. The technique consists of ponding water continuously for a fortnight after transplanting rice nursery and thereafter applying every irrigation 2 days after the water applied through the previous irrigation disappears. This technology helps save about 25% water for growing rice. Adoption of the above said technologies by a large number of farmers of the state has not only resulted in saving huge volume of irrigation water but also helped in arresting the rate of fall of water-table as well as saving of electric energy.

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## TRAININGS/LAUNCHING OF PROJECTS, FACILITIES

### Field Experience Training for the ARS Probationers

CISH, Lucknow. National Academy of Agriculture Research Management, Hyderabad, deputed five ARS Scientist Probationers, to undergo the 'Field Experience Training' at Central Institute for Subtropical Horticulture, Lucknow, from 18 March to 5 April 2008. The major theme of the training was 'Input



and Services Supply Delivery System'. Irrigation was found to be the most limiting factor as the water availability in canals and state tube-well was highly uncertain in village Kanar and its hamlets Gulabkhera and Sanyasibagh. The farmers applied fertilizers and manures in limited quantities. Similarly, the spray schedule for the insecticides for the control of Hopper and mealy bug and fungicides for the control of powdery mildew was a limiting factor. Genuine and timely availability of insecticide and fungicide was another impediment. This was found to be because of financial constraints and untimely availability of inputs. The farmers continue to use synthetic pyrethroids, which were harmful for the beneficial insects, caused resistance in the insects and left residue in the produce, thereby causing health hazards. The technological knowledge of the respondents was inadequate. The marketing system was found to be inefficient in terms of quality and price realization to the growers.

The system integrates input, marketing and disposal system through computer interface. The trainees studied the supply of inputs and technical know-how including veterinary doctors and medicines to the dairyman, milk

procurement process, milk pricing and processing for fluid milk and various milk products.

The field experience training trainees organized village *goshthi* on 1 April 2008 in which about 50 farmers participated.

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### Training on production, protection and postharvest technology of fruit crops

The Institute organized the training programme from 22 to 24 May 2008, for the officials of the Directorate of Horticulture and Food Utilization, Lucknow under State Horticulture Mission. The main emphasis of the training was on the scientific cultivation of mango, guava, aonla, litchi and banana.

### Training on Pig Farming

Izatnagar, 20 June 2008. Krishi Vigyan Kendra of Indian Veterinary Research Institute, Izatnagar, organized a 6-day training programme on pig farming for unemployed rural youth on 23 June 2008. Thirty-six trainees from districts of Uttar Pradesh attended the knowledge-cum-skill oriented sessions, conducted by the scientists of IVRI on breeding, feeding, management, health care, pig product technology, marketing, role of banks and insurance on pig farming. One day exposure visit was organized to a piggery farm to provide them first hand experience and face to face interaction. This farm established by an ex-trainee, is situated at Bilaspur district Rampur which is 50 km away from Bareilly.

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### Camel Dairy Unit inaugurated

Jorbeer, 9 May 2008. Dr C.S.Prasad, ADG (AN&P) inaugurated Camel Dairy



Unit at National Research Center on Camel (NRCC), and focused on importance of multiple role of camel in the economy of arid and semi-arid Rajasthan. He added that establishment of camel dairy at NRCC Campus is a step forward to transform camel into a milch animal. He expressed happiness over the Memorandum of Understanding signed between National Research Center on Camel and Rajasthan Cooperative Dairy Federation for the promotion of sale of camel milk and its further prospects of entrepreneurship through camel milk products. Prof. K.M.L. Pathak (Director, NRCC) informed that the camel milk has been accepted by the society as a food drink. Besides traditional utility of camel as draught animal, the new role as dairy animal shall greatly empower the *Raika* community and uplift their economy.

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### Multicage unit for stock development and farming

Vizhinjam Bay, 27 May 2008. A new multicage unit, constructed and anchored, was inaugurated in presence of Dr N.G.K. Pillai (Director, Central Marine Fisheries Research Institute) and others. The director also released an *Atlas of Marine Ornamental Fishes of Vizhinjam Coast*.

These cages will be utilized for producing broodstock of large marine fishes, viz. grouper, cobia, scads etc. These fishes fetch very high price in the international market, especially in live condition. This cage unit will also

## LAUNCHING OF PROJECTS, FACILITIES

be used for studying the growth potential of juveniles of high value fishes caught in the fishing nets, which will otherwise be discarded or sold at a low price. These types of cages can also be used for farming lobsters, pearl oysters and mussels.

