

# Reporter

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JULY – SEPTEMBER 2010



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## From the DG's Desk

Dear Readers,

Energy availability, both in adequate quantity and quality, is a pre-requisite to sustain targeted economic growth and the desired levels and spread of social development. India, ranking fifth in the world in terms of primary energy consumption and accounting for about 3.5% of the world commercial energy demand, has achieved impressive growth owing to enhanced availability of energy during the past decade.

Total energy consumption in the country increased from 75 million tonnes of oil equivalent (MTOE) in 1981 to about 230 MTOE in 2006-07. Among different sectors, maximum energy consumption, in MTOE, was in the industry (102.9), followed by transport (40.3), and residential/commercial (35.0). Agriculture sector consumed 16.8 MTOE, which was only 7.4 % of the total commercial energy. The Planning Commission has estimated that India's total energy requirement by 2031 would be in the range of 1,500 to 1,900 MTOE to achieve and maintain an average GDP growth rate of 8%. Despite overall increase in energy demand, per caput primary energy consumption in India is quite low, which was estimated to be 0.44 tonne of oil equivalent (TOE) in 2003 when compared with 1.09 TOE in China, 7.84 TOE in the United States and the world average of 1.69 TOE.



Coal, oil and natural gas are the primary commercial energy sources contributing a large portion of the energy needs. This poses an enormous challenge to our developmental goals, as India is not well endowed with these exhaustible natural resources. It is estimated that domestic coal reserves would last only for another 45 years. Similarly, annual oil production has remained almost static at about 34 MT during the last few years leading to increased import of crude oil and using about 23.4% of the aggregate foreign exchange earnings. The present availability of electrical energy at about 798 billion kWh is falling short of the demand resulting in power shortages in different

parts on the country, especially in rural areas.

Energy requirement in agriculture is in terms of various inputs such as water, seeds, fertilizers, chemicals and different operations along the entire production to consumption value chain. Irrigation by pump sets and production of inorganic fertilizers are the main consumers of energy in the agricultural sector. Most fertilizer energy is attributable to production of nitrogenous fertilizers (78,000 kJ/kg). Among the major foodgrain crops, wheat production requires the maximum energy input of 0.28 MJ/kg of grain followed by rice (0.11), maize (0.07) and sorghum (0.06).

The existing level of total power available on Indian farms has been estimated at 1.6 kW/ha, and 86% of this power comes from 3.5 million tractors, 0.2 million power tillers, 7.9 million oil engines, and 15.35 million electric pump sets requiring about 12 million tonnes of diesel and 76 billion kWh of electricity. Power availability on Indian farms needs to be increased to the level of 2.5 kW/ha to meet the agricultural production targets during the next 20 years. Tractors will remain the most important source of motive power in agriculture. With the already constrained oil-fuel supply, adequate availability of diesel for agricultural use would be a serious concern in future. Similarly, more electric power will be required to meet irrigation demands and on-farm post-harvest operations.

The present status and future scenario warrants a planned approach for optimizing the energy use in agriculture to make it more sustainable. Optimum annual use and efficient power utilization of tractor are critical issues to make it an economical power source. It is necessary to have implements matching to various power ranges of tractors to make them economically viable to own and operate.

Electricity consumption and its use efficiency in agriculture is an issue that needs serious considerations. Most pump sets are operated with electric motors of poor efficiency, resulting in higher consumption of electricity for the same or lower output. Replacement of even 10% of the existing 15.35 million electrical pump sets with more efficient ones would accrue a savings of about 4 billion kWh per year equivalent to about 900 MW of generation capacity.

In view of depleting fossil fuel resources, there is an urgent need to develop viable technologies based on renewable energy sources for farm- and agro-industries sectors. Renewable energy sources, like sun, wind and biomass are abundantly available in India. During the past decade, significant capacity

addition in renewables has been achieved. Solar energy, converted to electricity through photovoltaic, can be an attractive option for water pumping, agro-products processing and lighting. There is a huge untapped potential of generating about 848,000 MW equivalent of electricity from different renewable sources in the country. At the beginning of 2008, cumulative grid-interactive power generating capacity stood at 11,272 MW (wind:7,844; small hydro-power:2,045; bio-power: 606; waste to energy: 55; and solar power: 2.12 MW). In addition to electricity generation, renewable energy is being effectively used for various other applications such as cooking, water heating, crop drying, etc. Though work is underway throughout the world for reducing the cost of solar cells, we need to intensify our efforts to make use of abundantly available solar energy in agriculture in a more cost-effective manner. Similarly, development of decentralized power

generation using biomass needs focused attention to mitigate the energy deficiency in the rural sector for critical farm operations. It is estimated that about 590 MT of agricultural wastes and agro-industrial residue resources are generated annually and can be utilized for thermal or

electrical energy generation. About 345 MT of this is on account of sugarcane bagasse, most of which is utilized in sugar mills for power generation for their captive use and grid connectivity.

We must plan and manage our energy resources by adopting energy efficient processes across all the sectors of the economy and maximizing the use of renewable energy to the extent technologically feasible. In agriculture, enhancement in use efficiency of different inputs is of paramount importance. Fertilizers and water need special attention in this regard. Overuse and inefficient application of nitrogenous fertilizer has often led to high costs, low efficiency in fertilizer usage and increased water pollution in runoff and groundwater. Biofertilizers offer sustainable and environmental-friendly solution to several cultivated crops by enhancing nutrition and yields up to 5-25% and curtailing chemical fertilizer inputs by up to 50%. A major shift towards micro-irrigation is needed even in areas with adequate availability of water to not only save energy but also to sustain this precious resource for future. Time has come to develop and practise knowledge-driven precision agriculture for saving and managing energy in agriculture.

**We must plan and manage our energy resources by adopting energy efficient processes across all the sectors of the economy and maximizing the use of renewable energy to the extent technologically feasible.**



(S. Ayyappan)

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# WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

## XX meeting of ICAR Regional Committee-II

### Roadmap for development of Agriculture sector to its fullest potential

Port Blair, 14 September 2010. The XX meeting of ICAR Regional Committee-II, organised under the aegis of ICAR, got underway at the conference hall of Central Agricultural Research Institute (CARI). The Lt Governor, Lt Gen (Retd) Bhopinder Singh, PVSM, AVSM was the chief guest and inaugurated the meeting. He also released *Status of Centre-State Coordination in Agricultural Research, Education & Extension in*



*Region-II- Andhra Pradesh, Orissa, West Bengal and Andaman & Nicobar Islands*'. Referring to the enormous potential in agriculture and fisheries sectors in the islands, Lt Governor said that the Administration has taken several initiatives for development of these sectors in a big way. In tune with this, the Coconut Mission was launched in Car Nicobar and organic farming was introduced. As regard fisheries sector, tuna mission was launched and fish landing facility is being created all over the Islands to tap the fish potential. Appreciating ICAR-CARI for their contribution in the field of capacity building through Krishi Vigyan Kendra at Port Blair, he said this activity has further got fillip with establishment of another KVK at Car Nicobar, whose foundation stone was laid yesterday and sanctioning of 1 more Krishi Vigyan Kendra at Middle and North Andaman.

In his introductory address, Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) discussed the issues to be deliberated at length – issues of contemporary importance in agriculture and

allied sectors. Besides reviewing and identifying the need for research and development in these sectors, the meeting focused on finding acceptable solution for various problems and develop a road map for development of agriculture in this region.

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## XXI Annual Workshop of AICRP on Spices

Ajmer, 6 July 2010. The XXI workshop of All India Coordinated Research Project on Spices was held at the National Research Centre on Seed Spices from 5 to 6 July 2010. Dr H.P. Singh, Deputy Director General (Horticulture), ICAR, inaugurated the workshop and stressed the need for reorientation of coordinated research to obtain maximum output from minimum inputs as it assumes more significance to address emerging challenges like climate change that may affect agriculture particularly horticulture in temporal and spatial scale in long-term. The importance of spices in Indian economy and to enhance their productivity was also discussed. Dr M. Anandaraj, Project Coordinator, Spices, highlighted the new initiatives on genotype and environment interactions in turmeric indicated that cumin content is higher when cultivated in Meghalaya and Mizoram owing to the prevailing weather. Rhizobacterial inoculation in seed spices such as cumin, coriander, fennel and fenugreek enhances germination and growth resulting in yield increase of about 10%.

