



# Central Institute of Post Harvest Engineering & Technology Ludhiana

**OUR SLOGAN: PRODUCE, PROCESS AND PROSPER**

**CIPHET E - Newsletter for January 2011  
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## Director's Column



Dear All

An important event of this month was the visit of Ethiopian Agricultural Scientists to find collaborative partners. Their visit was aimed at curbing losses in Post harvest and developing a permanent system of collaboration with Indian institutes including CIPHET for getting technologies." CIPHET also participated in the India International Crop Summit, 2011 at Bhubneshwar. A talk on "Scope and Opportunities in Postharvest Sector Appropriate to Indian Socio-Economic Condition" was delivered.

NABARD trainees visited the research farm at CIPHET, Abohar and have been shown covered crop cultivation experiments such shade net houses and effect different mulching on strawberry production. Trainees from Regional Centre for Entrepreneurship Development also visited CIPHET, Abohar and Different kind of valued added products such as Aonla candy, jam, shreds etc. were prepared and demonstrated to the trainees.

CIPHET also organized a paid training on emerging areas of technology like microencapsulation, UV-NIR spectroscopy for industry & academia participants. Another training on agroprocess equipment design was conducted for Research Engineers of All India Coordinated Research Projects (AICRP) on Post Harvest Technology (PHT). Lectures on diverse issues including extrusion processing of expanded products, formulation of food products through linear programming, design of axial follow thresher, prediction modeling in post harvest technology, design of groundnut grader, basket centrifuge, electrical controls in processing equipment, innovate mechanical designs by common men were delivered.

CIPHET also licensed technology of green chilli processing to four entrepreneurs.

I congratulate Mr. Rajiv Sharma and Mr. Bhupender Kumar who have joined CIPHET. I personally thank the Project Co-ordinators, Heads of the Divisions, scientists and staff for their support and active role in institute activities

**With best regards**

**R.T. Patil  
Director**

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## **Model Training Course on Post Harvest Management and Value Addition at NRC, Citrus, Nagpur**

Dr. RT Patil, Director CIPHET inaugurated this training course. It was sponsored by Directorate of Extension, Govt. of India to National Research Centre for Citrus, Nagpur. The course content included Overview, Citrus fruits processing, Harvesting, Handling and storage of fresh fruits, Synergistic effect of pre and post harvest practices, Post harvest diseases in Citrus, Raw material preparation and quality of fruits for processing., Fruit juice beverages (blending), Preparation of RTS / Squash, Dehydration of fruits segment, Fruits

Juice concentrate /Powder, Food additives in fruits juice / products, Waste utilization (Phenol, Pectin aroma flavor oil extraction), HACCP for citrus processing Industry, FPO / PFA / BIS standards, Super critical Co2 extraction , Spray dryer application for Juice powder manufacturing, Fermentation through fermentor, HPLC and GLC Technique in separations analysis, Packaging of products, Mechanized packing Line, Zero energy cool chamber, Marketing. The course also included group discussion, citrus orchard, industrial / factory visit. The course was attended by 25 participants from state Agril Dept. as well as hort./processing in the cadre of Agril Horticulture Officers./SMS of KVKs

## **Rathindranath Memorial Lecture in Annual Convention of Institution of Engineers (Agri Division)**



The Andhra Pradesh State Centre of the Institution organized 24th National Convention of Agricultural Engineers and two days National Seminar on “Technological Interventions for Evergreen Revolution” in association with Indian Society of Agricultural Engineers (ISAE), Andhra Pradesh Chapter and ANGR Agricultural University, Hyderabad. Mr G Prabhakar, President of IEI inaugurated the function and discussed about the importance of technological interventions on

