

# Central Institute of Post Harvest Engineering and Technology,

Ludhiana

Our Slogan: Produce, Process and Prosper



**CIPHET E – Newsletter for September 2007**

**Vol. 2 No. 9**

## Director's Column



Dear All,

Pomegranate is an important fruit semi-arid region. Though small and marginal farmers produce it, due to its health benefits, it is a very profitable orchard crop. Our institute has standardized production package and also solved the problem of fruit cracking which was described in our earlier newsletter. There is a lot of buzz lately about the exotic fruit. They are rich in antioxidants that can keep bad LDL cholesterol from oxidizing (American Journal of Clinical Nutrition, May 2000). The pomegranate juice, like aspirin, can help keep blood platelets from clumping together to form unwanted clots. The clinical studies have found that eight ounces of pomegranate juice daily for three months improved the amount of oxygen getting to the heart muscle of patients with coronary heart disease (American Journal of the College of Cardiology, Sept. 2005). The long-term consumption of pomegranate juice may help combat erectile dysfunction (Journal of Urology, July 2005). The pomegranate compounds might prevent prostate cancer or slow its growth. In mice, treatment with pomegranate extract delayed the development of tumors and improved survival (Proceedings of the National Academy of Sciences, Sept. 26, 2005). Hence selling this raw fruit is not at all wise and hence a process protocol has been developed at CIPHET to produce jelly, grenadine, juice, digesting tablets etc. The ED training programme on these technologies organized at CIPHET Abohar is an effort in the direction of encouraging processing at production catchments so that farmers can reap benefits of value addition.

This month was full of activities at CIPHET. CIPHET has been very active in all Hindi language activities and hence we were given the opportunity to host a meeting of Ludhiana Rajbhasha Samiti. It was a great opportunity to share with our central government colleagues about the activities of CIPHET. A winter school on "Nondestructive and Biosensing Methods for Food Safety and Quality Assurance" was organized during Sept 6-26, 2007. Recently CIPHET has been considered for award of a NAIP project on this topic. Hence we were very happy to share our expertise with 25 young professionals interested in food quality and safety using biosensors and other non-destructive methods. CIPHET unit of ISAE celebrated the engineers' day on Sept 15. The theme of guest lecture was "Convergence of Post Harvest Technologies for Rapid Development in Indian Agricultural Sector" which was very appropriate to the mandate of the institute.

This month we have flashed a technology for short-term storage and transportation of fish. India ranks fourth in global fish production with annual production 6 M t. It contributes 1.4% to the country's GDP. India has 19,370 reservoirs covering 3,153,366 ha. Fish catch in India shows a regular upward trend in past half of the century. Transportation and storage of any fresh food item is a backbone of the food chain. Fish is one of the very important commodities to be transported either fresh or live for holding and retail marketing. We hope that mobile cool chamber developed at CIPHET will help small fishermen to properly handle and preserve their catch so that they get better price.

With best regards

R.T. Patil,  
Director

## EDP programme on pomegranate processing and value addition

Seven days training for development of entrepreneurship among orchardists/ processors/ researchers/ and retailers was conducted on “Production and processing of Pomegranate” during 5-11 September, 2007 at CIPHET, Abohar by Dr. D.B. Singh, Sr. Scientist (Horticulture). The trainees from different parts of country including leading farmers/processors of Maharashtra, Punjab, Rajasthan, Haryana attended the training programme. During training emphasis was given for production techniques essential for quality production, on farm handling of pomegranate produce, its post harvest management, minimal processing of produce and processing for value added products like *anardana*, juices, jelly, grenadine, and its by products, the viable technologies developed at CIPHET. During this programme Mr. Kachre a progressive farmer and role model for farmers from Maharashtra also visited and saw the activities related value addition and enterprise development based on pomegranate. The chief guest for inaugural programme was Dr. N.S. Brar, SDM, Abohar who urged the participants/trainees to come forward for setting up processing industry in the production catchments.