The workshop deliberated the progress of research made in 125 research programmes in 12 mandate crops under the coordinated project. Out of the 4 varietal proposals submitted, one variety of fennel RF 145 from SKN College of Agriculture, Jobner, Rajasthan was considered for National release to Rajasthan, Gujarat, Uttar Pradesh, Haryana and Bihar. New technologies, namely management of *Phytophthora* foot rot in black pepper and management of soft rot in ginger under both organic and inorganic farming systems; management of blight and wilt of cumin; technology for production of fennel, coriander and fenugreek using *rhizobacteria* and technology for off season production of coriander during summer were identified for transfer to extension agencies for different spice crops.

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## IV Annual Review Meeting of Niche Area of Excellence Programme

New Delhi, 1 September 2010. The IV Annual Review Meeting of Niche Area of Excellence Programme under scheme, 'Strengthening and development of higher agricultural education in India' was inaugurated by Dr S. Ayyappan (Secretary, DARE and DG, ICAR) on 31 August 2010. He mentioned that one of the thrust areas identified for XI Plan in Agricultural Education is building excellence in specific strategic areas in education and research. The niche area of excellence programme is aimed to achieve global competitiveness in agricultural education and research through excellence in teaching, research, consultancy and other services. The programme should be capable of updating itself in accordance with best of global experiences and



trends, and of being responsive to regional, national, social, and economic needs. He stressed the need to have critical look for each programme focusing on how many overseas students have expressed the interest to undergo trainings and pursue post-graduate programmes in niche area of excellence, role in capacity building, books and research papers published, patents filed, technologies developed and transferred for commercialization / use of the farmers etc. It was further stressed that Principal Investigator of the programme should not be engaged with any other administrative work and must fully concentrate on the programme and not change without prior approval of the Council. The review should not be based only for asking the deliverables but also to get feedback on where we faltered and why. The subject matter specialist may look into these issues and clearly suggest for continuing, strengthening and changing in the niche area of excellence programme.

The Deputy Director General (Education), Dr Arvind Kumar, said that centres should engage faculty of high caliber for the programme having clear understanding of expectations from the niche area of excellence and its results are to be published in reputed journals. Proper utilization of facilities created under niche area of excellence for education

of under-graduate and post-graduate students and capacity building must be ensured. Proactive approach for partnering with some private enterprises to commercialize the technologies generated is needed. During the 2-day meeting there was critical review and scrutiny, the experts gave project-wise recommendations and suggestions for the change in the technical programme to make them more focused and result oriented. A new programme on 'Inland aquaculture in Punjab' was also discussed.

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## Annual Group Meeting on Safflower and Linseed

Rahuri, 21 August 2010. The Annual Group Meeting on Safflower and Linseed was held at Mahatma Phule Krishi Vidyapeeth, from 19 to 21 August 2010.

### Technology ripe for recommendation

#### Safflower

- In Western Maharashtra (Phaltan), for soybean-safflower system, it is possible to substitute 100% recommended P of soybean and safflower by seed treatment with PSB and application of 5 tonnes farmyard manure /ha without any adverse effect on the productivity.
- In scarcity zone (Solapur) of Maharashtra, it is essential to apply  $\text{FeSO}_4$  (10 kg/ha) or  $\text{ZnSO}_4$  (20 kg/ha) or RDF + 5 tonnes farmyard manure /ha to safflower for higher yield in addition to application of recommended dose of NPK fertilizer. The same benefit can also be obtained by application of 5 tonnes farmyard manure /ha along with recommended dose of fertilizer.

#### Linseed

- SLS 67, a linseed variety developed from Jawaharlal Nehru Krishi Vidhyalaya, Sagar has been released and notified by Central Varietal Release Committee for rainfed conditions of Zone III.
- LMS 149-4 variety identified during 2009 showed good performance with respect to seed yield.
- Management of soil moisture in rainfed crop of linseed through locally available straw @ 10 tonnes/ha was observed profitable as well as feasible in Vertisol soil of Raipur.
- Varieties RLC 76 (Kartika) and JLS 9 at Raipur and JLS 9 and RLC 76 (Kartika) at Powarkheda were observed best for the cultivation of linseed crop grown after soybean with recommended package of practices even in delayed sowings up to the last week of November.
- Post-emergence application (30-35 days after sowing) of Isoproturon @ 1 kg/ha at Mauranipur and Isoproturon @ 1 kg/ha + 2-4-D @ 0.5 kg/ha at Raipur managed the weeds properly and gave seed yield and net monetary returns at a par with hand

weeding twice at 20-25 and 40-45 days after sowing.

## Varieties identified

### Linseed

- SLS 73: The proposal of the variety SLS 73 submitted by Jawaharlal Nehru Krishi Vidhyalaya, Sagar was examined by the committee. It exhibited superiority to the checks in seed yield. It is also moderately resistant to powdery mildew and rust. Hence it was identified for the Zone - III comprising Bundelkhand parts of Uttar Pradesh, Madhya Pradesh and Rajasthan.

### Castor

- DCS 107: The proposal of the variety DCS 107 submitted by the Directorate of Oilseed Research, Hyderabad was examined by the committee. The performance of this variety in terms of seed yield is superior to one check, DCS 9 and at par with another check, 48-1. It is highly resistant to wilt. Hence, it is identified for all the castor-growing areas of the country.

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## Methodological issues in assessing impact of watershed programmes

New Delhi, 6 August 2010. The National Centre for Agricultural Economics and Policy Research and National Rainfed Area Authority jointly organized a National Workshop on 'Methodological Issues in Assessing Impact of Watershed Programmes' at the NASC Complex. The workshop was organized in three technical sessions: (i) Methodological issues in assessing impact of watershed programmes, (ii) Common indicators and framework to evaluate impact of watershed programmes, and (iii) Concluding session devoted to building consensus on appropriate common minimum indicators and framing of guidelines for collating information for impact of watershed programmes.

## Recommendations

- The common minimum indicators should be selected under 4 sets of broad parameters, namely biophysical, socioeconomic, institutional and environmental, to develop indices. Some specific indicators may be used for evaluation of model watersheds.
- A comprehensive impact model may be developed.
- Of the bulk watersheds, the district level agency may decide on the location-specific issues and on the number of model watersheds, preferably in the ratio of 1:15 to 1:20. The model watershed should be linked to some research institution for a regular assessment.
- An Integrated Watershed Development Programme should be evaluated in three phases, namely

preparatory phase, watershed phase and protocol phase for which a cadre of evaluators may be built.

- Manpower requirement for scientific monitoring and evaluation of watershed should be addressed suitably. A Post-graduate Diploma in 'Watershed Evaluation and Monitoring' may be started by the established institutions.
- Monitoring and evaluation mechanisms may be built.

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## Public-Private Partnership for agricultural development

New Delhi, 28 July, 2010. 'Public-Private Partnership in agricultural research and development is increasingly emerging as an effective means of conducting research in frontline areas of science and technology, commercializing new technologies, and deploying new products for the benefit of small-scale farmers, food-insecure consumers, and other marginalized groups,' said the Union Minister of Agriculture, Shri Sharad Pawar, while inaugurating ICAR-Industry Meet, 2010. He added, "India's National Policy on Agriculture recognizes the role of the private sector in critical areas of agricultural research and human resource development." He



further added that the conventional approach of public sector agricultural research and development has been to take the responsibility for the entire research and development supply chain: priority-setting, resource mobilization, research, development and dissemination, and pointed out that the Supply-Driven Methods of Extension, steered by the public sector, which had been so successful since the Green Revolution may no longer be the only appropriate model for a region as diverse and complex as our country. The Union Minister of Agriculture said, "Through the public-private partnerships, public sector institutes can leverage valuable private resources, expertise, or marketing networks that they otherwise lack. While the technology can be developed in the public sector organizations, the private sector, where the necessary experience, competencies and tools are more readily available; can be associated in commercialization, marketing, and distribution."

Prof. K.V. Thomas, Union Minister of Agriculture (State) said that planning the role for public-private collaboration in agricultural research and development needs to look beyond the aspects of resource generation, and risk and benefit sharing only. These partnerships could also be helpful in fostering the much-needed linkages between inventor in the public sector, technology user in the private sector, and the farmer; who is the end user of technology.