agricultural sectors. Dr V M Mayande, Vice Chancellor of Dr Panjabrao Deshmukh Krishi Vidyapeeth, Akola briefed about the role of evergreen in agricultural sectors in India and highlighted the possibility of using ICT in the field of agricultural engineering for ecological balancing. Dr P Raghava Reddy, Vice Chancellor of ANGR Agricultural University, Hyderabad, also addressed various upcoming issues related to agricultural interventions on the food security and food technology. In this occasion, Padmashri Dr M V Rao, Hon’ble Member of Legislative Council and former Vice Chancellor of ANGR Agricultural University, Hyderabad, highlighted how India has achieved a lot in the field of agriculture by adopting the latest technologies. Mr S P Y Reddy, Hon’ble Member of Parliament and Managing Director, Nandi Plasticisers & Pipes Industries, Andhra Pradesh also graced the occasion and emphasized on the rain water harvesting techniques and its utilities towards the agricultural sector for commercialization. Dr R T Patil, Director, Central Institute of Post-Harvest Engineering and Technology (CIPHET), Ludhiana, delivered the “Rathindranath Tagore Memorial Lecture” on the topic “**Engineering Interventions for Post-harvest Management of Horticulture Produce**”. Dr Bangali Baboo, National Director of Indian Council of Agricultural Research, New Delhi, Dr V V N Mutthy of AIT, Bangkok, Dr T Satyanarayana of IIT Kharagpur, Dr V N Sharda, Director of CSWCRTI, Dehradun and Dr K S V V Siva Rao, Pricipal (Retd) of College of Agricultural Engineering, Andhra Pradesh were felicitated on this occasion for their outstanding contributions in the field of agricultural engineering. During these two days occasions, various issues have been discussed especially on post harvesting management, sub soil health management systems, farm mechanization technologies & Government role on it, e-learning process in agricultural education, optimal utilization of water resources, precision farming, permanent sprinkler system, food security and many more. At the valedictory session, Mr V Nagi Reddy, IAS, Principal Secretary to the Government, Department of Agriculture, Andhra Pradesh addressed the occasion and briefed about the role of Irrigation Department in the evergreen revolution of the State and he also discussed about the agricultural achievements to be performed in the State by establishing a very close interactions with the Industry. Mr G Prabhakar, President of IEI was also present and briefed about the importance of agricultural

engineering in the Government, Public and Private levels and highlighted how to promote the agricultural engineering at a large scale. Apart from these, a panel discussion was held, where the issues like role of NGO's in the field of agricultural engineering, spreading R&D at larger extent, employment opportunities, opening up few more agricultural universities or colleges both at Government & private levels and many more relevant topics were discussed. Dr V V N Murthy, Chairman of Technical Committee briefed about the recommendations of these two days event. Prof T Narayana, Chairman, IEI, Andhra Pradesh State Centre and Dr K Yella Reddy, Organizing Secretary expressed the vote of thanks at the end.

### **Seminar on Climate Change and Food Security: Challenges and Opportunities for Tuber Crops**

As part of formulating strategies in connection with climate change, causing influence on tuber crops, a national Seminar on 'Climate Change and Food Security : Challenges and Opportunities for Tuber Crops' was held at CTCRI, Trivandrum during January 20-22, 2011. The three-day seminar reviewed the present status of R and D efforts in root and tuber crops and its effective adoption or diffusion to the clientele groups, identify integrated and coordinated research programmes for optimal use of natural resources, formulate strategies for better utilisation of scientific and technical manpower with special reference to the global issues of climate change. A strong R and D base provided by ICAR has been instrumental for the host of viable technologies which have played a great role in the present productivity status of most of the tubers. Dr. S. K. Nanda, Project Coordinator (PHT) from CIPHET cochaired the Technical Session VI: Post Harvest Technology and value Addition and also presented the lead lecture titled "Scope of mechanization in post production system of horticultural crops with special reference to contributions of AICRP on PHT".

### **National Symposium on "Veterinary Public Health**

The 29<sup>th</sup> Annual Convention of Indian Society for Veterinary Medicine (ISVM) was held at the Department of Veterinary Medicine, Mumbai Veterinary College,(MAFSU), Mumbai, The theme for the convention was "Recent developments in diagnostics and therapeutics including applications of nanotechnology in veterinary medicine". The symposium included following sessions

- Veterinary medicine and nano-technology
- Infectious and non-infectious diseases of large ruminants including herd medicine
- Infectious and non-infectious diseases of small ruminants
- Companion animal medicine including exotic pets
- Avian medicine
- Wild life medicine
- Equine and pack animal medicine
- Ethno-veterinary and alternative medicine
- Veterinary nuclear medicine/ novel drug delivery system /laboratory animal medicine

Dr. S. K. Nanda, Project Coordinator (PHT) visited MAFSU, Mumbai centre and participated in the National Symposium. He chaired the Technical Session IV: Environmental Hygiene and Post Harvest Technology of the Symposium and also presented the lead lecture titled "Scope for Utilization of Slaughter House Waste : Efforts of AICRP on PHT".

## The XXI Meeting of ICAR Regional Committee-V

The meeting was organized by CSSRI, Karnal under the Chairmanship of Dr. S. Ayyappan, Director General, ICAR and Secretary DARE and Chief Guest Choudhary Paramvir Singh, Agricultural Minister Govt. of Haryana. Vice Chancellor of CCSHAU, Hissar Dr. K.S. Khokar, Dr. V.K. Taneja, Vice Chancellor of GADVASU, Ludhiana, Dr. A.K. Shrivastava, NDRI, Karnal, Dr. H.S. Gupta, IARI, New Delhi and Dr. M.L. Madan, DUVASU, Mathura also participated. The DDGs of NRM, Extension, Horticulture, Engineering, Fisheries, Animal Husbandry and Education of ICAR and Directors of the ICAR institutes of three states and PCs of KVKs, officers of state departments and scientist of CSSRI were present in the meeting. Director, CIPHET and both Project Coordinators from CIPHET attended this meeting.

