Potato is a valuable cash crop for millions of farmers and a food security crop for low-income farmers. The poorest and most undernourished farm households depend on potatoes as a primary or secondary source of food and nutrition. This is especially significant for the North-eastern parts of India where the crop occupies a major niche in the cropping pattern and significantly contributes to the agrarian economy of the region. The consumption pattern of potatoes in the NE region is also significant as they are consumed in boiled and roasted form, both singly and with other vegetables and meat in all three meals of the day. The highest per capita potato consumption is seen in the state of Meghalaya and is estimated at 93 kg/year as compared to the national average of about 17 kg/year.

The suitability of the region for potato cultivation was recognized way back in 1830 when the potatoes grown in the hills of Cherrapunji (now Sohra) were assessed as the best during a Horticultural show in Kolkata. Potato is an important crop of the NE region and is grown in all the 8 states of the region, accounting for nearly 10% of the country's total potato area, but the contribution to the country's production is very low. Potato yield in all NE states except Tripura (18.5 t/ha) has been low (4-8 t/ha) as compared to the national average of 18.2 t/ha. The main reasons for low yield in the NE region are inadequate availability of healthy seed, poor management practices, cloudy conditions during crop growth, heavy precipitation during tuberisation and harvest, presence of serious diseases like late blight and bacterial wilt and heavy rotting in stores. Moreover, potato is grown mainly under rainfed condition in hilly terrain in steep heavy slopes or terraces.

CPRI through its station at Upper Shillong, Meghalaya has been working towards developing potato varieties, production, protection and post harvest technologies to augment potato production in the region to ensure sustainable agricultural development with food security. The present scenario and prospects for potato cultivation in the North Eastern region is showcased in this newsletter to encourage the potato farmers of the region.
The Potato Pest Manager

Decision support tools for diseases/pest management of potato is very important because not only they reduce yield/quality but some of them may wipe out the whole crop within a few days, if timely action is not taken. Further, there is danger of indiscriminate use of chemicals as well as economic loss in case of excess/wrong use. A simple tool has been developed for the identification and control of 17 potato diseases and pests prevalent in India. This DSS has been developed at the Division of Crop Production, Central Potato Research Institute, Shimla by PM Govindakrishnan, SK Pandey, SM Paul Khurana, Saranjit Singh, VK Chandra, Islam Ahmad, Shashi Rawat, SS Lal and VK Dua.

Kufri Khyati: A new early maturing variety for Indian plains

Hybrid J.93-86 has been released and notified as variety Kufri Khyati in 2008 by the Central Sub-Committee for Crop Standards, Notification and Release of Varieties, Ministry of Agriculture, Government of India, for its general cultivation in Indo-Gangetic plains of the country. Kufri Khyati is a high yielding, early bulking, white tuber variety with moderate resistance to late blight. Generally most of the early maturing varieties are highly susceptible to late blight. This hybrid, however, combines high yield under short crop duration with moderate resistance to late blight. The late blight tolerance characteristics of this hybrid will be useful in preventing drastic reduction in yield in the crop seasons when late blight disease appears in epiphytotic conditions.

This variety performs well for yield at 60 and 75 days in the entire plains of India including northern plains, eastern plains and central plains. The specific areas for its adaptation are Rajasthan, Haryana, Punjab, Uttar Pradesh, Bihar, West Bengal, Gujarat, Madhya Pradesh, Orissa and Chhattisgarh. This variety is likely to be a good replacement for early maturing cultivars like Kufri Chandramukhi, Kufri Jawahar, Kufri Ashoka and Kufri Pukhraj. In Indian sub-tropical plains, potato competes with wheat as both are grown in rabi crop season. For further increase in area under potato and better competition of the crop in intensive agriculture, short duration varieties are required. Short duration varieties like Kufri Khyati can allow growing potato-wheat as sequential crops.

- Raj Kumar, G.S. Kang, S.K. Pandey & Jai Gopal
On-farm demonstration of improved heap storage technology for table and processing potatoes

Heap storage of potatoes is commonly practiced in many states of India to avoid distress sale at harvest, but the losses in stored potatoes are generally enormous (15-25%). Considering the gravity of the problem, CPRI conducted extensive studies during the last 4-5 years to improve its efficiency. An improved heap storage technology involving essential pre- and post-harvest measures, viz., tuber maturity and haulm cutting prior to harvest, curing and selection of potatoes prior to storage, providing ventilation during storage and sprout inhibition with the use of CIPC (isopropyl N-(3-chlorophenyl) carbamate) has been developed. The technology was demonstrated in farmers’ fields at 4 locations in Punjab during March to June, 2008 for storage of table and processing potatoes which was a big success.