Dr S Ayyappan, Secretary (DARE) and Director General (ICAR) expressed the eagerness of the ICAR to facilitate innovative involvement of all the players and stakeholders in the production and distribution of its goods and services for attaining sustainable food and livelihoods security as well as for global competitiveness of Indian agriculture. He said, "ICAR appreciates the role and opportunity before private sector in the changed times in delivering the quality products suitable to various agro-ecologies and farming situations."

The 2-day-meet focussed on Seed and Planting Material; Diagnostics, Vaccines and Biotechnological Products; Farm Implements and Machinery; and Post-harvest Engineering and Value Addition. About 300 representatives from companies, federations, organizations and scientists from the ICAR institutes participated in the 'ICAR Industry Meet, 2010.'

### Action points

- Organization of annual event of ICAR-Industry Meet at ICAR, New Delhi; and also arranging such Meets at the level of Institutes, State Agricultural Universities and Krishi Vigyan Kendras. Sector- or Commodity-wise Meets were also desired.
- Development of a directory of agri-entrepreneurs.

- Development of a database on profiles of important agro-companies.
- Arranging annual road shows with different groups of companies.
- Efforts for ICAR-Industry consortium for Africa agriculture initiative, as well as for other potential developing, less developed and other countries.
- Enhancement of Information Communication Technology services in a Public, Private, Partnership mode.
- Students' secondment to industry for hands-on training/project work.
- Initiating new agri-entrepreneurship awards from ICAR.
- Formation of a corporate platform (company) in ICAR for a single window mechanism, and establishment of technology parks and incubators.
- Formulation of a National Agricultural Entrepreneurship Project in consultation with the industries, associations and chambers of commerce.
- Inviting industry support for creation of professorial chairs in the NARS with specific objectives of research, education and development.
- Creation of working groups in frontier areas of basic and strategic research, including development of joint platforms.
- Participation of industry partners in the annual Vice Chancellors' Conference for curriculum and other educational reforms.
- Joint initiative to address the important post-harvest technology interventions in food-chain management.
- Addressing the issues of cost and efficiency for testing and adaptive research for higher success rate in commercialization of technologies in different sectors.

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## ICAR Directors' Conference, 2010

New Delhi, 16 July 2010. Dr S Ayyappan (Secretary, DARE and Director General, ICAR) chaired the ICAR Directors' Conference, 2010 from 15 to 16 July at NASC Complex and highlighted on the various activities undertaken, viz. (i) 6,000 demonstrations of pulse production technology through Krishi Vigyan Kendras, (ii) nutrient-based subsidy, (iii) soil

health, (iv) data on post-harvest loss assessment and value addition, (v) protected cultivation of floriculture, (vi) hybrid maize production, (vii) buffalo genomics, (viii) package for control of livestock and poultry diseases, and (ix) climate resilient agriculture initiative. Dr Ayyappan said that National Fund for Basic and Strategic Research with a fund provision of ₹ 100 crores was initiated with a meeting of the Empowered Committee addressing 7 thematic/priority areas for 3 to 5 years. More emphasis should be given to IPR and technology commercialization. The international linkage should be aggressive and sustainable. He informed about the change process in the CGIAR and the formation of Independent Science Partnership Council for fast tracking of the 7 mega-programmes identified. He added that a proposal to set up a Borlaug Institute for South Asia by the CIMMYT is under active consideration.

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## Interface Meeting on Development and Technologies

Jharnapani, 7 August 2010. An interface meeting was organized among Krishi Vigyan Kendras and officers of Departments of Animal Husbandry, Dairying and Fisheries in North-Eastern Region and ICAR at National Research Centre on Mithun. It discussed the issues of development and areas of convergence between Krishi Vigyan Kendras and state animal husbandry and fisheries departments.



The Minister of Agriculture, Mr T. R. Zeliang, was the Chief Guest of the meeting and he mentioned that the North-Eastern States especially Nagaland are deficient in meat production, and around 40% of the requirement of meat is satisfied through import. Hence special strategies should be made to improve

the productivity of meat animals. He also emphasized the need to establish 3 more Krishi Vigyan Kendras in 3 newly established districts in Nagaland. The Minister suggested that implication of efficient breeding policies and introduction of fast-growing breeds of animals particularly pigs, establishment of model dairy and pig village, establishment of more numbers of proper disease diagnostic laboratories and dispensaries, large-scale of extension programmes and intensification of quality protein maize production may improve economy of the farmers in the region.

Mr Dilip Rath (Joint Secretary, Department of Animal Husbandry, Dairying and Fisheries, Government of India) said that the North-Eastern Region has 8, 10 and 39% of India's cattle, poultry and pig population, respectively, but the region is still short to meet the requirement. He emphasized on framing the strategies to develop and prosper the fishery sector in the North-Eastern Region.

The officials and KVKs from Nagaland, Arunachal Pradesh, Mizoram, Tripura, Sikkim, Manipur, Assam and Meghalaya presented work plan for improving the animal husbandry, dairy and fishery sectors in the region.

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## Interface Meeting with Stakeholders of Tripura on Entrepreneurship Development – the urgent need

Chebri, 27 August 2010. An Interface meeting under the chairmanship of Dr K.D. Kokate, Deputy Director General (Agriculture Extension) was held at Divyodaya Krishi Vigyan Kendra to discuss and formulate strategies for entrepreneurship development in the region.

Dr Kokate stressed on land and water management along with nutrient management and soil health, so that highest potentiality of crop varieties could be realized. He urged scientists to develop package of practices and emphasised on intercropping to develop different cropping models for demonstration to farmers for production of quality seeds and planting materials. In a bid to motivate farmers, he informed them about the successful farmers and emphasised on maize cultivation to solve the problem of costly livestock and poultry feed in the region. Dr Kokate suggested farm mechanization module of other successful states and to produce all required food items locally instead

of importing from other places. Value addition of farm produce and construction of sufficient small scale cool storages and godowns at the grass root level can be a potential tool of entrepreneurship development, he added. He expected more association with banks and other financial institutions in micro-credit delivery at grassroot level for the agro-economic development of the region.

The major recommendations include – proper management of land and water along with utilization of natural resources in sustainable manner, establishment of mini cold storage at block level, development of different cropping models for demonstration to farmers for production of quality seeds and planting materials, to follow farm mechanization module of other successful states, optimum credit linkage and adaptation of need based and proper beneficiary selection.

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## Climate Resilience Agriculture

Hyderabad, 1 July, 2010. The ICAR has proposed a new national scheme on climate resilient agriculture in participatory mode. The scheme has 3 basic objectives: strategic research on adaptation and mitigation; technology demonstration on farmers' fields to cope with current climate variability; and capacity building.

To sensitize the project partners on preparation of the technical programme and location specific interventions for climate adaptation, 1-day 'Preparatory workshop' was held at Central Research Institute for Dryland Agriculture on 1 July 2010. The meet was chaired by Dr A.K.Singh, DDG (NRM), ICAR. The details of the technology



interventions to be implemented agro-climatic zone-wise were discussed and general guidelines were formulated on selection of villages, stakeholder participation, finalization of interventions and monitoring indicators.

Dr K.D. Kokate, Deputy Director General (Agriculture Extension), ICAR said that 100 Krishi Vigyan Kendras will be involved in implementation of this programme for the next 2 years. Overall coordination of the project will be done by Dr B. Venkateswarlu, Director, Central Research Institute of Dryland Agriculture, Hyderabad.

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## National wheat and barley research workers' meet inaugurated



Ludhiana, 29 August, 2010. The Punjab Agricultural University, Vice-Chancellor, Dr Manjit Singh Kang while inaugurating the 'XXXIX All India Wheat and Barley Research Workers' Meet', said that the future gain in wheat production can be through enhancing input use efficiency, particularly of nutrient and water. He emphasized that Plant Pathologists would play a specific role in the wake of imminent risk from emerging new races and pathotypes of rusts. The Ug 99 race of stem rust is a matter of concern for them and he added that during the last 2 decades rapid developments in molecular biology and biotechnology including molecular markers and genomics, have made available new tools for creation, analysis and manipulation of genetic variations, and thereby, development of improved cultivars. The Deputy Director General (Crop Science) of ICAR, Dr Swapan K. Dutta, and the Chairman of the session said that to feed the growing population more food will have to be produced and highlighted a target of additional 1 million tonne per year. This

is not an easy task though, he said that with the availability of improved genotypes and biotechnological tools, this would be accomplished. He added that by participating in international project on wheat genomics, the Punjab Agricultural University, will provide the required lead in wheat research. He further added that the setting up of Borlaug Institute will work closely with Punjab Agricultural University and the ICAR. The threats of drought, salinity, nutrient deficiency, stem rust race Ug 99 and yellow rust race 78S84, seed production, technology generation and adoption gap are some of the challenges that need attention.