## 45th Annual ISAE Convention and International Symposium on Water for Agriculture

Food and water are the two most important issues for world peace and social security in the 21st century, especially for countries in South Asia. World population is expected to increase from 6 billion today to 9 billion by the year 2050. This increase in population will demand more resources including food and water. Several studies indicate that world food production must increase by 50 % by 2030 and 100 % by 2050 from the current production levels to feed the increasing population. To address these issues this symposium invited world-renowned experts to present papers on topics of their interest and provide solutions to marginal and poor farmers of India to maintain daily livelihood and address water sustainability issues for agriculture. Symposium session topics included:



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- Rain Water Management
- Soil and Water Conservation
- Water Resource Development and Management
- Water for Food Security
- Environment and Water Security
- Irrigation and Drainage
- Soil-Water-Crop-Animal Interactions
- Socio-Economic Issues in Water Management
- Water Policies

Director CIPHET, both project coordinators and eleven scientists from CIPHET attended the event and presented their papers in different sessions. Dr. Patil also delivered Prof. B.Y. Rao memorial lecture on January 19, 2011 to students and faculty of food technology and food processing entrepreneurs from Nagpur at Laxminarayan Institute of Technology, Nagpur on prospects of processing of food grains and horticultural crops in India.



Prof. B.Y. Rao Memorial Lecture at LIT, Nagpur

## Participants of Entrepreneurship Development Programme Visit CIPHET, Abohar



Seventeen participants attending Entrepreneurship Development Programme exclusively in the trade of Food Processing organized by Regional Centre for Entrepreneurship Development, Chandigarh visited CIPHET, Abohar on 25th Jan 2011. They visited laboratory and pilot plants. Different kind of valued added products such as Aonla candy, jam, shreds etc. were prepared and demonstrated to the trainees.



NABARD trainees visiting strawberry field

## NABARD Trainees visit Research Farm at CIPHET, Abohar

The farmers and bank officials who attended one day District level workshop on forward Marketing/Trading of NABARD held at CIPHET, Abohar on date 4<sup>th</sup> Jan 2011 visited research farm of CIPHET Abohar. They were shown covered crop cultivation experiments, such as shade net houses and effect of different mulching on strawberry production.

## Development of Horticulture in Bihar: Issues and Strategies

Dr. R.K. Gupta, Head, Horticultural Crop Processing Division participated in the Seminar on Development of Horticulture in Bihar: Issues and Strategies organized at Bihar Veterinary College, Patna during 28-29<sup>th</sup> January 2011. The seminar was divided in Technical Session namely Strategies for Enhancing Production and Quality of Horticultural Crops, Strategies for Value Addition, Processing and Efficient Marketing of Horticultural Crops, Protected Cultivation of Fruits, Vegetables and Flowers, Strategies for Strengthening Infrastructure Development, R&D Efforts and Opportunities for Investment in Horticulture Sector followed by Inaugural as well as Valedictory Function. The Seminar was attended by the scientists, delegates from relevant industry and policy makers. Dr. Gupta presented paper entitled Hand Tools and Appropriate Technology for Postharvest Management and Value Addition of Horticultural Produce in Technical session II- Strategies for Value Addition,

Processing and Efficient Marketing of Horticultural Crops. Besides, he also worked as Co-Chairman for the Session-Strategies for Strengthening Infrastructure Development, R&D Efforts and Opportunities for Investment in Horticulture Sector.

## **Training Programme on Agro Process Equipment Design**

Eleven day long training of Agro-Process Equipment Design for Research Engineers of All India Coordinated Research Projects (AICRP) on Post Harvest Technology (PHT) at the Central Institute of Post Harvest Engineering and Technology was organised at CIPHET. A valedictory function was held on January 7, the concluding day of the training. Giving his concluding remarks, CIPHET Director Dr R.T Patil said that there was need to fill gaps in designs of the agro process-equipment. Hoping that this training programme would have enhanced the knowledge of participants, he urged them to disseminate the knowledge gained during training programme to other engineers and scientists in their respective areas. Showing satisfaction on conduct of the training programme, Dr S.K Nanda, Project Coordinator (PHT), said that CIPHET was having strategic advantage in organizing such an event. “We were able to draw experts due to closeness to other prominent institutes including GADVASU, PAU,” he added.