Processing industry (Satnam Agri Products Ltd, Jalandhar) under high sheds made of asbestos sheets in cold storage varanda/shade of trees in three villages of Punjab, viz., Badshahpur (Jalandhar district), Shambhaurassi (Hoshiarpur district) and Khatkhar Kalan (Nawanshahr district).

Potatoes were spread in thin layers and perforated PVC pipes were placed in the centre at 4-5 ft distance. CIPC (trade name Oorja, UPL, Mumbai, 50% a.i.) was uniformly sprayed in methanol @ 40 ml tonne⁻¹ (dissolved in 1 litre of methanol) with a knapsack sprayer. After the treatment, the potatoes were collected in the shape of a conical heap and covered with 30-60 cm thick layer of locally available material such as jute. Separate heaps with and without CIPC spray treatment were laid.

sprout growth and total losses in tubers up to 90 days of storage from March to June. Total losses in CIPC treated potatoes ranged between 4-5% as compared to 11-12% in control. Treated potatoes remained firm and sprout free whereas untreated (control) potatoes multiple sprouts and shriveled. In processing cv. Kufri Chipsoma-1, reducing sugar concentrations decreased from 155 to 34 mg/100 g fr. wt. during storage up to 110 days and chip colour improved significantly and these were found highly acceptable for processing. Potatoes were successfully used in making good quality flakes and French fries up to the end of June. The treated tubers were also analyzed in the laboratory for CIPC residues, which were found to be under the permissible limits, thus tubers were safe for human consumption.

The demonstrations clearly established that improved heap storage technology can be safely used by the farmers and the potato industry (i) to increase remunerations from potato cultivation and (ii) to maintain the desirable quality of table and processing potatoes for 3-4 months after harvest at lower storage cost.

-Ashiv Mehta, Brajesh Singh & R Ezekiel

Farmers’ training at Shimla

A farmers’ training on “Improved Techniques of Seed Potato Production and Post-harvest Technologies” was organized during
8-10 July, 2008 by the Division of Social Sciences at CPRI, Shimla. Although the research Institute like CPRI has been entrusted with conducting trainers’ training, this type of arrangement has borne limited success in effecting technology transfer to the farmers owing to inefficiency and lack of professional approach at the state level. Hence, the Institute has started this type of activity to reduce the distortion in technology dissemination.

The training was organized for the farmers of Himachal Pradesh in which 16 farmers from 6 major potato growing districts of the state, namely Shimla, Mandi, Sirmour, Solan, Kullu & Hamirpur participated. During this training course, farmers were given series of lectures consisting of late blight management, PTM & white grub management, healthy seed potato production, seed certification, marketing and strategies for adoption of potato technologies. A field visit to CPRS, Kufri was also organized for the farmers on this occasion.

**Model Training Course**

A model training course on “Potato Improvement, Production & Utilization in the Current Indian Scenario” was organized during 16-23 Sept., 2008 at CPRI, Shimla. The training course was sponsored by Directorate of Extension, Ministry of Agriculture, Govt. of India. The objectives of the training course were, improving the knowledge of the trainee officers regarding seed potato production and certification, improving the skill of the trainee officers regarding seed potato production, and obtaining the feedback from the trainee officers regarding field problems in the adoption of potato production technologies and in the seed certification.

Sixteen (16) extension officers from 6 state departments of agriculture/ horticulture, namely Himachal Pradesh, Harvana, Uttar Pradesh, Gujarat, Jharkhand, West Bengal, Assam, Sikkim and Maharashtra participated in this training course. The training included lecture-cum-discussions, practical sessions, skill demonstrations, field visits and video film shows. In all, 22 lectures were delivered and a field visit to CPRI farm at Kufri was organized during the training course. Pre- and post-training evaluation of the trainees was conducted which revealed 13 per cent improvement in knowledge of the participants.

**Monitoring of NABARD RIF Project at CPRS, Shillong**

Central Potato Research Station, Shillong is implementing NABARD Rural Innovation Fund (RIF) project on “Popularising of Low Cost Storage Technology for Table Potato and Potato Seed” in four villages of East Khasi Hills district of Meghalaya. A team from NABARD headquarter Mumbai visited the station on 17th September, 2009 to monitor the project. The team comprised of Mr. B. Jayaraman, General Manager (DEAR); Mr. A. D. Jawalekar, Manager; Mr. R. K. Shokar, Manager from NABARD, Mumbai; Mr. Y. J. Mupi, AGM; and Mr. S. D. Waghmare, AGM, NABARD from Meghalaya Regional Office, Shillong and Dr. T. Haque, Ex-Chairman, Agriculture Cost & Price Commission and Consultant, Swiss Development Corporation (SDC). Dr. S. Ramani, Head of station apprised the visitors about the station and its various activities and the activities undertaken in the project. The team alongwith the Head of station and the principal investigator of the project visited the community level seed storage structure and household level storage structure for table potatoes in the project villages. They also interacted with the farmers nominated in this project by the respective village heads and received positive feedback. The work done in this project was highly appreciated by the visitors. The monitoring team met the members of Myliem Potato Farmers’ Club, which has been promoted by Central Potato Research Station, Shillong.