Dr S.S. Singh, Project Director, Directorate of Wheat Research, Karnal said that the knowledge of molecular biology is yet to be exploited to enhance wheat productivity and that work on rice-wheat gene sequencing is being initiated.

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## Strategies for increasing production of oilseeds/vegetable oils

Hyderabad, 8 August 2010. A Brainstorming discussion on “Strategies for increasing production of oilseeds/vegetable oils” was held from 7 to 8 August 2010 at the Directorate of Oilseeds Research under the guidance of Dr S. Ayyappan, Secretary (DARE) and Director General (ICAR) and Dr M.V. Rao, former Special DG (ICAR) and Ex-Vice-Chancellor, Acharya N G Ranga Agricultural University, Hyderabad.

Dr S. Ayyappan, Director General, ICAR expressed his deep concern on continuous increase in import of vegetable oils in recent years and desired to prepare a time bound action plan enlisting all the factors associated with oilseeds production in the country.



Dr M.V.Rao, in his remarks reminded the participants about how India became self-sufficient in oilseeds production during ‘Technology Mission on Oilseeds.’ The participants highlighted the present status, major constraints and outlined the strategies for increasing the production of oilseeds/vegetable oils.

### Recommendations

The 2-day-long deliberations resulted in the identification of major constraints/issues on which the detailed time bound action plan is required to be formulated to increase the production of oilseeds/vegetable oils. Some of the major actions are:

- timely availability of sufficient quantity of quality seeds of latest varieties/hybrids by strengthening seed chain;
- replacing the old varieties/hybrids with the latest ones in the seed chain;
- transfer of improved technologies from the research institutes to the farmers through the extension departments to bridge the huge yield gap;
- effective market intervention for remunerative prices to oilseeds;
- popularization and extension of oil palm cultivation;
- increased awareness about the nutritive value of rice bran oil, cotton-seed oil and corn oil, and encouragement of their usage;
- mechanization of oilseeds farming, rationalization

- of import duty on edible oils so that there is adequate incentive to domestic oilseed farmers;
- production of value added products more particularly from rice bran oil and soybean; and
- modernization of oil-milling sector in production catchment for high oil recovery and better quality cake.

Besides many policy changes required for the oilseeds/vegetable oils sector including oil palm were also discussed.

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## Interaction Meet on Agricultural Mechanization

Bhopal, 23 July 2010. An Interaction Meet on ‘Agricultural Mechanization’ was inaugurated by Dr S. Ayyappan (Secretary, DARE and Director General, ICAR), at the Central Institute of Agricultural Engineering.

Dr Ayyappan at the outset discussed the scarcity of labour in Indian agriculture and the necessity of mechanization of farm operations and emphasized the need of precision farming, small equipment for plantation crops, single transport mechanism for processing industry and urged the scientists to develop efficient energy management technologies through biomass based-power generation system, good design of solar dryers and environment friendly technologies which are technically feasible and economically viable. To avoid the import of rice transplanter, he stressed the need for developing indigenous machine in collaboration with industry.



He suggested that prototypes of Central Institute of Agricultural Engineering would be supplied to Krishi Vigyan Kendras for popularization of equipment among farmers of specific region.

Dr M.M. Pandey, Deputy Director General (Agricultural Engineering), ICAR, elaborated the objectives of the Meet and also stressed on the quality of the technology and techno-economic feasibility that attracts the market. The 2-day meet deliberated on various themes on agricultural mechanization, its present status and researchable issues.

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## Innovation for industry: first-ever technology showcase for fisheries sector

Visakhapatnam, 8 September 2010. The Agri-incubator, located at the Central Institute of Fisheries Technology, Cochin, is all set to flag off first-ever 'Innovation for Industry' meet in fisheries for showcasing Fisheries technologies in Vishakhapatnam. The Agri-incubator is an innovative system designed to assist entrepreneurs in development of new technology based start-up business. The main goal of this incubation programme is to produce business ventures that are financially viable, self-sustaining and profit making when they leave the incubator. The Central Institute of Fisheries Technology and their research and development partner institutes viz., Zonal Technology Management Centre and Business Planning and Development Unit, and the National Fisheries Development Board, Hyderabad organized a fair with the theme, 'Innovations for Industry' in fisheries in which viable and commercial technologies (developed by various fisheries research institutes under ICAR) were showcased. The activity aims to strengthen the partnership between research organizations and the private sector towards a progressive and sustainable fisheries industry. The Chief Guests of exhibition were Deputy Director General (Fisheries), Dr B. Meenakumari, and Chief Executive (National Fisheries Development Board) Dr S. Krishnaiah.

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## Improving fertility in dairy animals

Goa, 14 August 2010. The ICAR Research Complex, Goa organized a seminar on 'Strategies to improve the fertility in farm animals particularly dairy animals. Shri G. Koyu (Secretary, Animal Husbandry and Veterinary Services, Government of Goa) inaugurated and promised that all the facilities like medicines and vehicles will be provided to department of veterinary for betterment of services. Dr N.P. Singh, Director, mentioned that for the economic milk production factors needs to be taken care of. The ICAR is planning to establish 'Fodder Banks' so that farmers can get planting material to enhance the



fodder production in coming years, he added. Some important recommendations are:

- Maximizing dry matter intake in early lactation.
- Cost of the treatment and easy availability of drugs in the market are important for rural poor.
- Cervical stimulation with lugol's iodine at very low concentration as paint or intrauterine infusion gives better response in inducing oestrus.
- Artificial Insemination is the national high way towards prosperity of rural poor. Oestrus leading to successful conception and subsequent calving resulting into milk production is expected at regular and ideal intervals.
- Raising of farmer's awareness regarding the AI technology.
- Only trained inseminators should carry out artificial insemination; the inseminator should have thorough knowledge of physio-pathology of reproduction.
- Inseminations should be refrained during all abnormal and pathological oestral stages.
- Regular refreshment of technical advances helps to improve efficiency.
- Strategy for managing reproduction in a dairy herd should include combine use of synchronization of ovulation and timely Artificial Insemination, an oestrus detection aid, and early pregnancy diagnosis using ultrasound.
- Assessment of uterine health and detection of infectious agents in uterine culture is essential prerequisite before breeding for ensuing embryo survival.
- Judicious application of hormone in anoestrous cases and only under the guidance of a trained veterinarian.
- Culture and sensitivity test of oestral discharge to guide choice of antibiotic to check infectious repeat breeding.

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## Entrepreneurship Development Workshop

Izatnagar, 8 July 2010. An Entrepreneurship Development Workshop, organized by Zonal Technology Management – Business Planning and Development (ZTM-BPD) Unit of North Zone-II, was held at the Indian Veterinary Research Institute. Prof. M.C. Sharma (Director, IVRI) emphasized that the ZTM-BPD Unit at IVRI offers unique opportunities for creating entrepreneurial abilities and developing strong partnerships with entrepreneurs, start-up companies, small and medium and elite industrial houses for technology based viable business ventures. Dr J.R. Rao, In-charge, Zonal Technology Management Centre informed that the workshop aims at

technology refinement and up-scaling and promoting public-private partnerships and start-up companies for technology led venture establishment. The latest technological information which can support enterprise incubation and eventually entrepreneurship pertaining to animal husbandry, fishery, horticulture and other agri-business areas.

### Recommendations

1. Innovation in rural areas and SME sector should be validated and promoted.
2. Handholding and facilitation of the potential entrepreneurs during the initial stage of establishment.
3. Financial support from financial institutions should be mobilized and facilitated.
4. Regular entrepreneurship development workshops followed by trainings at the various specialized zonal institutes of ICAR.
5. Efficient networking of successful entrepreneurs in the livestock, fisheries, horticulture, etc., for peer-to peer learning and confidence building.
6. A roadmap to be prepared for making the entrepreneurship development workshop a more organized activity.