This unit has the advantage that any number of additional cages can be added to the mother unit, if required. This technology can be used for fish farming not only in the sea but in lakes, backwaters, reservoirs, rivers where large unutilized area is available. If effectively utilized, this technology can increase fish production by many folds. This type of cages are widely used in Indonesia, Thailand, Vietnam, etc.

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### Commissioning of Community Training Centre

Imphal, 27 April 2008. Shri Md. Allauddin Khan commissioned a Community Training Centre at Directorate of Fisheries, Imphal, Manipur. The Centre is having facility for training on preparing ready-to-eat fish and fishery products. These products can be stored for more than 2 years at ambient temperature storage conditions without any refrigeration. The Centre is having facilities like fish cutting, fish washing, can filling tables, kitchen for preparing fish curry, can closing machinery (can double seaming machine), retort for thermal processing cans, cooling tank etc. This facility can be used for producing many varieties of ready-to-serve canned fish products, and also for providing training to interested entrepreneurs.

A training programme was organized by CIFT, Cochin, immediately after commissioning the plant. Dr T.K. Srinivasa Gopal and Dr C.N. Ravi Shankar imparted training

on various aspects of canning fish products. Seventy participants representing State Fisheries Department, SHGs, NGOs, Private Industry, Fisheries Federations and Fisheries Co-operatives attended the training programme. Dr S. Asha Latha (Scientist, Senior Scale) co-ordinated the programme.

Three ready-to-eat products, viz. Rohu curry in Mughlai style, Rohu curry in Manipuri style and Catla in Bengali style, were prepared and acceptability studies were conducted. The products were appreciated by all the trainees. Many have envisaged interest in setting up canning facility at Imphal and other neighbouring states of North East.

The Community Training Centre is first of its kind in the whole north-east of India.

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### New building of NRC on Pig

Rani, Guwahati, 20 May 2008. Dr Mangala Rai (Secretary, DARE and Director-General, ICAR, New Delhi) inaugurated new building of NRC on Pig, and said that this centre would take up research on basic, strategic and applied research on areas of pig production, health including product/by-product processing, value-addition through quality control measures and transfer of evolved technologies to the client groups through Krishi Vigyan Kendra at Dudhnoi.

Dr K.M. Bujarbaruah, DDG (Animal Sciences), said about the genesis and achievement of NRC on Pig and said that 1 Krishi Vigyan Kendra has been established under the administrative control of NRC on Pig. He also said that the NRC on Pig shall act as a repository of pig production and health for national, regional and global policy planning. He also emphasized on the necessary measures to be taken to produce sufficient quantity of swine

fever vaccine which falls short in supply. The technologies evolved in the institute will help the farming community to enhance pig production.

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### Apple crop management services

Dr YSPU of Horticulture and Forestry, Solan. 1,500 apple growers of seven districts in Himachal Pradesh are connected to first integrated Apple Crop Management Network' for 'Transfer of Technology (TOT)' through mobile-to-mobile SMS. This first ever service is delivering messages on integrated orchard management and weather-based forecasting techniques to apple growers in far-flung remote villages. The programme was started in January 2008 and so far 53 messages were relayed on all aspects and concurrent problems in apple crop cultivation including habitat management, organic orcharding, integrated nutrient and insect-pests and diseases management. Each message describes the details of the problems in simple and most convincing ways and with best possible need-based economical control measures. The impact of this TOT method was tremendous amongst the farmers and seeing the response. Dr KR Dhiman (Vice Chancellor, Dr YS Parmar University of Horticulture and Forestry, Solan) has recently relayed the 50<sup>th</sup> message (Dear farmers, there is 'no' report on Red spider mite incidence so far could be due to continuous wet weather therefore 'No' control measures needed specific to mite "but keep looking as rains recedes". Red spider mite should be monitored to population threshold for need-based economical control i.e. when adult mite number count goes up to 15/leaf.

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## SUCCESS STORIES

### Gladiolus production

Muzaffarnagar, Uttar Pradesh. The KVK at Muzaffarnagar, initially started the training on scientific cultivation of flowers especially on gladiolus. Further, KVK conducted demonstrations, validation trials, and organized the exposure visits of farmers to IARI, New Delhi and SVBPUAT, Meerut.

Demonstrations on scientific cultivation of gladiolus, were conducted for technology intervention, viz. as seed treatment with Trichoderma @ 4 g + 2 g Bavistin/ha raised bed cultivation, corm depth and post-harvest management.