Inauguration of Training programme on pomegranate,  
R to L: Dr. AK Thakur, Dr. RK Gupta, SDM Mr. Brar, Dr. DN Singh and Dr. RB Singh



Practical training by participants



Mr. Kachre, a progressive pomegranate farmer along with other trainees of Entrepreneurship Development Programme at CIPHET Abohar

## Winter school on Non destructive techniques

A 21 days Winter School on “Nondestructive and Biosensing Methods for Food Safety and Quality Assurance” was organized during 6- 26 September 2007. The Course and Co-course Director of the school were Dr. S. N. Jha and Dr. K. Narsaiiah. Dr. B. S. Bisht, Assistant Director General (HRD), and Indian Council of Agricultural Research, New Delhi inaugurated the school. Dr. R. T. Patil, Director, CIPHET, Ludhiana welcomed the delegates and highlighted the need of nondestructive methods of quality evaluation of fruits and vegetables. He explained the need of concerted efforts for speedy development of these frontier areas of research. Dr. S. N. Jha, Course Director introduced the courses and explained the activities of 21 days, including guest lectures. 26 participants from all over India received the certificate from the chief guest Dr. V. K. Taneja, Vice-chancellor, GADVASU, Ludhiana on the occasion of valedictory function held on 26/09/2007. In addition to the faculty from CIPHET, the following guest faculty also delivered the lectures.

1. M. S. Sidhu, Neotel System &Service – Chandigarh
2. Suresh Kumar BV- CAMO India Limited, Bangalore.
3. Dr. K.S. Sandhu, PHPTC, PAU campus, Ludhiana 141004 (Punjab)
4. C.R.Suri, IMTECH, Chandigarh
5. Neelam Verma, Punjabi University, Patiala
6. Nachiket Kotwaliwale, Sr. Scientist, Agro Processing Division, Central Institute of
7. Agricultural Engineering, Navibag, Berasia Road, Bhopal CIAE, Bhopal –462 038
8. Mr. S. G. Sapre, IR Tech. Mumbai.



Inauguration of winter school by Dr. BS Bisht ADG (HRD) ICAR



Valedictory function of winter school by Dr. V. K. Taneja, VC, GADVASU, Ludhiana

## **NAIP workshop for finalizing the project on nondestructive systems for evaluations of microbial and physico-chemical quality**

A stakeholders' workshop for finalization of detailed project proposal on "Development of nondestructive systems for evaluations of microbial and physico-chemical quality parameters of mango and apple" was organized at CIPHET, Ludhiana. The workshop was started at 9.30 am in the committee hall of the institute by welcoming the Chairman, Expert, Director, HODs, PCs and the participants by Dr S. N. Jha, PI of the project. Dr. R. T. Patil, Director CIPHET chaired the meeting and requested the house to give their valuable input to finalize the said proposal in his introductory remarks. Dr. A. Bandyopadhyay coordinated the said workshop and Dr. Suresh Prasad, Professor Emeritus from IIT, Kharagpur was the expert for evaluating the project draft.

Dr. A. Bandyopadhyay, National coordinator (component 4 of NAIP) explained the purpose and objective of stakeholders' workshop on the said project. He briefed the basic concept of sub-project, its technical details, and tentative work plan for the overall project. Dr. Suresh Prasad stressed for exploring the possibilities of pesticide residue through biosensor and NIR technique. The house discussed the scope but ultimately agreed not to include this activity at this point of time. The project has also been approved in Technical Advisory Group (TAG) of NAIP held on 3-4 October 2007.

## **NAIP workshop at NDRI for finalizing the project**

A stakeholders meeting was organized during 8-9 September 2007 to finalize the NAIP project titled "Development of Commercially viable process for dairy-based nutraceuticals and traditional foods" with NDRI as the lead Consortium institution. CIPHET, Ludhiana is one of the consortium partners in the above project. Dr.K.Narsaiah, Senior Scientist as the PI at CPHET, Ludhiana attended the stakeholders meeting where inputs from all partners and suggestion from experts were pooled to finalize the project. CIPHET will be designing and developing microencapsulator for encapsulation of probiotic bacteria in this project. The approximate budget for CIPHET center is Rs.1.39 crores.