**Training to PepsiCo Staff**

2-days training course on “Recent Techniques in Quality Seed Potato Production” for the staff of PepsiCo India Holding Pvt. Ltd. (FritoLay Division, Gurgaon) was organized at CPRI, Shimla during 31 July - Aug, 2008. In this training course, the trainees were delivered
lectures on quality seed potato production, integrated nutrient management for processing potatoes, agronomic practices for potato production for processing purpose and post-harvest technology. The training was attended by 16 participants who were also exposed to a field visit to CPRS, Kufri/Fagu during training course.

Aloo Pathshala on AIR, Shimla completed

The Division of Social Sciences organized Aloo Pathshala (Potato School) on All India Radio, Shimla to commemorate the International Year of Potato 2008. In this programme, 20 talks on “Recent potato technologies were broadcast from 15 March to 26 July, 2008. At the end of each talk, a question related to that talk was asked from the farmers who were supposed to send their answers on a postcard. An overwhelming response from the farmers was obtained who also provided feedback about the programme and about various potato technologies developed by the Institute. During this programme, a jingle on potato was also broadcast at the beginning and end of each talk which highlighted the nutritive value of potato and also educated the public on the popular misconceptions about potato.

Farmers’ training at CPRS, Shillong

An on-station farmers’ training on “Improved Potato Production and Protection Technologies” was organized at CPRS, Shillong on August 12, 2008 in which 50 farmers participated. Two training programmes for farmers on “Improved Potato Production, Protection and Post-harvest technology” under MM-1 were organized during 17-18 October, 2008 at ICAR Research Complex for North-eastern region, Manipur Centre, Imphal and during 21-22 October, 2008 at ICAR Research Complex for North-eastern region, Tripura Centre, Agar and 50 farmers participated.

Patna. Dr. Barsati Lal, Scientist (SS) of CPRS, Patna participated in Doordarshan Programme, “Satya alo beej ki kheti se labh” and “Krishi vikas mein krishi vaigyanikon ki bhumika” under the programme “Krishi Darshan and Gaon Ghar”.

Important Meetings

Global Potato Conference-2008

Indian Potato Association, Shimla along with Central Potato Research Institute, Shimla and Indian Council of Agricultural Research, Govt. of India, New Delhi celebrated the “International Year of the Potato” by organizing a Global Potato Conference in New Delhi during 9-12 December, 2008. The year 2008-09 also happens to be the Diamond Jubilee year of CPRI, Shimla. The conference was sponsored by a group of 24 public and private institutions from India and abroad. It was attended by over 550 delegates from more than 30 countries like USA, UK, Germany, The Netherlands, Canada, Australia, Japan, Sweden, Hungary, Argentina, Peru, Chile, Uganda, Bangladesh, Sri Lanka, Pakistan, Bhutan, Nepal, central Asian countries, etc. Besides, a mega exhibition was held at the conference venue to showcase the strength of technologies and inputs in facilitating sustainable agriculture with special emphasis on potato.
The conference was inaugurated by the Hon'ble Union Minister of Agriculture and Consumer Affairs, Food & Public Distribution Sh. Sharad Pawar on 9th December, 2008 in the Plenary Hall of Vigyan Bhavan, New Delhi. Dr. Mangala Rai, Secretary, DARE & DG, ICAR; Sh. Nanda Kumar, Secretary, DAC, GOI; Dr. Pamela Anderson, DG, CIP; Dr. Gavin Wall, FAO Representative in India; Dr. H.P. Singh, DDG (Hort.), ICAR and Dr. S.K. Pandey, Director, CPRI were also present in the inaugural function. The Hon'ble Union Minister of Agriculture emphasized on the role of horticulture as the best option for crop diversification. He also elaborated the success of potato research & development in India and challenges ahead. Dr. Mangala Rai, DG, ICAR stressed the importance of developing varieties with novel traits, application of biotechnology for breaking the yield barrier, production of quality planting materials, efficient management of natural resources, and better utilization of potato. Dr. Gavin Wall, FAO Representative in India elaborated the purpose of declaring the year 2008 as the International Year of the Potato. Dr. Pamela Anderson, DG, CIP emphasized on the role of potato as a vehicle for poverty alleviation and as an antidote for global food price crisis.