On the occasion, Dr R.T Patil distributed certificates to the participants. Senior Scientist Dr. Sangeeta Chopra presented a vote of thanks. Senior members of faculty including Head, Transfer of Technology Division Dr Deepak Raj Raj were also present on the occasion. More than 40 lecturers on diverse issues including extrusion processing of expanded products, formulation of food products through linear programming, design of axial flow thresher, prediction modeling in post harvest technology, design of groundnut grader, basket centrifuge, electrical controls in processing equipment, innovative mechanical designs by common men were delivered.

## **CIPHET Developed Green Chilli Powder Available in Ludhiana**

Institutes’s initiative to transfer technology of green chilli powder has finally yielded results as the product has hit shelves of the major stores in the city. The product is likely to receive an encouraging response from the customers.



Notably, the CIPHET has got overwhelming response from small and medium scale entrepreneurs for getting technology of green chilli powder, which could provide an alternative to customers for red chilli powder, consumed as an important spice from ancient times. The technology has immense potential for consumers and farmers. Maturation stage of chilli into green colour is one month less as compare to chilli turning into red colour. As the production of powder/puree from green chilli is now possible with technological

intervention of the CIPHET, farmers would not require keeping their fields occupied for one month more in wait of chillies turning into red. Similarly, green chillies powder/puree would provide more fresh and natural taste than red chillies.

With above benefits, the product is now available under the brand name of FARM GREEN produced by local entrepreneurs with help of the CIPHET technology. Bhuvnesh Sharma, Manager (Sales) FARM GREEN, said that he was expecting a good response from the market. Senior Scientist Dr Dilip Jain, who has standardized the process jointly with Senior Scientists Dr Ramesh Kumar and Dr Mirdula Devi, said that they had intentionally transferred technology to small and medium scale entrepreneurs. “Our purpose was to increase income of small/medium scale entrepreneurs than transferring technology to some MNC with exclusive rights,” he added.

Some of the products which were already available were soymilk, soy whey based fruits juices, soy snacks and ready to cook and eat vegetable blended meat products. Now in the series a green chili powder has been added which is available for sale at leading store of M/s Maniram Balwant Rai in Ludhiana. The production of such products will provide production catchment processing of fresh and quality raw material and also employment in rural areas inculcating entrepreneurship culture among the youth,” said CIPHET Director Dr R.T Patil.

## **CIPHET Licenses Green Chilli Powder/Puree Technology to Four Entrepreneurs**

In an indication of rising demand of green chilli and green puree powder technology, Central Institute of Post Harvest Engineering and Technology today transferred this technology to four entrepreneurs from across the country.

Notably, with intervention of CIPHET now powder of chillies would also be available in green colour like of red chillies, thanks to process standardized for green chillies/puree at the institute. The benefits are immense to consumers as well as to the farming community. “Maturation stage of chilli into green colour is one month less as compare to chilli turning into red colour. As the production of powder/puree from green chilli is now possible with technological intervention of CIPHET, farmers would not require keeping their fields occupied one month more in wait of chillies turning into red. Similarly, green chillies powder/puree would provide more fresh and natural taste than red chillies,” said Senior Scientists Dr Dilip Jain, Dr Ramesh Kumar and Dr Mirdula Devi at CIPHET, who have standardized the process.

Transferring technology to entrepreneurs/farmers, Dr Patil said that the technology developed by CIPHET would provide better product for consumers. “Also, farmers/entrepreneurs adopting this technology would get good returns,” he added. T. Santosh Kumar from Hyderabad working as sales executive, who got this technology, said that he had sold number of products including insurance policies. “But, I find lot of potential in green chilli powder technology as no such product was available in market so far,” he said, adding that





in red chilli powder consumers were getting lot of adulterated material. Civil Engineer by Profession B.S Avad from Nasik said that he was also growing chillies in his village.

“Due to fluctuation of prices in the market never used to get good returns,” he said, adding that processed green chilli products are likely to solve his problem.

The technology of green chilli powder and puree was licensed to Mr. T Santokh (Hyderabad); Mr. Avhad Balkrishna Sampat (Nasik); Mr. VD Gudadhe (Nagpur) and Mrs. Pratibha Mahajan (MP) during 3 – 6 Jan 2011. They expressed that by learning this technology, which is eye opening of a new industry in spice market for local and export sector. There is no such product available on commercial scale in the market. Green chilli powder and puree are certainly the better choice for consumer over of red chilli powder and product in terms of colour, flavour, nutrient and taste.