The impact of KVK initiatives is seen in the district and the gladiolus has spread to 29 villages and 886 farmers. Gladiolus is being grown in 374 ha. Farmers are growing *American Beauty*, *White Prosperity*,

*Oscar*, *Friendship* and *Proh* varieties of gladiolus in the district and producing the flowers and corms. Mostly it is sold in Delhi market.

The farmers of the KVKs have helped in bringing post-harvest losses between 30 to 35% and 8 to 9%. The farmers are earning Rs 1.90 lakh/ha/year from cultivation of gladiolus.

The net profit per ha during the first year was limited to Rs 0.60 lakh/ha but now it has been increased to Rs 1.90 lakh/ha. During the subsequent years as they have produced the corms for seed purpose itself, hence the net profit per ha has doubled during the subsequent years. Further Shri Yatendra Tyagi, S/o Shri Rameshwar Dayal belong to the village Nirmana of Shahpur Block in Distt. Muzaffarnagar has got net income of Rs 2.50 lakh/ha/year.

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### Seed village

KVK, Sultanpur. Seed production programme of paddy and wheat was implemented by the KVK, Sultanpur during 2007-08 with the financial assistance of Department of Agriculture and Cooperation, Government of India under Seed Village Scheme.

The seed production of paddy was raised by 151 farmers of 5 villages and wheat by 700 farmers of 14 villages in an area of 27.9 ha and 140 ha, respectively. Seed production techniques were provided to all the farmers by organizing 3 days training at different stages of the crops.

Under this programme, 1,288.69 q quality seed of paddy and 6,444.6 q of wheat were produced by the farmers. For safe storage of seeds 471 metal bins of 3 q capacity was also provided to the growers on subsidized rate.

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### Crop diversification

Diversification towards vegetables and fruits by reducing allocated area under food crops may cause scarcity of food in adverse climates. Therefore, emphasis has been laid on crop diversification to enhance farm income as well as sufficient foodgrain production in Bhagartola village. The area under vegetables and fruits has been increased by 6 and 5%, respectively, while other farming components like protected



Harvesting of vegetable pea—diversification with vegetable



Improved varieties for ensuring higher yield

cultivation and fisheries also occupied a notable area. This increase in vegetable area coupled with better production management techniques, resulted in Rs 8.60 lakh and Rs 14.60 lakh/ha income during 2005-06 and 2006-07. At the same time, area vacated from food crop did not reduce total food production because of introduction of high-yielding, improved varieties that gave 26% higher yield than the local varieties.

## SUCCESS STORIES

### Broiler and layer farming



KVK, Barhari. After the inception of the KVK and the establishment of poultry demonstration unit at campus, training courses on broiler farming were organized for rural youths and school dropouts.

Initially Sri Hidayatullah Khan, Vill. Barhara started with 4,000 broilers per year (1998) and reached up to 20,000 birds in 2001. He earned a net profit of Rs 3 lakh/year by getting the profit of Rs

15/bird. The success of Sri Hidayatullah Khan motivated others to set up their broiler unit. As a result, 131 units have been established within a short period of six years. The maximum numbers opened in Barhari block followed by Bhanuapur and Dumariaganj.

During the starting year (up to 1998-99), the net profit obtained from per bird was Rs 15, which, gradually declined to Rs 7.80 only. It happened due to establishment of surplus farms in district. Ultimately Shri Khan shifted to layer farming with initial investment of Rs 29.30 lakh during 2003. He started with 3,000 layers and reached to 12,000 during 2007. The day old chicks (BV-300) and vaccine were purchased from Venkeys, Dehra Dun and feed from Varanasi. The day-old chicks were reared in deep litter system separately up

to 14 weeks age. Thereafter shifted to cages (3-tier system and 3 birds in each cage) in layer house. During extreme summer and cold, curtains were used to adjust the temperature. Spray of N-54 per week was followed to control the various pathogens inside the shed. Vaccination of RD, RDF, Mareks, Fowl Pox and RDR<sub>2</sub>B was done. The overall mortality was reported as 6.60%. About 1% birds were found defect and culled out. The birds started laying at 16-week-age and reached peak up to 24 week. The farmer is earning Rs 16.28 lakh in 15 months from layer farming @ Rs 135/bird. He controlled fowlpox by Thoza varulinum, a homeopathic medicine. On the basis of the encouraging result 13 rural youths from the district with great interest have started layer.

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### Ornamental fish production : a new avenue for supplementing farm income

The National Research Centre for Women in Agriculture, Bhubaneswar, developed a simple and cost effective ornamental fish production technology for resource poor rural women using indigenously developed infrastructure. The primary aim was to enable women utilize their spare time productively to earn some income.