There were nine technical sessions, viz, (i) genetic resource management for crop improvement, (ii) potato genomics and biotechnology, (iii) resource management for sustainable production, (iv) potato health management, (v) late blight- the perpetual challenge, (vi) seed production and management, (vii) post-harvest management and value addition, (viii) technology transfer and social concerns, (ix) potato trade and industry, and one satellite meeting on RB gene technology for late blight management. There were 75 invited lectures in different sessions out of which about 50 were from outside India. Besides, there were 284 research papers presented as posters during the conference. The technical sessions were held during 10-12 December, 2008 at National Agricultural Science Centre Complex, Dev Prakash Shastri Marg, New Delhi. The major recommendations of the conference are as follows:

- Commercial potato varieties throughout the world suffer from narrow genetic base, thereby seriously endangering them from unpredictable biotic and abiotic stresses. A long-term global commitment is needed to broaden the genetic base of potato varieties through conventional and/or molecular breeding approaches.

- Transgenics for resistance to late blight, bacterial wilt, tuber moth and for better nutritional and processing quality have been developed by several countries. Food and environment safety of promising transgenic lines should be studied on priority as per national regulatory requirements of different countries.

- The potato genome sequencing is being done by a multinational consortium and hopefully the entire sequence of 840 Mbp potato genome will be available by 2010. Gene annotation for potato genome should be initiated as soon as draft sequence is prepared followed by functional validation of each gene by an international community.

- Preliminary results indicate that there will be significant yield loss with increase in temperature due to global climate change. Proper assessment of climate change should be done and emphasis should be given on adaptation and mitigation research.

- Application of space technology along with the geographical information system has emerged as powerful tool and must be exploited for site suitability analysis, crop assessment and monitoring, providing information on cropping system and post-harvest management planning to support the decisions in potato production.

- The late blight pathogen Phytophthora infestans is known to adapt very quickly to changing environment. Global warming may lead to development and selection of pathogen strains to higher temperature regimes which may further risk the outbreak of late blight in warmer areas. Therefore, there is need to monitor and study P. infestans population structure on a regular basis using modern molecular tools and disease reaction.
• Several developing countries including India have developed region specific ‘decision rules’ for forecasting late blight. It would be appropriate to convert them into web-based late blight forecasting systems using regional weather data.

• Emerging potato diseases like Zebra chip disease in North and Central America, and Yellow vein virus in Andes may pose serious threats to global potato sector. Strict quarantine should be enforced to curtail their international movement.

• Cold storage involves substantial cost and farmers of the poor Asian countries cannot afford the high storage cost. There are a number of traditional low-cost and non-refrigerated storage structures that do not require electric energy and are suitable to store potatoes for 3-4 months. These traditional structures with or without CIPC treatment and other modifications should be popularized and encouraged.

• For increasing the international trade of potato, there is need for enhanced knowledge sharing among the countries and barriers to be broken. There is need for evolution of a mechanism for easier movement of potato and potato products among SAARC countries.

During the Plenary Session of Global Potato Conference 2008, awards were given to 10 best potato growers and 8 best potato entrepreneurs of the country. The Regional Vice-Presidents of IPA identified the names of the progressive potato growers from major potato growing states for this award. The awardee farmers were Sh. HS Sangha (Punjab), Tek Chand (HP), Arvind Bhargava (UP), Yogender Pal Singh (UP), Sita Ram Singh (Bihar), Anant Dev Nayek (West Bengal), Dhirender Sarkar (Tripura), MM Gehlot (Gujarat), Sadanand Shivali (Karnataka) and T Vasu (Tamil Nadu).

The entrepreneurs were selected for the award on the basis of their contribution to the development of potato industries in India. The awardee entrepreneurs were Sh. Rajesh Garg, Rudra Pratap Singh, B. Mazoomdar, Ramanji Singh, Prakash Lohia, TPS Tomar, Rahul Chaturvedi and SK Tibrewal. Besides, 9 Best Poster Paper Awards were conferred to the presenters during each of the poster sessions of the GPC 2008.

In the evening of December 12, 2008, an annual general body meeting of Indian Potato Association was held in the symposium hall of NASC complex, New Delhi in which about 100 members of IPA participated. In the meeting, the Association conferred Honorary Fellowship to 4 distinguished potato scientists of the world viz., Dr. Pamela Anderson, DG, CIP; Dr. JE Bradshaw, Head (Potato Breeding), SCRI, UK; Dr. SM Paul Khurana, VC, Rani Durgavati University, Jabalpur; and Sh. HS Sanga, farmer of Punjab. The Association also conferred Best Paper Award to a total of 27 recipients for their papers published in Potato Journal in 2004, 2005 and 2006 volumes.