### **Training on Microencapsulation**

A seven-day training program on Micro Encapsulation Methods for Food and Biotechnological Application was held during January 5-11, 2011 at the Central Institute of Post Harvest Engineering and Technology. Scientists and students from across country are taking part to learn the new emerging technology of micro-encapsulation. With the growing urbanization and increasing quality consciousness the market for processed foods and functional foods is expected to grow more rapidly. Microencapsulation paves way for development of innovative functional foods. Microencapsulation is a process in which tiny particles or droplets are surrounded by a coating to give small capsules many useful properties. A simple and cost effective microencapsulator has been designed and developed at CIPHET. This program aims at providing training oriented towards commercial level application of microencapsulation methods which will help in monitoring quality, grading for quality based pricing and quality assurance. Inaugurating training program, Dr S.K Nanda, hoped that the training would help in enhancing knowledge of trainees in micro encapsulation technology. Dr K.Narsaiah, Senior Scientist and course director, said that not much work had been done on this subject in the country. “So, it would be good opportunity for all the participants to enhance their knowledge in new emerging field,” he added. Dr S.N Jha, Head Agricultural Structures and Environmental Control Division, and other senior members of the faculty were also present on the occasion. Training programme broadly covered topics on methods of microencapsulation, demonstration of micro-encapsulator, encapsulation for bio-processing, encapsulation of yeast and amylase, experiments on morphological characterization of microcapsules using electron microscope.

### **CIPHET Gets Prestigious Project on Microencapsulation under NBSFARA**

Getting a significant boost to its research, Central Institute of Post Harvest Engineering and Technology (CIPHET) has got a prestigious project on “Microencapsulation methods for bacteriocins for their controlled release”. The project would be funded under National Fund for Basic, Strategic and, Frontier Application Research in Agriculture (NBSFARA), an initiative of Indian Council of Agricultural Research (ICAR).

Giving information, Dr R.T Patil said that Indian Council of Agricultural Research (ICAR) supports basic and strategic research of national and long-term importance to break yield and quality barriers and make India a global leader in research for development, through the partnership of all research organizations under national fund for basic, strategic and, frontier

application research in agriculture (NBSFARA). “Concept notes from collaborative and multi-institutional research based on innovative ideas for solving advanced scientific and technological problems in agriculture were invited in open competitive mode and best ones are selected for grant of projects,” he said, adding that it was significant achievement for the CIPHET.

Congratulating the project team for winning the project, Dr Patil said that CIPHET carries out both basic and applied research in strategic areas of agriculture. He further stated that biotechnology and bioprocessing is strategically important in long term for value addition to agriculture produce and this project augurs well for better future. Senior Scientist Dr. K.Narsaiah, who is project leader, said that the project aims to develop simple as well as advanced microencapsulation systems and processes for encapsulation of food ingredients, nutraceuticals and biopreservatives. Dr. S.N. Jha, Head, Agricultural Structures and Environmental Control Division said that the technology developed in this project will be useful for developing functional foods and preserving foods for longer time without quality deterioration.

## **CIPHET Initiates Training Programme For Women Inmates of Central Jail, Ludhiana**

Taking a new initiative, Central Institute of Post Harvest Engineering and Technology (CIPHET) has begun one and half year long training programme in food processing for women inmates of Ludhiana Women Central Jail. More than hundred women prisoners were imparted training in making of pickles and Murabba.

Last year, CIPHET initiated training programme for the male inmates in the Ludhiana Central Jail. After getting good response, the training has also been initiated for the women inmates. During the training programme, Gurdev Kaur, a CIPHET trained entrepreneur, gave a practical demonstration for production of pickles and Murabba from the carrots at the commercial scale. Besides, explaining the process prisoners were also made aware about maintenance of safety and hygienic.



CIPHET scientists also demonstrated the packaging process for selling these products in the market. Revealing more, Dr Sangeeta Chopra, Senior Scientist, said that they had selected the technologies and processes keeping in mind of the women prisoners. “We are going to conduct series of 18 programme spreading over a span of one and half year,” she said, adding that aim was to enable women prisoners in creating self-employment opportunities. Deputy Jail Superintendent Snehjot Dhawan, said that there were around two hundred women prisoners and inmates in the jail. “This training programme could prove useful at domestic as well as commercial level for them.” Jail Superintendent Sukhwinder Singh said that male inmates also took keen interest in the training programmes conducted by the CIPHET.

## **Ethiopian Agricultural Scientists Visit CIPHET to Find Collaborative Means**

"In Ethiopia, GDP of agriculture is now growing at rate of more than 11 percent. Even some of the farmers from India has invested in Ethiopia as part of our national policy to invite people around the world," this was stated by Workinesh Abede, Director, Agricultural Mechanization Research Processing of Ethiopian Institute of Agricultural Research, who is leading the four member delegation to Central Institute of Post Harvest Engineering and Technology, for finding various areas of collaboration.