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## Institute-Voluntary Organizations Interface inaugurated

Izatnagar, 14 July 2010. The first of its kind meet on "Institute-Voluntary Organizations Interface" was held from 13 to 14 July, 2010 at the Indian Veterinary Research Institute. More than 40 delegates from leading voluntary organizations from different parts of the country participated in 2-day National Extension Programme. The Chief Guest, "Padmashri" Dr Anil P. Joshi (Executive Director, Himalayan Environmental Studies and Conservation Organization) appealed the scientific community to fine tune their research to address the issue confronted by the end-users.

Prof. M.C. Sharma (Director, IVRI) emphasized the importance of strengthening the linkages between the institute and leading voluntary organizations through "Interface Meet" for transfer of IVRI technologies to the farmers and livestock owners with a view to provide maximum benefits to them and to get their feed back about their needs and usefulness of the technologies delivered. During the Interface meet 5 sessions were held. There was also roundtable discussion with the NGOs with the regard to suitability of various technologies that could be disseminated in their specific areas.

The important recommendations that emerged from the workshop are:

- Breed improvement of cattle and buffaloes is required to make them as higher milk yielder.
- Improved varieties of fodder crop seeds to be

made available to them.

- The staff of NGO including nominated farmers may be trained in management and control of major livestock diseases.
- Effort should also be made to inculcate rural youth of landless and marginal families to take up pig rearing, poultry production, goatry as an entrepreneurial activities for income generation.
- Efforts should be made to educate the farmers as well as farm women about the practices and techniques of value-addition for milk and meat products.
- Implement a regular vaccination programme in association with NGO against contagious diseases to minimize the loss of diseases to the farmers.
- Documentation of medicinal plants and their use in treatment of sick animals for popularization among the farmers.
- The para-vets and inseminators should also be trained.
- Training should be imparted to rural youth on various aspects of livestock production. The technologies developed by IVRI should also be popularized by the NGOs in their rural areas.

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## Business Opportunity Workshop

Izatnagar, 9 July 2010. A Business Opportunity Workshop was organized by the Indian Veterinary Research Institute, under the aegis of National Agriculture Innovation Project supported Zonal Technology Management - Business Planning and Development (ZTM-BPD) Unit of North Zone-II located at the institute. Prof. M.C. Sharma (Director and Vice-Chancellor of IVRI) emphasized the importance of technologies related to livestock, fishery, agri-horticulture, farm machinery, etc. for fostering potential linkages with industry for technology commercialization and public-private partnerships. He also advocated the need based research and strategic partnership with industry in the growing competitive world.

The recommendations that emerged from the workshop are:

1. Need-based research should be promoted in the close co-ordination with corporate organizations.
2. Public-private partnerships in all the possible dimensions of technology development, up-scaling and refinement should be encouraged.
3. Workshops at various locations so as to identify and address local needs.
4. Linkages with leading corporate houses to abridge the gap and fulfil the technology needs.
5. Innovations and new product development should be promoted.
6. A roadmap for making the Business Opportunity Workshop a more organized activity.

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# International Linkages

## Knowledge Sharing Initiatives of the ICAR lauded at International Forum

Bangkok , 16 September 2010. Various e-initiatives of the Indian Council of Agricultural Research for knowledge sharing among stakeholders in agriculture were complimented at the workshop on 'ICT/ICM for National Agricultural Research Information Systems in the Asia-Pacific Region', jointly organized by



APAARI, FAO, GFAR and AIT, at the Asian Institute of Technology, Bangkok, Thailand from 14 to 16 September, 2010. While making country presentation, Dr T.P. Trivedi, Project Director, Directorate of Information and Publications of Agriculture (ICAR), elaborated the major e-initiatives which included free and online open access of the research journals, user-friendly web site, e- farm science centers (Krishi Vigyan Kendras ) and mobile advisory services for the farmers. He opined that with active involvement and

participation of all the stake holders, a knowledge society may be created without any digital divide. 'More far-reaching, participatory and Information Communication Technology driven technology delivery systems would be evolved for effectively linking research with its stakeholders ', he added. Dr Raj S. Paroda (Executive Secretary, APAARI) emphasized that ICM strategy should be formulated by the member countries for coming together for knowledge sharing by the various audiences.

Participants were oriented towards Coherence in information for Agricultural Research for Development initiative and were motivated to equip themselves to contribute to the Coherence in information for Agricultural Research for Development Roadmap to Information Nodes and Gateways (CIARD RING).

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### Memorandum of Understanding

A Memorandum of Understanding between the Indian Council of Agricultural Research, New Delhi ,India and the Kanas State University, United States of America was signed on 7 June 2010 at Krishi Bhavan, New Delhi.

## First International School of Agriculture, Diploma on 'Hi-tech Agriculture' launched

Pantnagar, 24 July 2010. The Agriculture Minister of Uttarakhand, Shri Trivendra Singh Rawat declared that the Govind Ballabh Pant University of Agriculture and Technology has started an International School of Agriculture with the first academic programme of International Diploma on 'Hi-tech Agriculture'. He added that international programme will bring the people of 2 countries closer and hoped that the Maldivian 11 students (who were present on this occasion) would carry the age-old Indian message of *Vasudkev Kutumbkum* to their country and the other places of world.

The Vice-Chancellor of Pantvarsity, Dr B.S. Bisht said that the programme has been meticulously designed as per the needs of Maldives and approved by Academic Council, Board of Management and the Government of Uttarakhand. It will be run on self-financing mode with little or no extra investment on



The first batch of students from Maldives admitted to International Diploma on 'Hi-tech Agriculture' with Agriculture Minister, Vice-Chancellor, Registrar and others.

infrastructure, faculty, farm, laboratory, etc. Existing resources will be meaningfully used to run the course effectively.

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# Success stories

## Keenly attuned to the problems of agriculture in Punjab

Amritsar, Punjab. Keenly attuned to the problems of agriculture in Punjab, Maj. Manmohan Singh realized that the various cycles of wheat and paddy, has to be broken. Therefore he actively grew orchards in District Amritsar and Ferozepur, and particularly pioneered kinnow orchards in Amritsar. He presently grows 57 acres of kinnow successfully in Amritsar and Ferozepur District. He is also demonstrating crop diversification by growing plums (4 acres), peaches (4 acres), and pears (8 acres). He also grows sugarcane (6 acres), turmeric (6 acres), maize (10 acres), cotton (15 acres), banana (6 acres



experimental), papaya (1 acre experimental stage) and poplar (22 acres), seed production of fine varieties of export quality paddy for Seed Corporation of India. He also grows successfully turmeric under poplar plantation.

Realizing that technology is the present problems of agriculture, Maj. Manmohan Singh actively harnesses technology. His farm orchards (65 acres) are irrigated by the drip irrigation system. In this way he is contributing to the conservation of water and addressing the problem of depleting water-table in Punjab. Drip irrigation system also effectively curbs the weeds. Seeing him succeed the initial hesitation of other farmers has broken down and they are also adopting water conservation through drip irrigation system. Besides he adopted the use of underground pipes in agricultural irrigation and also constructed a canal water storage tank for drip irrigation. Marketing has been a bane for farmers so he has focused on self marketing and value addition. For this purpose he has set up a grading and waxing plant for fruits which is the first in the region. This invoked the interest of other farmers as well. A similar processing unit for turmeric is in the pipe line.

To make the farm income sustainable he is also reviving the traditional practice of making 'Gur'. He has also instituted the practice of **Vermi-composting** on his farm. He keenly touches with Krishi Vigyan Kendra, Amritsar for taking technical support for all these activities. He also gives due importance to the Department of Horticulture, Amritsar for providing financial help under National Horticulture Mission. Apart from these he was instrumental in the cooperative movement.

For all this and his other achievements, he has been widely recognized and honoured. Recently, he was adjudged the best horticulturist in Punjab and was felicitated with the Chief Minister's Award for 2010 by Punjab Agricultural University, Ludhiana.

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## Summer mungbean fetched better returns for farmers in Fatehpur

Fatehpur, Uttar Pradesh. To empower farmers in production of chickpea and pigeon pea seed in 2007 the Indian Institute of Pulses Research, Kanpur implemented a project on 'Model Seed System(s) in district Fatehpur' which provided an interaction between scientists and farmers that improved pulse production and value of pulses in sustainable crop production. During formal and informal meetings with farmers in the target villages, where rice-wheat was the predominant cropping system, most of the farmers opined that after harvest of wheat, mungbean cannot be grown during summer.

