Central Institute of Post Harvest Engineering & Technology
Ludhiana
OUR SLOGAN: PRODUCE, PROCESS AND PROSPER

CIPHET E - Newsletter for January-February 2012
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Director's Column

Dear All

New Year and Republic Day was celebrated with great enthusiasm at the Institute.

Dr. Gurbachan Singh, Chairman, ASRB, New Delhi visited the research facilities at CIPHET and praised the institute for creating state of art laboratories.

To evaluate the institute progress and chalking out future strategies, the 28th Institute Management Committee (IMC) meeting of CIPHET was organized.

A farmer participatory field day programme on strawberry cultivation was conducted under AICRP on APA at CIPHET, Abohar.

IINRG-industry interface on "Lac-based formulation (Friendly Shine) for commercial waxing of kinnow" was organized by IINRG, Ranchi in collaboration with CIPHET, Abohar. A two-day meeting to finalize mega project on health foods was also organized.

Various technologies were commercialized and transferred to entrepreneurs.

I congratulate Dr. S.N. Jha and his team for getting a patent entitled "Method of determining maturity of intact mango in tree".

With best regards

R.K. Gupta, FIE
Director (Acting)

In this Issue

New Year & Republic Day Celebration

New Year and Republic Day was celebrated with great enthusiasm at the Institute. After unfurling of the National Flag, the National Anthem and ICAR songs were played on Republic day. Dr. R. K. Gupta, Director CIPHET addressed the gathering and conveyed a message that persuasive role of post harvest engineering, technology and management can bring rural prosperity. The problem of malnutrition/ under nutrition can easily be tackled with the kind of intervention which CIPHET is pursuing for XII Five Plan in the form of Mega Project on 'Health Food'. Staff Recreation Club has organized various cultural programmes, viz., patriotic dance, songs, children race, volleyball (smashing and shooting) matches and winners were awarded.

ASRB Chairman Visited CIPHET

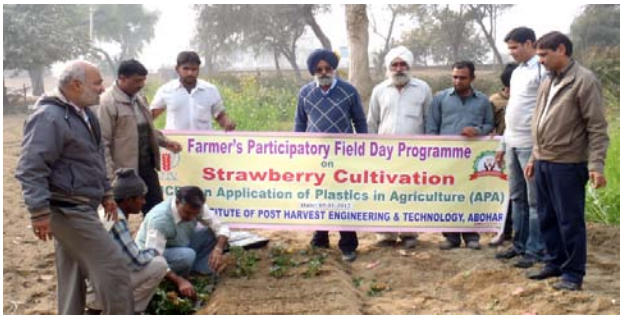
Chairman Agricultural Scientist Recruitment Board (ASRB) Dr Gurbachan Singh visited CIPHET on February 16, 2012. During his visit, Dr Deepak Raj Rai (Head, ToT) welcomed Dr Gurbachan Singh. ASRB Chairman visited the research facilities and praised the institute for creating state of art laboratories. He also interacted with farmers from Bihar, who had come for training on "Post-Harvest Technology of Rural Catchments".

IMC Meeting

The 28th Institute Management Committee (IMC) meeting of CIPHET was organized on January 16, 2012 at the Ludhiana campus to evaluate the progress of the institute and chalking out future strategies. The team members also visited the various

laboratories and institute facilities. Assistant Director General (ICAR) Dr K.K Singh was heading the team, which included Dr P.C Bargale, Dr P.G Patil, Dr Niranjan Prashad as other members. The committee was apprised about the various projects initiated by the institute and financial requirements. The committee showed satisfaction over the state of art laboratories developed by the institute. Giving an elaborative presentation, Director CIPHET, Dr R.K Gupta revealed that total of 50 research projects are going on at CIPHET Ludhiana and Abohar, including 31 with institute funding. The institute has developed technologies such as pomegranate aril extractor, sunflower dehuller and number of high value added products. Administrative Officer (AO) Sh. K.S Chauhan gave details about financial status. Senior members of faculty including Project Coordinator (APA) Dr P.R Bhatnagar, Head Transfer of Technology Division Dr D R Rai and Head AS&EC Dr S.N Jha were also present on the occasion.