Dr R.T Patil, Director CIPHET discussing points with the Ethiopian counterparts

Revealing that agriculture in Ethiopia, an African country, is still very less mechanized, Workinesh Abede said that primarily Animals are used for plowing the fields by the vast majority of farmers. "Dependence on agriculture is quite huge. While more than 85 percent population is directly or indirectly dependent on agriculture, 55 percent of the country's GDP comes from agriculture," he said, adding that versatility in soil, irrigation and climatic conditions makes difficult for them to address the problems of farmers. "Though, opportunity to turn large chunk of land lying waste into fertile is also lying untapped."

Abede said that sophisticated technologies developed by the European and American companies would not be of much use for them. "While these would be costlier to afford, we need simple and effective solution for our small farmers," he said, adding that India can help them a lot. "Our visit is aimed at curbing losses in Post harvest and developing a permanent system of collaboration with Indian institutes including CIPHET for getting technologies." He also revealed that Ethiopian government was now also inviting MNC's and leading farmers from other countries to invest in Ethiopian agriculture. "Recently, Indian farmer has bought one thousand hectare farm for agriculture," he said, adding that this would help in making their country a food sufficient nation.

During the interaction, Director CIPHET Dr R.T Patil, informed visitors about the mandate of CIPHET and various initiatives carried out by the institute in the area of post harvest. Dr Deepak Raj Rai, Head Transfer of Technology, told that visitors that more than 20 externally funded projects and two All India Coordinated Projects were also running from CIPHET. This institute is the only one in Indian Council of Agricultural Research (ICAR) to carry focused research in post harvest, he added. "Besides, training farmers and entrepreneurs, we have also initiated training programme in food processing for prisoners of Ludhiana central jail," he further revealed this to Ethiopian counterparts. Dr Nilesh Gaikwad, Scientist of the Transfer of Technology, took the visitors to various research facilities of CIPHET. They were also shown film focusing on technologies and mandate of CIPHET.

## **CIPHET Participated in the India International Crop Summit 2011**

An India Crop Summit 2011 on "Global Outlook on Crop Production & Protection" was held in Bhubaneswar during 10<sup>th</sup> & 11<sup>th</sup> January, 2011. The summit was organized by Indian Chamber of Commerce, Kolkata and jointly sponsored by Ministry of Agriculture, GOI, National mission on micro-irrigation and ICAR. It was a joint event of seminar - cum -

exhibition on farm innovations by different entrepreneurs CIPHET participated as expert on their invitation to CIPHET. The national seminar was inaugurated by Shri Naveen Patnaik, Honorable Chief Minister, Govt of Orissa in presence of Shri Dr. Damidar Rout , Honorable Minister of Agriculture, Govt of Orissa; Mr. Naren Dey, Honorable Minister of Agriculture, Govt of Orissa; Mr P K Basu, Secretary, Ministry of Agriculture, Government of India; Dr Swapan K Dutta, Summit Chairman Deputy Director



General (Crop), ICAR; Mr U P. Singh Secretary, Agriculture, Government of Orissa and Rajeev Singh, Director General, Indian Chamber of Commerce Kolkata. Dr. Dilip Jain participated as an eminent speaker from CIPHET and presented a talk on **“Scope and Opportunities in Postharvest Sector Appropriate to Indian Socio-Economic Condition”** The Summit was emphasised on the issues like, Better Yield of Crop productivity in India; Harnessing the Trade Opportunities of Indian Crops In Global and Domestic Markets; Innovation of Biotechnology and Nanotechnology in crop production & Application of advanced post harvest technology and better storage of Crop-Irrigation; Way forward towards the 2<sup>nd</sup> green Revolution in East & North East.

Dr. K. Narsaiah, Senior Scientist has been awarded with Distinguished Service Certificate for his outstanding contribution in the field of Agricultural Structures and Process Engineering on 45th Annual Convention and International Symposium of Indian Society of Agricultural Engineers 17– 19 January 2011 at College of Agriculture, Dr. PDKV Campus, Maharashtra, Nagpur, Maharashtra, India.