## National Seminar on Advances in Agricultural Engineering at PAU Ludhiana

Punjab Agricultural University and Punjab Chapter of Indian Society of Agricultural Engineers (ISAE) jointly organized Seminar **on Recent Advances in Agricultural Engineering** on 24.09.07. The inaugural function was held at 10 am in the Jacob Hall, College of Agricultural Engineering, P.A.U., Ludhiana. In this seminar a contingent of delegates consisting of about 10 faculty and students from Pakistan participated. Dr. R.T. Patil, Director, CIPHET and Vice-President, ISAE (India) was on the dias along with Dr. M.S. Kang, Vice-Chancellor, PAU, Dr. V.K. Sehgal, Dean, College of Agricultural Engineering, Dr. C.J.S. Pannu, Chairman, Punjab Chapter (ISAE) and other dignitaries. Dr. Patil also delivered a lecture on *Recent Advances in Post Harvest Technology : Contributions of CIPHET* in this seminar and emphasized the relevance of our technologies to Pakistan from an agro-climatic as well as the socio-cultural point of view.

## Executive Development Programme at NAARM Hyderabad

The Executive Development Programme at NAARM, Hyderabad was attended by Dr. R. T. Patil, Director, CIPHET alongwith 12 Directors of ICAR Institutes and 5 Directors of Research/Dean of SAUs during Sept 18-21, 2007. The programme was highly useful for leadership development. The information provided on topics like Right to Information Act, National Biodiversity Act, Protection of Plant Varieties and Farmer Right Act was highly useful in dealing with the cases related to them.

### Executive Development Programme in Agricultural Research Management

September 18-21, 2007



Top Row (L – R) : D. Rama Rao, P. Venkata Rao, Pradeep K. Sharma, N.P. Singh, M.P. Pandey, N.P. Rajasekharan (Guest Speaker), S.A.Karim, R.P. Tewari, Sain Dass, O.M. Bambawala, R. Bhagawati, N.D. Pawar

Bottom Row (L – R) : C. Sriram (Programme Director), I. John Kutty, A.K. Misra, R.T. Patil, N. Vijayan Nair, P.M. Bhargava (Guest Speaker), S.M. Ilyas (Director), N. Parthasarathy (Guest Speaker), Satish C. Sharma, S.L. Goswami, B.B. Jadhav, Jagannadham Challa (Programme Director)

## Member Planning Commission visits CIPHET

Prof D.P.S Verma, Chairman, Technical Advisory Committee, Planning Commission, Govt. of India along with Senior Officers of Planning Commission visited the institute on Sept 20, 2007 with the major objective to see the research activities of the institute. The basic purpose of this visit was to see that how secondary agriculture is promoted in India and particularly post harvest sector so that farmers' income could be increased. The visit of a member of planning commission specifically to CIPHET shows that greater attention is being paid by government to enhance research activities in this important area.



Prof. DPS Verma, Chairman, Technical Advisory Committee, Planning Commission, Govt. of India (center) addressing the CIPHET scientists