The Institute arranged visit of farmers to the IIPR-farm and showed them summer mungbean in 2007. The farmers of Mauhar and Alipur villages of Malwan block of Fatehpur district came forward to start mungbean cultivation in summer. The 10 kg seed of short duration varieties, viz. Meha and Samrat (developed by Indian Institute of Pulses Research, Kanpur) was supplied to 6 farmers: Mr Rajesh Patel, Baburam Prajapati, Deshraj Singh, Shiv Pratap Singh, Ram Prakash Singh and Ram Sajeewan Patel of Mauhar and Alipur villages of Malwan block of Fatehpur district.

In 2008 mungbean was grown after mustard under the guidance of the Indian Institute of Pulses Research scientists. The farmers harvested 12 to 14 q/ha mungbean in 65 days and earned ₹ 50 to 60 thousand/ha. The mungbean variety Samrat yielded 13.5 q/ha and Meha 14.0 q/ha. From the total produce of 48 q Mr Patel earned ₹ 1,76,000 with an investment of ₹ 28,000/- only. Similarly Mr Baburam Prajapati earned ₹ 42,000 from 0.8 ha mungbean and





Shiv Pratap Singh earned ₹ 54,000 from 0.9 ha, Deshraj Singh earned ₹ 80,000 from 1.6 ha. This improved the income of farmers and changed their fortune. They have already got constructed tube-well.

The farmers of Mauhar and Alipur villages have opted cultivation of summer mungbean as they are fully confident of bonus yield and monetary gains from summer mungbean without affecting their prevailing rice-wheat cropping system. The innovative message has spread in neighbouring villages and around 150 ha spring/summer mungbean is being cultivated during current season in cluster of 11 to 12 villages in the Malwan block of Fatehpur district.

Picking of pods was not required as both the varieties have synchronous maturity. Such large profit within 65 days enthused many farmers to take up spring/summer mungbean cultivation in 2009. The

farmers reported that the yield of succeeding rice crop was higher with proceeding mungbean.

During spring/summer 2009 Mr Rajesh Patel of village Alipur took up mungbean cultivation in 3.5 ha land after harvest of wheat. He planted mungbean varieties, viz. Meha in 2.0 ha and Samrat in 1.5 ha on 7 and 9 April, 2009 after pre-plant irrigation; and used 25 kg seed (treated with fungicide thiram @ 3g/kg seed) per ha and applied 100 kg diammonium phosphate and 20 kg/ha sulphur as basal dose. The crop was sown in line spaced 30 cm and 2 irrigations were applied at 32 and 43 days after sowing and sprayed insecticide metasystax 0.03 % solution at podding stage to control thrips. The crop was harvested on 12 and 15 June, 2009.

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## National Research Centre on Meat facilitated the effort

Hyderabad, 4 August 2010. Dr N. Kondaiiah, Director, National Research Centre on Meat apprised on importance of Geographically Indication and its significance in enhancing marketing opportunities for *Haleem*. The certificate would also act as a perfect marketing tool to further popularize the delicacy. National Research Centre on Meat will be the inspection body to check the quality of the registered *Haleem* producers in the region.

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# Capacity Building

## Online ICAR research journals

New Delhi. *The Indian Journal of Agricultural Sciences* and *The Indian Journal of Animal Sciences* of the ICAR have been made available online. These are also available under Open Access (<http://>

[epubs.icar.org.in/ejournal/](http://epubs.icar.org.in/ejournal/)) as well as in print version.

The online research journals are now free and provide facilities like registration for reviewer, author and reader, and manuscript can also be submitted for publishing. The status of articles submitted can also be tracked by the authors.



The Copyright of the articles published in *The Indian Journal of Agricultural Sciences* and *The Indian Journal of Animal Sciences* vests with the Indian Council of Agricultural Research. The Council has no objection in using the material, provided the information is being utilized for academic purpose but not for commercial use. Due credit-line should be given to the ICAR where information will be utilized.

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## Online reporting system for Krishi Vigyan Kendras

New Delhi, 30 July, 2010. Dr K.D. Kokate, Deputy Director General (Agriculture Extension), ICAR inaugurated an interactive 2-day online training on 'Online reporting system of Krishi Vigyan Kendras' at e-KVK hub, Krishi Anusandhan Bhavan I. This first online training of e-KVK hub was organized by the Agriculture Extension Division, ICAR is cost-effective in minimal expenditure on logistics, travel of official etc. This online reporting system is a part of 'Any Time KVK' which is an intranet service of Division's portal 'Wagon Wheel Windows'. This initiative by ICAR is designed to effectively manage activities of the KVKs. The software was developed in Public-Private Partnership mode by Agriculture Extension Division, ICAR with VLH Solutions, Hyderabad. It facilitates hassle free entry of data, planning and execution of various activities, hands free generation of various reports and serves as national repository of information on technology assessment, refinement and demonstration by the Krishi Vigyan Kendras.

'Any Time KVK' would help Subject Matter Specialists (SMS) to plan and schedule activities, properly record accomplished jobs, and obtain online approval for scheduled tasks. It would enable the Programme Coordinators to review, modify and approve action plans, monitor activities of individual SMS and generate structured reports. 'Any Time KVK' empowers Zonal Project Directors and senior officials of the ICAR to review and monitor activities of Krishi Vigyan Kendras under their operational jurisdiction. Other salient features of 'Any Time KVK' include secure and authenticated user logins, astute micro- and macro- level planning, seamless and online access to KVK database.

The computer programmers were from Zone VII including ADG (Agriculture Extension). The senior scientists from Zonal Project Directorates staff of 8 Zonal Project Directorates, Project Co-ordinators, Subject Matter Specialists and other staff from 192 e-linked KVKs and 120 non-linked KVKs participated in the same at e-KVK hub. During the training session, there were 86 and 221 feedback calls from various Krishi Vigyan Kendras and Zonal Project Directorates on 30 and 31 July, 2010 respectively. More than 500 personnel of Krishi Vigyan Kendras/Zonal Project Directorates was trained in the first of its kind training initiative.

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## Meat Processing Enterprise Established with Success

Hyderabad, 31 July 2010. Encouraged by the prospects in meat processing, the entrepreneurs established a firm 'Mellow Foods'. Technology was

transferred and entrepreneurs were trained under National Agricultural Innovation Project, 'Value chain for clean meat production from sheep' and Emeritus Scientist project on 'Developing processing technologies and entrepreneurial adoption'. Mellow foods signed the Agreement for licensing of knowhow for meat product processing.

Group of 6 meat industry youth who were trained under 'Participatory training programme' in meat processing at National Research Centre on Meat and were employed by the entrepreneur. Mellow foods will display the name of the Centre and National Agricultural Innovation Project on the product label.

Entrepreneur signed the Memorandum of Understanding for the test marketing with the Centre. ICAR lauded the effort of the Centre in popularizing the meat technologies.

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## DG, ICAR lays foundation stone

Car Nicobar, 13 September 2010. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) and his team visited Car Nicobar to attend the foundation stone laying ceremony of the Krishi Vigyan Kendra.



Dr S. Ayyappan laid foundation stone at Arong village and said that there is ample scope for high-value agriculture for the economic development of Car Nicobar farmers. He assured to introduce cage system as demonstration for catching fish in the area. Addressing the gathering, Shri Vivek Rae said with the opening of Krishi Vigyan Kendra at Car Nicobar, the farmers of the area can use new and latest techniques which would yield better results in productivity and thereby would help in uplifting the living standards of the people. He also appealed to CARI to take necessary initiatives to address the problems of farmers.

After the foundation stone laying ceremony the team visited Krishi Vigyan Kendra farm at Auckchung and demonstration plot laid out under coconut mission at Small Lapathy village.

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## CaneInfo website : a gateway for information resources on sugarcane

Coimbatore, 9 July 2010. *CaneInfo*, developed by Sugarcane Breeding Institute, is an interactive and user centered web site that provides a platform for sugarcane growers, cane development personnel, scientists and students to share information and knowledge on sugarcane. This is a pioneering initiative by any public-funded sugarcane research institution in the country.

Dr N.Vijayan Nair, Director, Sugarcane Breeding Institute, said that this web site is the culmination of 2-year research project executed by the institute with the support of the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India under the Technology Information Facilitation programme'. This is free to access site and has been developed after taking in to account the information needs of the target audience. "CaneInfo is unique in that it is completely user centered. The site is available at <http://caneinfo.nic.in>. Index page of *CaneInfo* (<http://caneinfo.nic.in>).