### **Training on “Ultraviolet, Visual and Near Infrared Spectroscopy Methods and Data Analysis for Evaluation of Foods and Biomaterials at Commercial Level”.**

India ranks among top in production charts in the world for many agricultural commodities, livestock and fisheries. However the country contributes meagerly in the world market mainly because of lack of rapid, nondestructive and precision sorting methods for quality and safety assurance. Keeping this in view, Central Institute of Post-Harvest Engineering and Technology (CIPHET) recognized for its work in the field of Nondestructive Methods of Food Quality Evaluation. To increase the manpower in this upstream research to achieve the excellence in this field at accelerated pace CIPHET, Ludhiana organized a paid training for scientists and engineers on “Ultraviolet, Visual and Near Infra Red spectroscopy methods and data analysis for evaluation of foods and biomaterials at commercial level” during 3-8 January, 2011. The training program was aimed to help in monitoring quality, grading for quality based pricing and quality assurance. Two ICAR scientists participated in this training program. The training was a combination of lectures, practicals and visits to CIPHET and PAU, Ludhiana laboratories for on the site experiences. The course included quality perception and its measurability, measurement techniques of colour, acquisition and analysis of ultraviolet, visible, NIR and FTIR spectra of food samples in terms of simple quality parameters such as sweetness, total soluble solids, dry matter content, firmness etc. for commercial use. An introductory lecture about application of biosensors for quality evaluation was also delivered in this program.

## नव वर्ष समारोह

दिनांक 01.01.2011 को इस संस्थान के समागार में सभी अधिकारी एवं कर्मचारी नव वर्ष की शुभ वेला पर एकत्रित हुए। पिछले वर्षों की तरह इस बार भी सभी अधिकारियों ने अपना अपना संकल्प लिया। इस अवसर पर नव नियुक्त वैज्ञानिकों ने अपना परिवय करवाया। कार्यक्रम के अन्त में निदेशक महोदय जी ने कहा कि हम सभी अधिकारी/कर्मचारी कार्यालय का कार्य तो करते ही हैं, इसके अतिरिक्त समाज के उत्थान के लिए क्या कर सकते हैं।

केन्द्रीय सरकार कर्मचारी वेलफेयर कोओडीनेशन समिति, लुधियाना द्वारा लोहड़ी त्यौहार मनाया गया

सूक्ष्म, लघु एवं मध्यम उद्यम विकास संस्थान, लुधियाना में दिनांक 10 जनवरी, 2011 को केन्द्रीय सरकार कर्मचारी वेलफेयर कोओडीनेशन समिति, लुधियाना द्वारा लोहड़ी त्यौहार मनाया गया जिसमें आयोजित सांस्कृतिक कार्यक्रम में मिन-मिन संस्थानों से आए अधिकारियों एवं कर्मचारियों ने भाग लिया। इस लोहड़ी के शुभ अवसर पर इस संस्थान से श्री बी.सी.कटोच, सहायक प्रशासनिक अधिकारी एवं श्री अवतार सिंह, सहायक ने भी सांस्कृतिक कार्यक्रम में भाग लिया। इस मौके पर सीफेट, लुधियाना से श्री तेज राम, वरिष्ठ प्रशासनिक अधिकारी, श्री कुंवर सिंह, सहायक, श्री लखविन्दर सिंह, टी-2, श्री हरमूषिन्दर सिंह, अवर श्रेणी लिपिक, श्री अश्वनी कुमार, अवर श्रेणी लिपिक एवं श्री अजय कुमार टंडन, अवर श्रेणी लिपिक ने भी लोहड़ी त्यौहार में भाग लिया। जिन अधिकारियों एवं कर्मचारियों ने इस मौके पर सांस्कृतिक कार्यक्रम में भाग लिया उन्हें संस्थान के निदेशक महोदय एवं समिति सदस्यों द्वारा सम्मानित किया गया।



## गणतंत्र दिवस समारोह

कर्मचारी मनोरंजन क्लब के तत्वाधान में संस्थान में 62 वें गणतंत्र दिवस समारोह का आयोजन किया गया। निदेशक, सीफेट, लुधियाना द्वारा ध्वजारोहण किये जाने के बाद राष्ट्रगान का गायन हुआ। इसके उपरांत निदेशक महोदय अपने उद्बोधन में संस्थान की गत वर्ष की उपलब्धियों पर प्रकाश डालते हुये संक्षेपिक विवरण दिया। उन्होंने सीफेट के भविष्य के कार्यक्रमों के बारे में अवगत कराया साथ ही इसके उन्नति की कामना की। इस अवसर पर बच्चों की खेलकूद की विभिन्न प्रतियोगितायें आयोजित की गयीं। जिसमें स्टाफ के बच्चों द्वारा क्रिकेट का खेल, छोटे