Farmers' Field Day Programme



A farmer's participatory field day programme on strawberry cultivation was conducted under AICRP on APA at CIPHET, Abohar. The programme was organised by APA team at farmer's field in three different villages namely, Wahballa, Sappawali and Dharampura on 05-01-2012. Progressive farmers, Sh. Gurusevak Singh, Sh. Hardeep Singh, Sh. Jagtar Singh, Sh. Ginder Singh, Sh. Gurupreet Singh and Sh. Prakash Singh participated in this programme to learn strategies of strawberry cultivation. Dr. Dilip Jain, I/c Head, HCP, Abohar addressed the prospects and scope of strawberry cultivation and its promotion in large scale. He also emphasised to prepare value added products and its marketing. Dr. Jitendra Singh (Sr. Scientist) delivered lecture on cultural practices, nursery propagation and pest and disease management in strawberry field. Dr. Ramesh Kumar (Scientist Hort.) and Sh. Vijay Singh Meena delivered lecture on horticultural, agronomic and storage aspects. Dr. D.D. Nangare (I/C APA) emphasised on plastic mulching, weed control and proper irrigation using canal water to avoid excessive soil salinity. Farmers were very much interested for such type of demonstrations and they were desirous for few more innovative activities in farmers' field and also for preparation of value added products.

Industry-Institute Meet at CIPHET, Abohar

Indian Institute of Natural Resins & Gums (IINRG, Ranchi) - Industry interface on "Lac-based formulation for commercial waxing of kinnow" was organized by IINRG, Ranchi in collaboration with CIPHET at Abohar on 23rd January 2012. The objective of this meet was to popularize the lac based waxing formulation among the kinnow based consumer industry in Abohar (Punjab). The lac-based waxing formulation for kinnow fruits was developed by IINRG and commercially launched by M/s Gupta Brothers (Shellac), Bundu under the brand name 'Friendly shine'. The coating claims enhanced gloss, shelf life and firmness to the fruits. The meeting was chaired by Dr. R. Ramani, Director, IINRG and attended by progressive farmers, manufacturers, exporters and

waxing & grading owners of kinnow, Dr. R.K. Gupta, I/c Director, CIPHET and scientists from both the institutes. A brief presentation was made covering the product details, economics, safety aspects and merits of 'Friendly shine' over commercial formulations available in the market.

Meeting on Megaproject on Health Foods

A two-day meeting to finalize mega project on health foods was organized on February 2, 2012. With increasing awareness among the consumers and to tackle the problem of undernourishment, health food segment is going to gain importance, informed by Indian Council of Medical Research's (ICMR) Deputy Director General (DDG) Dr G.S Toteja, during the inaugural session of two day partners meeting to finalize mega project on health foods at institute. Scientists from different institutes of country took part in the meeting. Notably, ICAR and ICMR are going to submit mega project of Rs 500 crore for research and development of health foods to planning commission of India for funding. The meeting was called with objective to get research proposals from different institutes across the country and evaluating their viability. "We have already done most of the background work for submission of proposal with the help of CIPHET," said Dr. Toteja, adding that he was quite optimistic of getting the project approved from the planning commission. "Health food could be targeted to particular requirements like helping in cardiovascular diseases, diabetes, less allergic or general health," he added, stressing on its importance.

Stressing the purpose of the meeting on conceptualizing the mega project by incorporating various workable project, Dr Toteja, said that health food segment is likely to grow very fast in coming years. Emphasizing the focus on product development in the projects, Assistant Director General (ICAR), Dr K.K Singh stressed that scientists should first identify the problem and then should focus on the specific scientific solutions.

Giving overview of the project on health food, Director CIPHET, Dr R.K Gupta, elaborated on the role to be played by the partner institutes. Project Coordinator (PHT) Dr S.K Nanda, Head, Transfer of Technology Division Dr. D. R. Rai, Head, AS&EC Division Dr. S.N Jha and other senior members of faculty were also present on the occasion. The major focus of the meeting was to develop the process and technologies for production of health foods from plant and animals source for targeted under nourished population, to develop process and technologies for production of formulated functional foods using bioactive ingredients, nutraceuticals based health foods, clinical testing for the safety of developed health foods and formulation of defined regulatory framework for health foods in India.