The technology consisted of locally available earthen tanks of 50–60 litres capacity that are commonly used by women in traditional method of rice parboiling. The tanks were slightly modified for ornamental fish culture.

Ornamental fish production units (12) were developed in a cluster in Nimapara block of Puri district of Orissa. Each unit had 10–12 earthen tanks and reared two species one each



Organization of ornamental fish production units at village level

of guppies and mollies. Training programmes were conducted on fish rearing and aquarium setting. In the beginning, women faced marketing problems that created doubts about sustaining the production. To overcome an educated unemployed young man from a nearby village was associated with the programme to help in marketing

of ornamental fishes. He was also trained in the fabrication of aquarium tanks and setting so that he can help in creating market in the nearby areas. The above strategy was successful. It not only enabled the youth earn a monthly income of Rs 3,000 but also ensured the rural women a better price and returns for the ornamental fish produced by them. With a total investment of Rs 2,000/year (including establishment and recurring cost) a unit could generate on an average

income of Rs 560/month. Similarly, an investment of Rs 5,000 could generate a monthly average income of Rs 1,400.

The institutional arrangement encouraged women to expand their units by adding more number of tanks and has motivated the other women groups of the area to start similar ventures using the low cost technology.

## TRAINING CALENDAR

### ICAR: International Training Programme 2008 (July–September 2008)

Institutes	Date	Training programmes and contact e-mail address	Eligibility	Course fee
IARI, New Delhi	3 to 22 September 2008	Capacity Building for Rural Resource Management	M.Sc. (Extension) Agriculture, Home Science, etc.	US\$ 1250 per trainee
IARI, New Delhi	11 September to 1 October 2008	Research Techniques in Cnyobacteria	B.Sc./M.Sc. in Biology/Life Science/Biosciences/ Microbiology	US\$ 1250 per trainee
CICR, Nagpur	1 to 20 August 2008	Insect Resistance to Bt and Insecticides	Degree/Diploma in Agriculture with some field experience in pest management	US\$ 1250 per trainee
SBI, Coimbatore	21 August to 4 September 2008	Abiotic stress and their management including cultivar screening	Graduate or higher level degree in Agriculture or Research personnel working in Sugarcane Research institute	US\$ 1250 per trainee
IIPR, Kanpur	16 to 30 September 2008	Molecular and Conventional Breeding approaches for Genetic Improvement of Pulses	Scientists engages in research teaching having M.Sc./Ph.D. in Plant Proceeding Genetics and Biotechnology	US\$ 1500 per trainee
VPKAS, Almora	8 to 28 September 2008	Wasteland Management in hills	B.Sc. Ag. or Botany with experience in Crop Production of Agroforestry or Wasteland Management	US\$ 1250 exclusive of boarding and lodging
DRR, Hyderabad	1 to 20 September 2008	Rice-based cropping systems	B.Sc./M.Sc./Ph.D. Subject Matter Specialist/Scientists/ Extension Functionaries	US\$ 750 per trainee
IHR, Bangalore	16 to 26 August 2008	Tropical Viticulture	B.Sc. or equivalent	US\$ 2400 per trainee
CRIDA, Hyderabad	1 to 15 September 2008	Mechanization of Rainfed Agriculture	Middle or Senior level researchers and managers who are responsible for planning and execution mechanization	US\$ 1250 per trainee
CIFT, Cochin	10 to 22 September 2008	Seafood Quality assurance	Graduate in Fisheries/Sciences equivalent	US\$ 1500 per trainee
IASRI, Delhi	4 to 23 September 2008	Techniques for Agricultural Research	Graduate with adequate	US\$ 1250 per trainee
IVRI, Izatnagar	1 to 29 August 2008	(a) Biotechnological tools for poultry production (b) Breeding strategies for egg and meat	Graduate in Agriculture/ Animal/Biology/Veterinary Science with practical experience in poultry production	US\$ 2000 per trainee
CIFT, Cochin	17 to 19 September 2008	Development of fish and shrimp-based value-added products	bachelor's degree in science or equivalent with experience in fish processing	US\$ 1000 per trainee (exclusive of boarding and lodging)
NAARM, Hyderabad	8 to 27 September 2008	Human Resource Management	Scientists of any discipline with a minimum of 3 years experience	US\$ 2000 per trainee
	7 to 26 August 2008	Computer-based Multimedia Development	Scientists and faculty members from National Agricultural Research and Education System and other related organization	US\$ 2000 per trainee
	10 to 30 September 2008	Open Source-based-e-learning development	Scientists and faculty members from Research Education Systems and other related organizations	US\$ 2000 per trainee
IASRI, New Delhi	10 September to 7 October 2008	Forecasting Techniques in Agriculture	Graduate with adequate knowledge of Statistics	US\$ 1250 per trainee