Agro-Tech Exhibition at GPC-2008

On the sidelines of the Global Potato Conference-2008, an agro-tech exhibition was also organized to showcase the status of potato-based industries and trade, food value chain, food services and retailing, biotechnology, and public-private partnership in technology transfer. Shri Anil Kumar Upadhyay, Additional Secretary, DARE and Secretary, Indian Council of Agricultural Research inaugurated the agro-tech exhibition. Sh. Upadhyay lauded the role of exhibition in enhancing the exposure of farming community to new and relevant technologies ready for adoption.

Secretary, DARE and DG (ICAR), Dr. Mangala Rai, DDG (Hort.), ICAR, Dr. HP Singh, Chairman, ASRB, Dr. CD Mayee and Former DG (ICAR), Dr. RS Paroda also visited the agro-tech exhibition 2008 at the NASC Complex. While appreciating the efforts made by the organizers, Dr. Mangala Rai said that India has the required potato production technologies and the produce is free from major diseases, which provide significant opportunity for export of potato products. He said that the celebration of International Year of the Potato started in India with the organization of India International Potato Expo at Kolkata during 9-11 January, 2008 and concluded with the Global Potato Conference and Agro-tech Exhibition 2008 at New Delhi. Delegate scientists from India and abroad and a large number of farmers from adjoining cities also visited the exhibition every day and interacted with the stall officials.

More than 60 organizations of national and international repute put up their stalls to depict the latest trends in agricultural technologies from modern irrigation methods to
processing techniques, and quality seeds to value-added products. All the sponsors and co-sponsors of the Conference, and several other private institutions displayed their technologies and products through the exhibition stalls. Important among them were the Indian Council of Agricultural Research, International Potato Center, National Seed Corporation, National Horticulture Mission of UP, PepsiCo Holdings India Pvt. Ltd., Syngenta, Vегit Potato Specialties, Haldiram's, etc. The exhibitions were organized under the guidance of Dr. TP Trivedi, Project Director, DIPA (ICAR) and Dr. PS Naik, Project Coordinator, AICRP (Potato) who took keen interest in this event.

A mini-theater was created at the exhibition to show informative and motivational films on ICAR's technologies and success stories. The exhibition offered an international platform for different corporate and farming community from India and abroad to come together at the world's largest agri-based market to negotiate business deals and secure linkages.

Brain Storming Session on Impact Assessment of Climate Change

A brain storming session on “Impact assessment of climate change for research priority, planning in horticultural crops” was organized during 6-7 September, 2008 at Central Potato Research Institute, Shimla. The session started with invocation ceremony by lighting the lamp by Hon’ble Governor of Himachal Pradesh Her Excellency Smt. Prabha Rau followed by other dignitaries and singing of the invocation song. Dr SK Pandey, Director, CPRI, Shimla extended a warm welcome to the chief guest Hon’ble Governor of Himachal Pradesh Her Excellency Smt. Prabha Rau; the president of the inaugural function, Dr HP Singh, DDG (Hort.), ICAR, New Delhi; the Guest of Honour, Dr Mathura Rai, Director, IIHR, Varanasi and distinguished delegates and participants of the brain storming session. In his address he briefed the dignitaries and participants about the activities and achievements of CPRI. The importance of climate change and its impact on horticultural crops in future with implications for food and social security was underlined.

In the inaugural address Smt. Prabha Rau highlighted that i) climate change impacts and adaptation should be considered in all major development activities, ii) develop new infrastructure, policies and institutions to support the new land use arrangements identified by science and technology, iii) consider financial incentives and package for improved land management including resource conservation /enhancement (water, carbon, energy and fertilizer use efficiency), iv) consider incentives for industry and farming community for developing and adopting Green House Gases inhibiting technologies, v) establish Green Research Fund for strengthening research on adaptation, mitigation and impact assessment.

In his presidential address, DDG (Horticulture) Dr. H.P. Singh provided an overview of climate change, its impacts and also adaptation and mitigation strategies and emphasized upon research needs to face the future challenges including assessment of climate change impacts on horticultural crops, development of crop-based adaptation strategies, identification of gaps in vital information, prioritize research issues from the point of view of farmers, policy planners, scientists, trade and industries. He urged to address i) priority of education, research and development and policy implications for enhancing adaptive capacity of Indian horticulture to climate change,
ii) capacity assessment of Indian horticulture for mitigation of GHG, iii) appropriate short-term and long-term action plans to mitigate the impact of climate change in horticulture which included development of heat and drought tolerant cultivars with the use of innovative technologies including biotechnology, technology for productive use of water and nutrients, production system management, adaptive management, and assessment of quality.

The Guest of Honour, Dr Mathura Rai, Director, IIVR, Varanasi highlighted the need to understand and assess the vulnerability of horticultural crops to emerging climate change scenarios and emphasized to evolve adaptation measures through research and development.