National Workshop

National Workshop on **"***Nondestructive Methods for Quality Evaluation of Foods***"** was organized Mango under NAIP subproject **"***Development of Nondestructive Systems for Evaluation of Microbial and Physico-chemical Quality Parameters of Mango***"** during 9-10 February, 2012. The objective of the workshop was to demonstrate the technologies, instrumentation and facilities developed in the project. Invited speakers Dr Neelam Verma, Punjabi University Patiala, Dr. Sunil Bhan, BITS Pilani Goa Campus, delivered lectures on Biosensor development and their applications in Food Industry. Dr. Alok Jha, BHU Varanasi, Dr. Abhijit Kar, IARI New Delhi, Dr. Pranita Jaiswal, CIPHET, Dr. Sidhu PAU, Ludhiana spoke on food Safety and quality evaluation methods and their scope and limitation in current scenario. Dr. Nabarun Bhatacharya, CDAC Kolkata and Dr. Nachiket Kotwalwale, CIAE Bhopal, delivered lecture on development of machine vision Systems in Food quality evaluation.

Awards/Recognitions

- Scientists of the Institute were awarded for developing various technologies during 46th annual Convention of Indian Society of Agricultural Engineers (ISAE) and International Symposium on Grain Storage held at G.B Pant University of Agriculture and Technology from 27-29th February, 2012. ISAE team award 2011 was given to Director CIPHET Dr. R.K Gupta, Dr A.K Thakur, Dr D.B Singh, and Former Director CIPHET Dr. R. T. Patil for the development of Pomergrate Aril Extractor, Best poster paper award was shared by Dr K. Narsaiah, Senior Scientist; Dr S.N Jha, Head Agricultural Structures and Environmental Control Division and Dr. M. R. Manikantan, Senior Scientist of CIPHET for presenting their paper on "Development of droplet generator for microencapsulation and emulsification of food ingredients.

- Ms. Deepika Goswami participated in the ICAR Inter Zonal Sports Tournament-2011 at CRIJAF, Barrackpore (Kolkata) on 16-19 January 2012 and won two gold medals in 100 & 200 m. race; one silver medal in Long jump and one bronze in high jump events. She also bagged the 'Best athlete (women)' award in this tournament.
- Dr. K. Narsaiah received Distinguished Service Certificate award of ISAE for significant contributions in the field of Agricultural Engineering in 46th Annual Convention and International Symposium of Indian Society of Agricultural Engineers organized during February 27-29, 2012 at Pant Nagar.

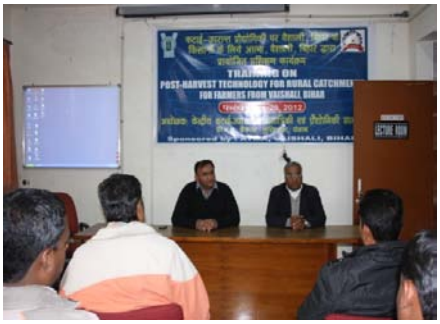
Training Programs

- A two-day training programme on turmeric processing was conducted from 6-7 January, 2012 for the farmers of different parts of Punjab. During training programme, farmers were given hands-on-experience on turmeric processing so as to equip them to run their own production units at commercial level. Dr. D. R. Rai, Head (TOT) apprised the farmers that they can increase their profits by undertaking processing and value addition of turmeric which is grown in their own fields.

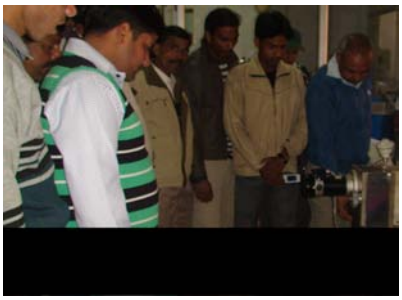
- A five-day training programme on Post Harvest Technology for Rural Catchments during January 17-21, 2012 was conducted by CIPHET, Ludhiana for the participants of Jalgaon, Maharashtra. Sixteen farmers including one woman took part in it. The training programme focused on various aspects of post harvest technologies and processes such as minimal processing, modified atmosphere packaging of vegetables, scientific methods and quality assessment in food crops, surface covered cultivation, value addition technology for guava, post harvest management of fruits and vegetables, low cost storage of fruits and vegetables and preparation of composite cattle feed from waste potato etc. During inauguration of training programme, CIPHET Director Dr. R.K. Gupta encouraged farmers to adopt processing to get maximum returns of their crops and after training they should choose more specific areas to get specialized training. Head, Transfer of Technology Division, Dr. D. R. Rai, informed the participants about various technologies to be covered under the training programme.