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## ORGANIZATION AND MANAGEMENT

### ICAR: National Training Programme 2008 (July–September 2008)

Institutes/date	Training Programmes/Venue	Eligibility
NIRJAFT, Kolkata 21 to 26 July 2008	Handmade paper from jute/jute stick at NIRJAFT, Kolkata	Unemployed youth, NGO entrepreneurs
NIRJAFT, Kolkata 18 to 30 August 2008	Jute Handicraft at NIRJAFT, Kolkata	Unemployed youth, NGO entrepreneurs
NIRJAFT, Kolkata 15 to 20 September 2008	Bleaching and dyeing of jute at NIRJAFT, Kolkata	Unemployed youth, NGO entrepreneurs
Directorate of Oilseeds Research, Hyderabad 28 to 30 August 2008	Annual Group Meeting on Safflower at BAU, Main Campus, Ranchi	Personnel involved in Research, Development and Extension on Safflower from Public and Private Sectors and NGOs
National Research Centre on Rapeseed–Mustard, Bharatpur 7 to 9 August 2008	AICRP (R&M) Annual Group Meeting at OUA&T, Bhubaneswar	Scientists working on Rapeseed–Mustard
CTCRI, Trivandrum 25 to 30 August 2008	Training on effective use of soil, plant and water testing laboratories	Agricultural Officers of Soil Survey Unit, Department of Agriculture
CTCRI, Trivandrum 12 August 2008	Tuber Crops Value-addition Entrepreneur Interface	Scientist working on Tuber Crops, entrepreneurs and processors

### O&M Reforms

- Vide Council letter No.5-8/2007-CDN dated 28<sup>th</sup> December, 2007 and Council letter No.5-8/2007-CDN dated 4<sup>th</sup> March, 2008 it was communicated that Indian Council of Agricultural Research has entered into corporate deal (No.9w3477002) with jet airways. The deal was initially from 1 January to 31 March 2008, which can be further extendable. The deal has now been extended for one year up to 31<sup>st</sup> March, 2009. Terms and conditions of the deal will remain the same.
- The O.M.No.31011/4/2007 -Estt.(A) dated 2 May 2008 and 14 May 2008 of Ministry of Personnel, Public Grievances and Pensions (DoPT) on the above cited subject has been downloaded at ICAR web site ([www.icar.org.in](http://www.icar.org.in)) for information and further guidance.
- The relaxation in CCS (LTC) Rules, 1988, the Government has decided to permit Government servants to travel by air to north-eastern region on LTC as follows:
  - Group A and Group B Central Government employees will be entitled to travel by Air from their place of posting or nearest airport to a city in the north-eastern region or nearest airport.
  - Other categories of employees will be entitled to travel by air to a city in the north-eastern region from Guwahati or Kolkata.
  - All Central Government employees will be allowed conversion of one block of Home Town LTC into LTC for destinations in NE region.
- Data regarding number of Government employees availing LTC to north-eastern region may be maintained.
- In their application to the staff serving in the Indian Audit and Accounts Department, these orders issue after consultation with the Comptroller and Auditor-General of India.

### PERSONNEL

#### Appointments

- Dr A K Mehta, has joined as ADG (Agriculture Extension), ICAR on 2 May 2008.
- Dr B S Mahapatra, has joined as Director, CRIJAF, Barrackpore on 2 May 2008.
- Dr R K Sethi, has joined as Director, CIRB, Hisar on 29 April 2008.
- Dr M A Khan, has joined as Director, ICAR Research Complex for Eastern Region, Patna on 5 May 2008.
- Dr N Hanumantha Rao, has joined as Joint Director, NAARM, Hyderabad on 1 May 2008.
- Dr A E Eknath has joined as Director, CIFA, Kausalyaganga on 30 June 2008.
- Dr A K Srivastava has joined as Director, NDRI, Karnal on 25 April 2008.