## Seminar on rural retailing

Dr. D. Dhingra, Sr. Scientist attended a conference on rural retail organized by CII at Saket New Delhi on 27.09.2007. The keynote speakers were Mr. Tanun Sawhney, Triveni Engg. & Industries Ltd., Mr. Kalyan Chankraverty, Yes Bank; Rajesh Gupta, DCM Shriram (Hariyali Kissan Bazaar), Mr. Ajai Rana, Monsanto India Ltd., Sanay Sethi, Premiom Farm Fresh Produce Ltd., Mr. Arvind Chaudhary, Pantaloon Retail India Ltd., Mrs Shashi Sareen, Director, Export Inspection Council, Mr. Shailendra Tyagi, ITC & Mr. K. Murallidhara Rao, NABARD. Prominent organized rural retailers namely Hariyali Kissan Bazaar, Tata Kisan Sansar, Godrej Aadhar, ITC. Choupal Sagar, Triveni Khushali Bazaar & IOC Kisan Seva Kendra Shared their experiences and observed that the key challenges in rural retailing are poor infrastructure, seasonality of demand, heterogeneous population, complex purging behavior, squirous products and highly price conscious consumers. The major emphasis of rural retailers was to push the sale of their products into rural marbets. The only plus point seemed to be availability of genuine agricultural inputs to farmers and agri – services to farmers. DSCL's Hriyali Kissan Baazar and Tata Chemicals Ltd. Tata Kisan sansar also provide agricultural consultancy services on farming practices and organize demonstrations. We may select the areas catered by these companies to push post harvest processing and as these areas have progressive and organized farmers.

## uxj jktHkk"kk dk; kJlo; u l febr yf/k; kuk dh 52oha cBd

uxj jktHkk"kk dk; kJlo; u l febr dh 52oha cBd bl l lFkku ds l Hkkd{k ea fnukad 06-09-2007 dks l k; ka 4%00 cts eq[; vk; dj vk; Ør] yf/k; kuk] Jh , e, l - jk; dh v/; {krk ea vk; kftr gpA bl cBd ea bl l lFkku ds iz; kstuk l ello; dkj i Hkkxk/; {kka , o} bl l lFkku dh jktHkk"kk dk; kJlo; u l febr ds l Hkh l nL; ka us Hkkx fy; kA vi us Lokxr Hkk"k. k ea bl l lFkku ds funs'kd Mk-vkj-Vh- ikfVy us l lFkku }kj fd, tk jgs 'kks'k dk; kJ dk C; kJk fn; kA bl cBd ea vvx&vyx dk; kJy; ka l s rdjhcu 80 i frHkkfx; ka us Hkkx fy; kA ep l pkyu dk dk; l Jh i ækn dpej 'kek] l gk; d funs'kd jktHkk"kk] l nL; l fpo] u-jk-dk-l -] yf/k; kuk us fuHkk; k vkJ var ea /kU; okn i Lrko i Lrqr fd; kA



## fganh i [kokMk dk vk; kstu fl rEcj 14&28] 2007

foxr o"kkā dh Hkkfrr bl o"kZ Hkh l lFkku ea fganh i [kokMs dk vk; kstu 14&28 fl rEcj] rd fd; k x; kA fganh i [kokMs ds nkj ku dbz i fr; kfxrkvka dk vk; kstu fd; k x; k] l lFkku ds vf/kdkfj; ka , oa de]pkfj; ka us fganh Hkk"kk ds i fr vi uk mRl kg fn [kkrs gq i fr; kfxrkvka es c<&p<+ dj Hkkx fy; kA i fr; kfxrkvka ds izdkj (1) fganh dEl; Wj Vd.k i fr; kfxrk (2) fglNh vu]pkn i fr; kfxrk (3) , d fnol h; i kLVj i = in'kU i fr; kfxrk (4) okn&fookn i fr; kfxrk (5) oKkfud l æksBh (6) dfork i fr; kfxrk (7) iz uk=h Wdofot½ (8) fucl/k i fr; kfxrk