- Five-day training programme on 'Post Harvest Technology of Rural Catchments' was conducted during February 15-19, 2012 for farmers of Diara region of Bihar at CIPHET, Ludhiana. It was sponsored by the Diara Development Project, Bihar. During inaugural, Head Transfer of Technology (ToT) Dr Deepak Raj Rai said that farmers could increase their income manifolds by processing and better storage techniques even in difficult areas like Diara. Technical Officer, Diara Development Project, said that farmers in Diara region face lot of difficulty and rain water remains in the fields for six months and there is no proper road connectivity during rainy season. He said that CIPHET has developed number of technologies to help farmers. Farmers often face problem of low prices in case of potatoes due to glut. This could be converted into cattle feed with the help of CIPHET technologies. Similarly by better storage management practices, shelf life of fruits and vegetables can be increased which could help farmers from low selling price during glut season.

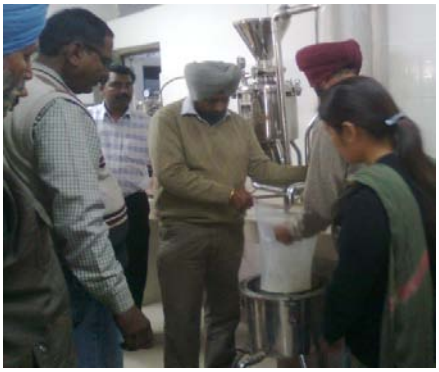
- A five-day training on '*Post Harvest Technology for Rural Catchments*' for the farmers of Vaishali, Bihar was conducted during February 21-25, 2012 at CIPHET. Sixteen farmers took part in training, which was sponsored by ATMA (Agricultural Technology Management Agency). At the inaugural session, Dr D. R. Rai (Head, ToT) informed that the potential in post harvest sector in our country still need to be tapped and farmers could increase their income manifolds by adopting value addition. He advised the farmers to get maximum benefit out of the training programme. The major technologies under the training programme included post harvest management and value addition of fruits and vegetables, low cost storage of fruits and vegetables, preparation of composite cattle feed from waste potato, food packaging for quality and safety, processing and value addition of soybean, agro processing techniques, cereal crops for value addition, fruit fly traps, chili/turmeric processing and practical on extrusion processing etc. Sh. Raj Kumar Singh, one of the farmers, said that technologies like soybean milk and cattle feed are beneficial and they would like to start venture on these technologies in future.



- A three days training on "Processing and Value addition of Millets" was conducted during February 24-26, 2012. Ten participants from the states of U.P and Uttarakhand attended the programme. The program included lectures, practical, hands on training and field visit. Dr. M.R. Manikantan, Course Director of the training proramme, informed that Government of India has allocated Rs. 300 crores under "Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)" realizing the increasing importance of millets for diversification. He also revealed that for increasing the awareness about post harvest millet processing into various value added products, four trainings are scheduled to be organized in this financial year. Dr. S.N. Jha, Head AS&EC Division apprised the participants about the millet processing and value addition. He also advised them to get benefited from the other technologies developed by the institute. Dr. D.R. Rai, Head TOT division told about the activities undertaken by the institute in training, demonstration and transfer of technologies. Dr. Indu Karki and Ms. Deepika Goswami were course co-coordinators of this programme.



- CIPHET organized two-day training programme on Soybean processing and value addition during February 27-28, 2012. Four participants from Punjab and one from Uttar Pradesh took part in the programme. They were given hands-on-training in preparation of milk and tofu from soybean. Dr Deepak Raj Rai, Head Transfer of Technology Division, said that soybean processing could become a high potential business due to increased demand in the market. The milk and tofu from soybean contains high protein and vitamins and health conscious people prefer this soymilk over cow/buffalo milk. Good quality soymilk could be prepared with help of standardized process by the institute. He assured them for all kind of help in setting up of soy processing plants. The training programme included practical on soybean milk and tofu. Paramjit Kaur, one of the participants from Jalandhar, said that he wants to start soybean milk production along with his dairy business. CIPHET Scientist Dr Indu Karki coordinated the training and took feedback from the participants. Technical Officer Sh. O.P Moondan informed them about other training programmes available at institute.