#### Retirement

- Dr B M Khadi, Director CICR, Nagpur has repatriated to his parent Department w.e.f. 24 May 2008.
- Dr V Muralidharan, Director, NRCC, Junagad, repatriated to his parent department w.e.f. 1 June 2008.
- Dr Y S Ramakrishna, Director, CRIDA, Hyderabad has retired on 30 June 2008.
- Dr N Sarangi, Director, CIFA, Bhubaneswar retired on 30 June 2008.
- Dr G S R Murthy, Acting Director, IIHR, Bangalore retired on 30 June 2008.
- Dr B B Vashisth, Director, NRC on Seed Spices, Tabiji, Ajmer retired on 30 June 2008.
- Dr R L Mishra, Project Coordinator (Floriculture), ICAR, New Delhi, retired on 31 May 2008.
- Dr G D Diwakar (Principal Scientist, Education Division) retired on 30 June 2008.
- Dr O P Sharma (Principal Scientist, AF) retired on 30 June 2008.

## HIGHLIGHTS

### Delegations and Visits Abroad

- Dr H.P. Singh, DDG (Hort.), New Delhi, visited Israel during April 2–7, 2008, as part of Business Mission under Indo-Israel Action Plan – 2008.
- Dr T.P. Trivedi, PD(DIPA) & ADG (ARIS) and Dr A.K. Bawa, Principal Scientist (ICAR Hqrs) visited Bangkok, Thailand during April 19-20, 2008, to attend Technical Workshop on Development and Decentralised Management of ARD Information Resources and APARIS Steering Committee Meeting.
- Dr S.P. Tiwari, DDG (Edn.), ICAR New Delhi, visited Cape Town, South Africa during May 5-7, 2008, to attend the 3<sup>rd</sup> Meeting of the India-Brazil-South Africa (IBSA) Joint Working Group on Agriculture.
- Dr K.P.R. Vittal, Director, Central Arid Zone Research Institute, Jodhpur visited Iran during May 10-11, 2008, to attend the India – Iran Joint Commission as part of the delegation led by Joint Secretary (PAI), Ministry of External Affairs.
- Sh. Anil Kumar Upadhyay, Additional Secretary, DARE & Secretary, ICAR; Dr S.P. Tiwari, DDG (Edn.) and Dr S. Ayyappan, DDG (Fisheries), ICAR, New Delhi, visited Sri Lanka Council for Agricultural Research Policy (CARP), Sri Lanka during June 12-14, 2008 and a Work Plan for 2008-2009 was signed.
- Dr K.S. Khokhar, ADG (PIM), ICAR, New Delhi, visited Minsk, Belarus, during June 11–14, 2008, to attend the meeting of the Joint Working Group.
- Dr S.C. Dubey, Joint Director, HSADL, Bhopal, visited Bangladesh during June 24–25, 2008, to discuss and concretize areas of bilateral cooperation relating to bird flu in Bangladesh.  
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### ICAR publications hold top ranks

DIPA, New Delhi. NAAS enhances the rating of *The Indian Journal of Agricultural Sciences*—that is now 7.20. According to the *Status of India in Science and Technology as reflected in its Publication Output in Scopus International Database, 1996–2006*, brought out by National Institute of Science, Technology and Development Studies. ICAR journals are in top 12 most productive journals. *The Indian Journal of Animal Sciences* has got 2<sup>nd</sup> position while *The Indian Journal of Agricultural Sciences* stood 12<sup>th</sup> out of the top 25 most productive domestic Indian Journals.

The ICAR website users have increased, and their number has reached to 1,13,423 May 2008. ICAR readers live to browse agri-information from scrolling news on as well as publications available on open access on [www.icar.org.in](http://www.icar.org.in)

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### XXII Convocation of UAS

Dharwad, 31 May 2008. Dr Montek Singh Ahluwalia (Deputy Chairman of Planning Commission) was the Chief Guest in the convocation address at the 22<sup>nd</sup> Annual convocation of the University of Agricultural Sciences (UAS), Dharwad.

Dr Montek Singh said that the Indian economy was growing @ 7.5% and there were many structural changes happening. With the good economic growth, the per capita income of individuals had also gone up.

Dr J H Kulkarni (Vice Chancellor of UAS) said that a 620 candidates were being awarded UG, PG and Ph.D. degrees at the convocation. Reading out the report of the varsity activities in the

academic year, he listed out the various achievements of the students and faculty members.

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### Fourth Convocation held at WBUAS&FS



Kolkata, 17 April 2008. Hon'ble Sri G.K. Gandhi (Governor, WB) presided over the 4<sup>th</sup> Convocation of WBUA&FS and exhorted the degree recipients to contribute immensely towards realizing the dream of shining India and prosperous West Bengal. Degree Certificates and Gold Medals were also awarded in the Convocation.

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