A few modules available in *CaneInfo* are:

- Ask a Specialist: You can post your questions under different categories and get an answer from sugarcane experts. Facility to attach photos provided.
- OFAS (Online Fertilizer Advisory Service).
- Discussion forum: a facility to encourage sharing of information through open discussions on various sugarcane related issues.
- Suggest a variety: Provides a list of suitable varieties based on user inputs such as zone, state, tolerance/resistance to various factors such as red rot, soil conditions etc.
- Publications (English, Hindi and Tamil) / Bibliographic database.
- Multimedia gallery

- Success stories
- What's available? Timely information on input/labour/machinery availability.

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## National Agricultural Bioinformatics Grid Project Launched

New Delhi , 18 September 2010. Dr S. Ayyappan (Secretary, DARE and Director General, ICAR) launched a National Agricultural Bioinformatics Grid project at Indian Agricultural Statistics Research Institute. It will be national facility to provide computational framework to support biotechnological research in the country.



To keep pace with the research and developments in agricultural bioinformatics at global level, country needs expertise and exposure in this area of research. The Grid will help in developing databases, data warehouse, software and tools, algorithms, genome browsers and high-end computational facilities through systematic and integrated approach in the field of agricultural bioinformatics. The NABG will also help in capacity building for research and development in agricultural bioinformatics and in turn agricultural biotechnology.

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## Celebrations

### ICAR Foundation Day celebrated

New Delhi, 15 July, 2010. The ICAR Foundation Day was started with the Foundation Day Lecture of Professor M.S. Swaminathan followed by Award ceremony. The Union Minister of Agriculture, Shri Sharad Pawar, honoured selected scientists, researchers, institutions and farmers for their outstanding contribution in agriculture, with Indian Council of Agricultural Research Awards. The Union Minister of Agriculture(State), Prof. K V Thomas and

eminent agricultural scientist and Member of Rajya Sabha, Dr M. S. Swaminathan were among august gathering.

Noted agricultural scientist, policy planner and thinker Prof. M.S. Swaminathan delivered ICAR Foundation Day lecture on 'Agro-Bio-diversity Management for Sustainable Food Security.' Prof. Swaminathan outlined road map for effective management of the agro-bio-diversity to maintain sustainable food security for the country. He





emphasized the important role of technological research in achieving goals which ultimately result in revolutions. Prof. Swaminathan, urged to develop awareness regarding locally available agro-bio-diversity among the members of neighbourhood community to encourage the *in-situ* conservation. Further, a bio-diversity literacy movement may be initiated to educate people regarding the importance of genetic resources in their future. He said that ICAR has the competence and capability to address



this issue at national level with emphasis on local participation. In the current climate change scenario the importance of gene banks is mounting, hence, ICAR may take up creation of gene banks in various agro-climatic zones of the country. While suggesting action plan, Prof. Swaminathan highlighted the importance of human resources in conservation of agro-bio-diversity and urged to enhance the investment on this activity. Agricultural scientists must intensify anticipatory and participatory research to conserve the Indian agricultural heritage.

## Award ceremony

This year 135 awardees, under 11 different categories have been selected, comprising 5 institutions, 127 scientists and 3 farmers. Out of 127 scientists, 11 are women.

- Among the State Agricultural Universities and Deemed Universities, the Best Institution Award has gone to the Indian Veterinary Research Institute, Izatnagar. The major accomplishments of the IVRI include recognition of High Security Animal Disease Laboratory (HSADL), Bhopal, as OIE approved reference laboratory, seventh in the world, for highly pathogenic avian influenza diagnosis.
- The Central Soil Salinity Research Institute, Karnal, has been adjudged as the Best ICAR institution for its achievements in reclamation and management of salt-affected soils of India.
- Among smaller institutions, the Central Agricultural Research Institute, Port Blair, and Indian Institute of Spices Research, Calicut, have been bestowed jointly with Best Institution Award. The CARI contributed for increasing productivity in agriculture sector in Andaman and Nicobar Islands and the IISR has established the largest collection of spices germplasm in the world.
- The Jawaharlal Nehru Awards for high quality Ph.D. thesis were given to 18 scholars, of which four are women scientists. There are also 2 women awardees for Panjabrao Deshmukh Woman Agricultural Scientist Award.
- The Vasantrao Naik Award for Research Applications in Dryland Agriculture for 2009 has gone to the research team from the Central Research Institute for Dryland Agriculture, Hyderabad.
- The Jagjivan Ram Kisan Puraskar was awarded to 2 farmers, 1 from Bihar and the other from Andaman & Nicobar Islands.
- The N.G. Ranga Award for Diversified Agriculture was awarded to a farmer from Andhra Pradesh.
- The ICAR Team Research Award was bagged by 11 research teams: 2 in Crop Improvement, 1 in Natural Resources, 2 in Engineering and Technology (jointly), 2 in Horticulture (jointly), 1 in Fisheries, 2 in Animal Production and Health, and 1 in Social Sciences.
- The Fakhruddin Ali Ahmed Award for Outstanding Agricultural Research in Tribal Areas was bagged by 2 teams of the Scientists from the North-





Eastern Hills Region. One team worked on rice based tribal farming system and the other on pork production.

- Six teachers were selected for the Bharat Ratna Dr C. Subramaniam Award in Crop Science (2), Natural Resource Science (1), Fisheries (1), Veterinary and Animal Science (2).
- The authors of 6 technical books in Hindi, 1 each in Crop Science, Soil and Agronomy, Horticulture, Animal Production, Fisheries, and Engineering have been selected for Dr Rajendra Prasad Puruskar.
- Chaudhary Devi Lal Outstanding AICRP Award was bagged by All India Coordinated Research Project for Dryland Agriculture, Hyderabad, for developing location-specific technologies in rainwater management.

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## Farmers' club and technical resource development

Karda, 2010. The Krishi Vigyan Kendra organized a workshop on "Role of Farmer's Clubs in technical resource development and Women empowerment through SHGs". Mr P. Satish, Chief General Manager, NABARD, inaugurated the workshop and emphasized role of NABARD in Agriculture and Rural Development. He added that Krishi Vigyan Kendras are playing key role in location specific need based technology transfer. The NABARD is ready to strengthen the role as a bridge between Krishi Vigyan Kendras and farmers. It will also promote programmes such as seed village, crop demonstrations training in value addition, processing and Marketing. The NABARD is also implementing the capacity building programme, Training of Master farmers, and Agricultural-Meteorology advisory services to farmers. At the end he added that during his another visit to Krishi Vigyan Kendras minimum 2-3 farmers should be awarded for their contribution at National level.

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## Badminton revolution in the courtyard of ICAR

New Delhi, 1 July 2010. The Indian Council of Agricultural Research felicitated Ms Saina Nehwal, the youth icon of India. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) felicitated Saina with a memento and called her a global celebrity and star belonging to the ICAR family. He said that now Saina is a source of inspiration for 120 crore Indian people and we, as a member of her family, are basking in the glory. While lauding her outstanding achievements, he made special mention of *Arjuna Puruskar* and *Padamshree* which she received at the young age of 19 and 20 year respectively. Wishing her all success in her future endeavors, Dr Ayyappan urged her to become Brand Ambassador of the ICAR.



The international badminton star belongs to ICAR family as her father, Dr Harvir Singh is an esteemed scientist in the Directorate of Oilseeds Research at Hyderabad, a constituent of ICAR. Saina was full of memories of visiting her father's office where she got profuse encouragement and best wishes for her bright career. Her achievements also showcased the facilities available at the campuses of ICAR institutes spread all over India.

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## Mushroom City, Solan Exhibited New Technologies

Solan ,10 September, 2010. Commemorating the 13 years of declaration of 'Mushroom City of India', 1-day *Mushroom Mela* was organized on 10 September at the Directorate of Mushroom Research. *Mela* showcased the latest technologies developed by the Directorate for the direct benefit of mushroom growers. While inaugurating the *Mela* Chief Guest, Dr H. P. Singh, Deputy Director General (Horticulture) highlighted the importance of holding *Mela* and emphasized on the diversification of mushrooms. 'India is an agricultural country with varied agro-climatic conditions which produces more than 6 million tonnes of agricultural wastes. These wastes can be effectively used for the cultivation of different mushrooms', he suggested. Dr Singh elaborated the role of mushroom in tackling unemployment problem and malnutrition in the country and informed that during last 2 decades mushroom production in India has increased from 10,000 tonnes to 1 lakh tonnes.