- A paid training programme on "*Micro Encapsulation Methods for Food and Biotechnological Applications*" was organized during 14-16th February 2012.

Technology Commercialized

Technologies of 'Custard Apple Pulper' and 'Autoclavable Micro-Encapsulation System' have been commercialized by CIPHET on February 25, 2012. On this occasion, CIPHET Director Dr R.K Gupta informed that previously there was no machine available for extracting pulp from the custard apple and the machine developed by CIPHET would provide faster and economical solution to the industry. He appreciated the scientists who worked for development of the machines. Dr. N. C. Patel, Chairman, QRT, handed over the copies of the license to Pune based businessman Sh. Shivanand Shelge, Director of NEXGEN Drying Systems Private limited. He said that the large area of Maharashtra is under the cultivation of custard apple and conventional manual method requires lot of labour and quality depreciation is other issue in the process. He hoped that this new machine would provide a boost to custard apple growers and food processing industry. Similarly, Autoclavable micro-encapsulation system was licensed to Ludhiana based M/s Singh Scientific Glass Work (SSGW). The Micro-encapsulation technology is especially useful in development of functional foods. Sh. Parvinder Singh, owner of M/s SSGW, said that Autoclavable micro-encapsulation system has a lot of potential in the market.

Patent Granted

CIPHET was granted sixth patent with Patent No. 2418/DEL/2004 titled "Method of determining maturity of intact mango in tree". The inventor Dr. S.N. Jha with two other scientists Dr. Sangeeta Chopra and Dr. A.R.P. Kingsley filed this patent on 2nd December, 2004 and granted the patent on 10th February, 2012.

Technology of the Month

Edible Coatings and Modified Atmosphere Packaging of Jackfruit Bulbs

Application of edible coatings on minimally processed fruits and vegetable is a method of creating a thin layer of any edible material on the surface of a fresh-cut fruits and vegetable. Edible coatings provide a micro modified atmosphere, retard gas transfer, reduce moisture and aroma loss, delay color changes and improve appearance of the product. The efficacy of edible coatings can be enhanced by using plastic films as Modified Atmosphere Packaging (MAP). Edible coatings of dextrose (10%), honey (25%) and potato starch (10%) were applied on jackfruit bulbs. Edible coated bulbs were packed in polypropylene bags (bag area: 0.0175m^2; thickness: 38 μm) and stored for 20 days at 5±1°C at 85% RH. The physiological loss in weight (PLW) was in the range of 1.28% (edible coated samples) to 3.95% (control). Edible coatings delayed the changes in firmness values during storage as compared to control. Changes in firmness were minimum in the sample coated with starch, followed by dextrose and honey coated samples. Average Colour L, a and b values changed from 84.14 to 76.47, -1.13 to 0.03, 11.83 to 26.84 respectively, with minimum colour changes observed in edible coating of starch, followed by dextrose and honey coated and control samples. Jackfruit bulbs coated with starch recorded maximum sensory quality scores during storage as compared to other treatments. Results showed that edible coatings of dextrose (10%), honey (25%) and potato starch (10%) and polypropylene bags (bag area: 0.0175m^2; thickness: 38 μm) can be used for MAP of jackfruit bulbs at 5±1°C at 85% RH to retain the quality and extend the shelf life of jackfruit bulbs up to 20 days.

Transfer/Promotion

- Dr. Dilip Jain, Sr. Scientist and OIC Head, HCP division, CIPHET, Abohar was transferred on 13 January, 2012 from CIPHET, Abohar to CAZRI, Jodhpur.
- Sh Hardev Singh, T-3 (Driver), CIPHET, Ludhiana was promoted to T-4.
- Sh. Devinder Kumar, T-2 (Fitter), CIPHET, Abohar was promoted to T-3.
- Sh. Yashpal Singh, T-1(Field Asstt.), CIPHET, Ludhiana was promoted to T-2.
- Sh. Satwinder Singh, T-1 (Lab Tech), CIPHET, Ludhiana was promoted to T-2.

For Further Details Contact:

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