बच्चों की दौड़ इत्यादि। इसके उपरांत क्लब ने सांस्कृतिक कार्यक्रम का आयोजन किया गया। इन कार्यक्रमों में क्लब के सदस्यों, उनके परिवारजनों एवं बच्चों ने बढ़चढ़ कर भागीदारी करके गीत गायन, नृत्य इत्यादि कार्यक्रमों को सफल बनाया। इन कार्यक्रमों को डा. आर. टी. पाटिल, निदेशक, सीफेट, लुधियाना, डा. पी. आर. मठनागर, अध्यक्ष, कर्मचारी मनोरंजन क्लब एवं अन्य सदस्यों गणों ने बहुत सराहा। इन कार्यक्रमों के आयोजित करने में क्लब के महासचिव श्री मनी लाल एवं सांस्कृतिक कार्यक्रम सचिव डा. संगीता चोपड़ा का योगदान अति सराहनीय रहा। कार्यक्रम के अन्त में संस्थान के निदेशक महोदय ने खेल प्रतियोगिताओं एवं सांस्कृतिक कार्यक्रम के विजेताओं एवं प्रतिभागियों को पुरस्कार वितरण किये गये।



## New Joinings

Sh. Rajiv Sharma joined the post of T-3 (Lab Tech) on January 25<sup>th</sup>, 2011 at CIPHET, Ludhiana. He has completed his Bachelors and Masters in Food Technology. He has research experience of about six years and authored more than forty international and national publications. Previously, he was involved in National Agricultural Innovation Project (NAIP) on nondestructive quality evaluation of mango and Technology Mission on Oilseeds Pulses and Maize (TMOP & M).



Sh. Bhupender Kumar joined the post of T-3 (Workshop) on January 25<sup>th</sup>, 2011 at CIPHET, Ludhiana. He has completed his Bachelors in Mechanical Engineering.

## Homage to Late Sh. Surinder Kumar Jakhar

January 17, 2011 would be written as a black and saddest day in the history of CIPHET, Abohar. Sh. Surinder Kurmar Jakhar was thorough gentleman and worked for the betterment of farmers throughout his life. His leadership abilities and simplicity will be remembered as an example in the history of co-operatives. He spent his whole life for the farming community. We at CIPHET can never forget the immense contributions of Sh. Surinder Kumar Jakhar for the developmental projects of CIPHET, Ludhiana and Abohar particularly. He will continue to be a source of inspiration for us. Our homage to the departed soul lies in the fact that we dedicate ourselves on the ideas laid by Sh. Surinder Kumar Jakhar to serve the farming community.

## Technology of the Month

### Pearl Millet Extrudates

In an attempt to the process of value addition of pearl millet of barley CIPHET has developed various products viz., dehulled pearl millet kernel, *daliya/suji*, *atta* with increased storage life, instant *halwa* mix, instant *upma* mix, instant *ladoo* mix, pasta, extrudates, and millet pillow, so on so forth. Since, snack foods now comprise an important part of the daily nutrient and calorie intake of many consumers, the expanded products like ready to eat snacks and breakfast cereals are very popular today. Generally, the extruded products are made of maize/rice with twin screw extruders of high capital and operational costs. Till some time back, it was necessary to make low indigenous food extruders to suit our Indian food industry. But, today consumers' demands put us to rethink on 'munch, but not the junk'. Hence, CIPHET has developed the ready to eat puffed products from pearl millet (one of the forgotten traditional crop) possessing high nutrition and phytochemicals etc., For the development of ready-to-eat pearl millet extrudates, a collet extruder (25 kg/h) with screw speed (500 rpm), feed moisture (14%, wb), feed particle size (1.65-2.36 mm) is found suitable and recommended. The barrel is enrobed with cold/ tap



water circulation to maintain the temperature. It is attached with a cutter (1 hp DC motor) to shape the extrudates. This technology can be easily adopted by small and cottage level entrepreneur. A basic model of complete production facility can be set up within a budget cost of Rs. 5 Lakhs. This technology is profitable and our rain fed /traditional crops can be converted into value added ready to eat snack foods at rural catchments. Thus, our team is working for the continuous production of 'health foods' for different target groups, from infants to geriatric foods from pearl millet and barley.

## Millet Pillow

Millet pillow was made out of pearl millet and barley husk. It has the following properties viz., soft flowing contour, easily adapting body's curves, soothe tension, headaches and relaxes tight muscles, allows free air circulation (cooler/warmer during summer/winter), dust mite, mold and mildew resistant properties make a clean, hypo-allergenic etc., To start with comfortable size millet pillow (specimen) as shown in the figure has been made and distributed as hand-rest while using mouse during computer operation.



## Publication of the month



### For Further Details Contact:

Dr. R.T. Patil, Director or  
 Dr. Devinder Dhingra, Information Manager  
 Central Institute of Post Harvest Engineering &  
 Technology, Ludhiana, 141004 (Pb.)  
 Phone: 91-161-2308669 (O); 91-161-2305674  
 (Director) 9216338421 (Mobile)