On this occasion the chief guest Smt. Prabhau Rau released a book on ‘Impact assessment of climate change for research priority, planning in Horticultural crops followed by the release of a technical bulletin ‘Infocrop-Potato : A Model for Simulating Growth and Yield of Potato in the Sub-Tropics’. Thereafter another Technical bulletin ‘A Compendium of Climate Based Potato Zones in India’ was released by DDG (Horticulture), Dr. H.P. Singh. This was followed by the release of another technical bulletin ‘Cultural Management of Crops in Potato Based Cropping Systems’ in India by the Guest of Honour Dr. Mathura Rai.

On this occasion Dr S. Ramanujam Award for block year 2004-2007 in the memory of the founder Director of CPRI, Dr S. Ramanujam was presented by the Hon’ble Governor Smt. Prabhau Rau to Drs. SV Singh, SK Pandey, RS Marwaha, BP Singh, Licinsh Kumar and Praveen Kumar for their outstanding Research/Leadership in potato improvement and production.

The inaugural session ended with the vote of thanks proposed by Dr. SS Lal, Head, Division of Crop Production, CPRI, Shimla. After the inaugural function, the technical sessions were held under the chairmanship of Dr. HP Singh, DDG (Horticulture), ICAR on 6-7 September, 2008 and presentations were made by the scientists on different aspects of climate change on various crops. It was attended by 80 scientists/delegates including directors of different ICAR Institutes/NRCs of Horticulture Division.

Institute Research Council Meeting

The Institute Research Council (IRC) Meeting, 2008 was held at CPRI, Shimla during 23-25 July, 2008. It was attended by 57 scientists from the headquarters and stations. The basic objective of this meeting was to review the achievements of 2007-08 and formulate future plan of work for 2008-09 of different research programmes. Dr. SS Lal, Secretary, IRC welcomed Dr. SK Pandey, Director, CPRI and Chairman IRC and all the participating scientists from headquarters and regional stations. He also highlighted the major achievements of the Institute during 2007-08. On this occasion Dr. SK Pandey informed the house that the year 2008 was very good for potato production, but at the same time accompanied by lot of problems since the over production of potato leads to glut. He highlighted the need to develop early maturing potato varieties having late blight resistance keeping in view the unpredictable climate change. He praised the good work done by the Scientists of the Institute and suggested modifications in several research projects in the light of recommendations made by RAC meeting held in June, 2008.

Institute Management Committee Meeting

The meeting of the Institute Management Committee was held on September 30, 2008 at CPRI, Shimla. Dr. SK Pandey, Director, CPRI & Chairman, Institute Management Committee welcomed all the members. The Chairman gave a brief resume of progress of organization, improvement, research achievements, other administrative matters of the Institute & regional stations. The Chairman also apprised the Committee Members about the activities of the Revolving Fund Scheme and the proposals made in the Xth Five Year Plan of the Institute. The meeting was attended by other members viz., Dr. Umesh Srivastava, ADG (Hort.), ICAR; Dr. Gurdev Singh, Director of Horticulture, Govt. of HP; Dr. Baldev Singh, Director of Horticulture, Govt. of Punjab; Dr. SD Bhardwaj, Director of Research, UHF, Nauni, Solan; Dr. GS Kang,
Head, CPRS, Jalandhar; Dr. RP Rai, Head, CPRS, Patna; Dr. NK Singh, PS, Biotechnology Centre, IARI, New Delhi; Dr. VG Malathi, PS (Virology), IARI, New Delhi; Sr. Finance & Accounts Officer, NDRRI, Karnal; Sh. DJ Nikam, Pune and Sh. Man Singh, Hathras as Members; and Sh. AK Singh, Sr. AO, CPRI as Member Secretary.

**I J S C Meeting**

The 8th meeting of Institute Joint Staff Council was held on 1st August, 2008 at CPRS, Patna under the Chairmanship of Dr. SK Pandey, Director, CPRI, Shimla. The meeting was attended by Dr. BP Singh, Joint Director, CPRIC, Modipuram; Sh. AK Singh, SAO; Mrs. Kamlesh Sharma, FAO; Sh. AK Atrey, Technical Officer; Sh. DD Kashyap, UDC; Sh. Roshan Lal, Assistant; Sh. Naresh Chand Sharma, Technical Assistant; Sh. Munna Lal Bharai, Driver; Dr. YP Singh, Tech. Officer; Sh. Manisha Ram, SS G-III; Mrs. Tara Devi, SS G-II as Members; and Sh. AD Sharma, AAO as Member Secretary. Dr. RP Rai, Head, CPRS, Patna was the special invitee for this meeting. Dr. SK Pandey, Chairman highlighted the need to run the Institute’s activities efficiently in the light of declining manpower day by day. He thanked the entire staff of the Institute for cooperation and quick disposal of work.