More than 25 government and private entrepreneurs, mushroom growers and NGO's exhibited their products and around 600 farmers from different states such as Himachal Pradesh, Punjab, Haryana, Delhi, Maharashtra, Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Sikkim, Asom, Meghalaya, Orissa, Jammu and Kashmir, Kerala and Andhra Pradesh participated in the *Mela*. For the benefit of the participants, *Kisan Goshti* is also organized in which farmers, mushroom growers, marketing personnel and extension workers visiting

the *Mela* participated and interacted face to face with the scientists and experts of the DMR and other organizations, on various mushroom related problems and issues. *Mushroom Mela* provided an opportunity to the farmers and mushroom growers to seek 'on the spot' solutions to their mushroom related problems. On this occasion 7 farmers from different states were honoured for adopting innovative technologies and contribution made in mushroom production.

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## News from Market Intelligence

Pantnagar, 18 August 2010. The farmers were advised to sell brinjal by beginning of September 2010. The scientists working on 'Establishing and Networking of Market Intelligence Centres in India', a project financed by the NAIP, advised to farmers after conducting a market survey of Haldwani regulated market, a major market for brinjal in the Uttarakhand. The scientists said that results of econometric analysis showed that the wholesale prices of brinjal in Haldwani market would be in the range of ₹ 1,000 to ₹ 1,200 per quintal in September 2010 and ₹ 550 to ₹ 750 per quintal in October while in the November market prices of brinjal in Haldwani market are expected between ₹ 650 and ₹ 850 per quintal, which are higher than the farm level prices prevailed during these months last year. According to traders of Haldwani regulated market, due to heavy rain during this rainy season the brinjal crop along with other vegetable crops have been adversely affected and prices in general for all the vegetables are double than the previous year and this situation is likely to continue in the coming 2-3 months. The traders of Haldwani market also told that October and November are the major arrival months of brinjal.

In Uttarakhand, brinjal is mainly grown in the plains in an area of 1,685 ha. Dehra Dun, Haridwar, U.S. Nagar and Naini Tal are the four major districts producing brinjal and contributing about 60% to the total production in Uttarakhand where peak period of brinjal arrival in market is October to November even though it starts arriving in August and lasts up to January.

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## Health-cum-vaccination camp organized for Mithun

Porba, 21 August 2010. The National Research Centre on Mithun and Krishi Vigyan Kendra, Phek, Nagaland jointly organized a comprehensive health-cum-vaccination camp against Foot-and-Mouth Disease for Mithun in a remote located Porba village in Phek district of Nagaland at a community farm. There was an overwhelming response to the programme and about 110 Mithuns of both sexes of all age groups were brought down from the community *jungle* for vaccination against Foot-and Mouth Disease by the villagers. Folders were distributed to enhance public awareness among Mithun rears.

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## Prof. K.V. Thomas visits CPCRI

Kasaragod, 2 July 2010. Professor K. V. Thomas, Union Minister of Agriculture (State) visited the Central Plantation Crops Research Institute's farm and observed the field experiments on high density multispecies cropping system, mixed farming, germplasm evaluation trial vermi-composting and demonstration of climbing device. Subsequently, he has also visited laboratories of biotechnology,

## Trainings

- The Coordinating cell of All India Co-ordinated Research Project on 'Farm Implements and Machinery', Central Institute of Agricultural Engineering organized 10-day training programme on 'Skill development programme on advances in farm machinery and prototype manufacturing of agricultural implements'.  
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- The Central Institute of Freshwater Aquaculture organized a training programme on 'Freshwater pearl culture' realizing the scope and importance of inland pearl culture at Bhubaneswar on 17 August 2010.  
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- A Consultancy training course on 'Commercial rabbit rearing' was conducted from 29 to 31 July 2010 at ICAR Research Complex for Goa.  
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- Under the project 'Women Empowerment', financed by the Department of Science and Technology, a

training was conducted on 'Quality Assurance through Personal Hygiene' at the Central Institute of Fisheries Technology, Cochin, on 1 July 2010.

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- A training programme on 'Fish value addition for empowerment of fisher folk' was jointly organized by the Central Institute of Fisheries Technology, Cochin and the Theera Desa Raksha Social Welfare Society, Calicut under the project 'Technology assessment and transfer among the client system' for coastal Women Self Help Group, Vellayil Beach, Calicut from 28 to 29 July, 2010.  
e mail: [cift@ciftmail.org](mailto:cift@ciftmail.org)
- Under the project 'Women Empowerment', financed by the Department of Science and Technology, a training was conducted on 'Quality Assurance through Personal Hygiene' at the Central Institute of Fisheries Technology, Cochin, on 1 July 2010.  
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microbiology, plant pathology, genetics, entomology and agro- processing complex. The Union Minister of Agriculture (State) emphasized on increase of availability of disease-free planting material; efforts to popularize the dwarf varieties; and commercialization of production of tissue culture planting material of arecanut. Facilities at the Central Plantation Crops Research Institute will be strengthened so as to make it as a centre for the farmers and other interested persons to visit and learn technologies of coconut cultivation. He urged that farmers should cultivate the intercrops and adopt the integrated farming system developed by

the Institute. Vermi-composting technology also should reach more farmers.

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## ICAR Vichar Manch

New Delhi, 25 August 2010. Shri Anil Kumar Upadhyay, Secretary, Department of Youth Affairs, Government of India, delivered lecture and proposed to Wander across his memories over various things that have been of interest to him and impressed him.

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## Personnel

### Appointments

- Dr Gaya Prasad joined as Assistant Director General (Animal Health), ICAR, New Delhi on 1 July 2010.
- Dr Bir Pal Singh joined as Director, CPCRI, Shimla on 1 July 2010.
- Dr D.C. Bhandari joined as Director (Acting), NBPGR, New Delhi on 5 July 2010.
- Dr P.S. Minhas joined as Principal Scientist and Acting Assistant Director General (Agronomy and Agroforestry), ICAR, New Delhi on 19 July 2010 on repartition from PAU, Ludhiana.
- Dr K. S. Tomar joined as Principal Scientist ICAR(Hq), New Delhi on 15 July 2010.
- Dr Ajoy Kumar Singh joined as Zonal Project Director, Zone II, Kolkata on 15 July 2010.
- Dr Ashok Kumar Singh joined as Zonal Project Director, Zone I, Kanpur on 19 July 2010.
- Dr Vishal Nath joined as Director, National Research Centre for Litchi, Muzaffarpur on 22 July 2010.
- Dr R. Sai Kumar joined as Project Director, Directorate of Maize Research, IARI, New Delhi on 28 July 2010.
- Dr Mrinmoy Datta joined as Joint Director, ICAR Research Complex Region, Tripura Centre, Agartala on 2 August 2010.
- Dr Neelam Gupta joined as Principal Scientist ICAR(Hq), New Delhi on 2 August 2010.
- Dr Ranvir Singh joined as Principal Scientist, ICAR(Hq), New Delhi on 2 August 2010.
- Dr M. Kochu Babu joined as National Coordinator, NAIP, New Delhi on 12 August 2010.
- Dr Ramesh Kumar joined as Director, Directorate of Floricultural Research, New Delhi on 11 August 2010.
- Dr A. Jabbar Quasim Shaikh joined as Director, CIRCOT, Mumbai on 19 August 2010.
- Dr W.S. Lakra joined as Director, CIFE, Mumbai on 1 September 2010.
- Dr S. K. Sharma joined as Director, CIAH, Bikaner on 1 September 2010.

### Retirements

- Dr N.B. Singh (Principal Scientist and Acting Assistant Director General, ICAR) took voluntary retirement in the forenoon of 12 August 2010.
- Dr Dilip Kumar (Director, CIFE, Mumbai) retired on 31 August 2010.
- Dr S.K. Sharma (Director, NBPGR, New Delhi) repatriated to his parent university on 5 July 2010.

### Protocol activity

- Dr S. Ayyappan (Secretary, DARE and DG, ICAR) visited to USA from 11 to 17 August 2010 (excluding journey time) as a member delegation led by Dr K. Kasturi Ranjan, Member (Science) Planning Commission.

### Editorial Board

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