## **CIPHET Unit of ISAE celebrates Engineers' Day**

The Engineers' Day was celebrated on September 15, 2007 at the Central Institute of Post Harvest Engineering and Technology, Ludhiana. This occasion is celebrated to commemorate the birth anniversary of Late Dr. M. Visvesvaraya, a legendary figure in the field of engineering. At the outset, Dr. S.K. Nanda President CIPHET unit of ISAE welcomed the participants. The function was presided by Dr. R.T. Patil, Director, CIPHET and Vice-President of Indian Society of Agricultural Engineers (ISAE). Dr. Patil in his address gave tribute to Late Dr. M. Visvesvaraya and said that in recognition of his mammoth contribution towards national development and for the cause of engineering fraternity. He emphasized that theme of this years Engineers day of Convergence of Technologies for Rapid Development is very appropriate to the mandate of CIPHET as our activities on post harvest can not achieved without the convergence of technologies coming from different disciplines and knowledge from different professionals. The Chief Guest, Dr. R.C. Chopra, Director, Micro, Small and Medium Enterprises Development Institute, Ludhiana delivered the theme lecture on '**Convergence of Post**

**Harvest Technologies for Rapid Development in Indian Agricultural Sector'** on this occasion. Dr. Chopra emphasized the need for convergence of various technologies for synergistic benefit in the process of rapid, wholesome and sustainable development. A large number of engineers and participants of Winter School attended the function.



L to R: Dr. SN Jha, Chief Guest Mr.RC Chopra, Dr. R. T. Patil and Dr. S. K. Nanda

### **CIPHET staff attends CJSC meeting at Hyderabad**

Mr. Tandon from CIPHET attended the 26<sup>th</sup> Annual meeting of CJSC held w.e.f. 13.09.2007 to 16.09.2007 at NAARM, Hyderabad. On 14.09.2007, meeting was chaired by Sh. A.K. Upadhyay, Secretary, ICAR and discussed the action taken reports on proceedings of previous CJSC meeting held at NASC, New Delhi. On 15.09.2007, meeting was chaired by Dr. Mangala Rai, DG, ICAR and discussed the agenda items related with Administrative, Technical and Supporting categories. Some of major issues were stagnation in Administrative category, pay scale of Assistants & Stenographers, Assessment promotions of Technical employees, fixation of qualification of Technical staff, benefits of ACP to Supporting staff of ICAR Institutes at par with ICAR Hqrs., Settlement of Court Cases of staff of the Council etc.

### **Indian Plastics Institute seminar on Challenges in use of Plastics**

Indian Plastic Institute and Department of Chemical Engineering & Technology, Punjab University, Chandigarh organized a seminar on Sept 25, 2007 at Chandigarh. The theme of the seminar was "Challenges in Plastics Industry". A special session was arranged for plastic in agriculture that was chaired by Dr. R.K. Wanchoo, Director, National Institute of Technology, Srinagar. Dr. R. T. Patil, Dr. CIPHET was invited as Keynote speaker. Dr. Patil spoke on the "Opportunities of Using Plastics for Improving the Efficiency of Post Harvest Management and facilitating Proper Packaging of Value

Added Products” for reduction of losses. Dr. P.R. Bhatnagar, Project Coordinator (APA) also attended this meeting and spoke on the activities of AICRP(APA) in popularizing effective utilization of plastics in various activities in agriculture like water harvesting, inland fisheries, irrigation system, covered crop cultivation etc. The role of CIPHET and its both AICRPs developing the protocol processes and technologies for effective use resources in Agriculture and interventions of plastic as a substitute for conventional material was appreciated by the group. The industry showed willingness in collaborating with CIPHET and APA centres. The industries and the organizations representative in the seminar were: Reliance Industries Ltd, Chandigarh, Small Industries Development Bank of India, Chandigarh, GE Plastics, Gudgaon, Sam’s Techno School , Central Tool Room, Windsor Packaging Ltd., Gilard Electronics Pvt. Ltd., Ferromatik Milacron, CIPET, Diplast Plastic Ltd. And Bureau of Indian Standards.