**Invited lectures & Visitors**

**Expert committee for Technology Transfer**

An expert committee consisting of 12 members constituted by Govt. of India for developing a mechanism for effective technology transfer under the chairmanship of Dr. S. Kannayan, visited CPRS, Ooty on December 2, 2008. During the discussions with the scientists, the committee assessed the implementable technologies of the station which are going to be recommended from the State Government.

**Visit of Dr. M Mahadevappa to CPRS, Gwalior**

**Dr. M Mahadevappa visiting CPRS, Gwalior**

**Dr. M Mahadevappa**, Chairman, RAC, CPRI, Shimla, Former Chairman, ASRB, New Delhi and Ex Vice-Chancellor, UAS, Dharmawad visited Gwalior on the invitation of Dr. VS Tomar, Vice-Chancellor of newly opened RVRS Agricultural University, Gwalior on October 29, 2008. During his visit to CPRS, Gwalior he was welcomed by Dr. AK Somani, PS and Acting Head and was introduced with the scientific, technical & administrative staff of the station. Dr. AK Somani briefed him about the station, its mandate, nucleus and breeder seed production, micro and mini-tuber multiplication and on-going research works under various projects. He visited the CPRS farm including C and D blocks. He was very happy to see the management of farm and he suggested that more research work should be done besides seed production.

**Scientist meet at CPRI, Shimla**

Scientist meet is a regular activity of the Institute, where on Fridays, scientists, technical workers and research associates meet to discuss & deliberate on latest & emerging R & D issues. Following lectures were delivered & discussed during the last 6 months:

<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Topic of scientist meet</th>
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<tbody>
<tr>
<td>27.6.2008</td>
<td>Miss Reena</td>
<td>Molecular markers in plant breeding and genetic analysis</td>
</tr>
<tr>
<td>02.7.2008</td>
<td>Dr A Ratnakar</td>
<td>CERA consortium- Uses, promotion and presentation</td>
</tr>
<tr>
<td>11.7.2008</td>
<td>Mrs. Poonam Chandel</td>
<td>Alloplasmic incompatibility</td>
</tr>
<tr>
<td>18.7.2008</td>
<td>Dr KN Chaudhary</td>
<td>Crop simulation model- Spatial application</td>
</tr>
<tr>
<td>02.8.2008</td>
<td>Dr Devanand Luthria</td>
<td>Environmental and genetic influence on phenolic composition of fruits and vegetables</td>
</tr>
<tr>
<td>14.8.2008</td>
<td>Dr Dindo Campilan</td>
<td>CIP- Regional partnership in south, west and central Asia</td>
</tr>
<tr>
<td>22.8.2008</td>
<td>Dr Jagesh Tiwari</td>
<td>WTO and Indian agriculture</td>
</tr>
<tr>
<td>23.8.2008</td>
<td>Dr TP Trivedi</td>
<td>Information and communication technology in agriculture</td>
</tr>
<tr>
<td>01.9.2008</td>
<td>Mr A Pradhan</td>
<td>NRDC in commercialization of technologies</td>
</tr>
<tr>
<td>31.10.2008</td>
<td>Mr. Devinder Singh</td>
<td>Slexa technology for next generation sequencing</td>
</tr>
<tr>
<td>14.11.2008</td>
<td>Dr Anjan Banerjee</td>
<td>Long distance transport and RNA movement through the phloem of potato plant</td>
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**Appointments**

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<tbody>
<tr>
<td>Eradasappa E.</td>
<td>Scientist</td>
<td>19.5.2008</td>
</tr>
<tr>
<td>Muralidhar Sadavarti</td>
<td>Scientist</td>
<td>16.5.2008</td>
</tr>
<tr>
<td>AK Srivastava</td>
<td>Scientist</td>
<td>16.5.2008</td>
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</tbody>
</table>