Participants for the seminar, Chief Guest Dr. S.K. Kulkarni, Dean University Instructions, Punjab University, Chandigarh (4<sup>th</sup> from right)

### **CIPHET contingent for ICAR zonal sports**

ICAR Zone-IV Sports Meet for the year 2007 held at NDRI, Karnal during 26-29<sup>th</sup> September, 2007 was attended by CIPHET Sports contingent. The meet was inaugurated by Dr. Sushil Kumar, Director, NDRI, Karnal on 26<sup>th</sup> September, 2007. The events in which our institute participated were as follows: Foot Ball, Volley Ball(Smashing), Volley Ball(Shooting), Badminton(Men), T.T.(Men), Chess, Carrom, Shot-Put, Javellin throw, 100 mtr race(Men), 100X4 Relay Race, 200 meter race(Women), 100 meter(Women), Long-Jump(Women), Cycle 5000 meter(Men), Devinder Kumar. Participation in such events inculcates the team spirit and competitiveness and which is indirectly helpful in improving their work efficiency.

## Technology of the month

### Mobile iced fish storage and transport chamber

India ranks fourth in global fish production with annual production 6 M t. It contributes 1.4% to the country's GDP. India has 19,370 reservoirs covering 3,153,366 ha. Fish catch in India shows a regular upward trend in past half of the century. Transportation and storage of any fresh food item is a backbone of the food chain. Fish is one of the very important commodities to be transported either fresh or live for holding and retail marketing.

A mobile cool chamber has been designed and developed on cycle rickshaw to store and transport of 150 kg fish with 1:1 ice and fish ratio. The mobile cool chamber can store the freshwater iced fish for 7-8 days. The cost of mobile cool chamber of fish storage and transportation was around Rs.19, 000/- at the research fabrication.

The financial evaluation shows that a person can sustain with this fish transportation cycle rickshaw by selling of 20 kg fish with the profit margin of Rs. 10/- per kg fish besides self-employments. However, he can make the profit of Rs. 5000/- per month by selling 50 kg and Rs. 20,000/- per month by utilizing with full capacity of 150 kg of fish, at the profit margin of Rs. 10/- per kg fish.

This prototype has been transferred to seven fisheries institutes of ICAR for multi-location trial. Local consumers have appreciated the concept of mobile cool-chamber for fish storage, transportation and marketing due to the hygiene and freshness of product. The feedback received from CIBA, Chennai encourage such device due to more capacity for sale, hygiene (and attractive) and time and money saving. This can be more popular and in demand in the areas of fish production and consumption.



Mobile cool chamber on cycle rickshaw for fish storage, transportation, and retail marketing

## **Sponsored projects approved for CIPHET during this month**

### ***I. Farmers Participatory Action Research Programme***

Under this programme demonstrations on food processing technology will be organized in forty villages of disadvantaged districts as: Hoshiarpur (Punjab), Karauli (Rajasthan), Champawati (Uttaranchal) and Chamba (HP). The funds of Rs. 20 Lakhs will be provided by Central Water Commission, Ministry of Water Resources, GOI.

### ***II. DST project on non-destructive techniques***

The Department of science and Technology, Ministry of Science and Technology, Government of India have approved a project on “Development of a Portable NIR instrument for nondestructive and rapid determination of quality of mango”. The Principal Investigator of the project is Dr. S. N. Jha, Sr. Scientist. The main objective of the project is to develop NIR models and portable instrument in next stage of the project to predict the carotene content, sweetness and sourness of mango nondestructively and rapidly. The funding for this project is

### ***III. DST project on processing of millets***

Another project approved for CIPHET is on “Development of process and equipments for value addition of small millets at rural level” at the funding level of Rs. 16.65 Lakh for the duration of 3 years. The Principal Investigator is Dr. R. K. Gupta, Head, HCP. The **objectives of this project are** 1) To adopt /develop a multi-crop type dehuller, pearler and grinder for small millets. 2) To optimize the pre-treatments and process parameters for effective dehulling/pearling and grinding of small millets. 3) To study bio-chemical properties and shelf life of pearled grains and flour of small millets. 4) To develop extruded products and their quality evaluation from small millets.

## **Promotions**

Dr. R.K. Goyal Sr. Scientist promoted to Principal Scientist w.e.f 07.08.2006. <b>Congratulations!</b>
--