**Promotions**

<table>
<thead>
<tr>
<th>Name</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR Burman</td>
<td>Scientist SS</td>
<td>Sr. Scientist</td>
</tr>
<tr>
<td>Arun Pandit</td>
<td>Scientist SS</td>
<td>Sr. Scientist</td>
</tr>
<tr>
<td>D Sarkar</td>
<td>Sr. Scientist</td>
<td>Pr. Scientist</td>
</tr>
<tr>
<td>LC Dey</td>
<td>Sr. Scientist</td>
<td>Pr. Scientist</td>
</tr>
<tr>
<td><strong>Technical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Munna Lal</td>
<td>T-5 (FFI)</td>
<td>T-6</td>
</tr>
<tr>
<td>Hesting Jywa</td>
<td>T-3 (Driver)</td>
<td>T-4</td>
</tr>
<tr>
<td>Kuldeep Singh</td>
<td>T-2 (FFI)</td>
<td>T-3</td>
</tr>
<tr>
<td>Nirmal Singh</td>
<td>T-2 (Driver)</td>
<td>T-3</td>
</tr>
<tr>
<td>Nihal Singh</td>
<td>T-1 (Driver)</td>
<td>T-2</td>
</tr>
<tr>
<td>Ram Das</td>
<td>T-1 (Driver)</td>
<td>T-2</td>
</tr>
<tr>
<td><strong>Administrative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ram Chand</td>
<td>Stenographer</td>
<td>Personal Assistant</td>
</tr>
<tr>
<td>Poonam Sood</td>
<td>Sr. Clerk</td>
<td>Assistant</td>
</tr>
<tr>
<td>Sandeep Verma</td>
<td>LDC</td>
<td>Sr. Clerk</td>
</tr>
<tr>
<td><strong>Supporting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birno Devi</td>
<td>SSG II</td>
<td>SSG III</td>
</tr>
<tr>
<td>Munna</td>
<td>SSG II</td>
<td>SSG III</td>
</tr>
<tr>
<td>Ranbir Singh</td>
<td>SSG I</td>
<td>SSG II</td>
</tr>
<tr>
<td>Kallu</td>
<td>SSG I</td>
<td>SSG II</td>
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**Transfers**

<table>
<thead>
<tr>
<th>Name</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Somasekhar,</td>
<td>CPRS, Mutharai</td>
<td>DRR, Hyderabad</td>
</tr>
<tr>
<td>Sr. Scientist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR Burman,</td>
<td>CPRS, Shimla</td>
<td>IARI, New Delhi</td>
</tr>
<tr>
<td>Scientist (SS)</td>
<td></td>
<td>CRRI, Cuttack</td>
</tr>
<tr>
<td>Arun Pandit,</td>
<td>CPRS, Shimla</td>
<td>CIJAF,</td>
</tr>
<tr>
<td>Scientist (SS)</td>
<td></td>
<td>Barrackpore, Gangtok</td>
</tr>
<tr>
<td>D Sarkar,</td>
<td>CPRS, Shimla</td>
<td></td>
</tr>
<tr>
<td>Sr. Scientist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC Dey, Sr. Scientist</td>
<td>CPRS, Shillong</td>
<td>NRC Orchids, Gangtok</td>
</tr>
</tbody>
</table>

**Retirements**

<table>
<thead>
<tr>
<th>Name</th>
<th>Post</th>
<th>Retired on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarjeet Singh</td>
<td>Principal Scientist</td>
<td>31.07.2008</td>
</tr>
<tr>
<td>CK Sharma</td>
<td>Senior Scientist</td>
<td>11.08.2008</td>
</tr>
<tr>
<td>DC Chandel</td>
<td>T-7-8 (Artist)</td>
<td>31.08.2008</td>
</tr>
<tr>
<td>Hans Raj</td>
<td>T-4 (Truck driver)</td>
<td>31.07.2008</td>
</tr>
<tr>
<td>Prithi Singh</td>
<td>T-1</td>
<td>31.12.2008</td>
</tr>
<tr>
<td>Rajbir Singh</td>
<td>SSG III</td>
<td>31.08.2008</td>
</tr>
<tr>
<td>Nain Singh</td>
<td>SSG III</td>
<td>30.11.2008</td>
</tr>
<tr>
<td>Pargan Singh</td>
<td>SSG II</td>
<td>31.07.2008</td>
</tr>
<tr>
<td>Rayappan</td>
<td>SSG I</td>
<td>31.12.2008</td>
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**Resignation**

<table>
<thead>
<tr>
<th>Name</th>
<th>Post</th>
<th>Resigned w.e.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shyamala Jyoti</td>
<td>Scientist</td>
<td>23.05.2005</td>
</tr>
</tbody>
</table>

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**Honours, Awards & Foreign visits**

**Dr. SK Pandey gets NAS Fellowship**

Dr. SK Pandey, Director, CPR has been conferred with the prestigious Fellowship of National Academy of Sciences, Allahabad, India for his contribution in the field of Plant Breeding, particularly in developing potato varieties suited for processing, late blight resistance, drought tolerance and in developing true potato seed varieties. He has been associated with the development of 16 potato varieties including Kufri Giriraj, Kufri Shailaja and Kufri Himalini suited for the hills. On account of 37 years of contribution to potato research and development, Dr. Pandey is the first potato scientist to get this award.

**Recognition Award to Dr. Jai Gopal**

Dr. Jai Gopal, Head, Crop Improvement has got the Recognition Award of National Academy of Agricultural Sciences, India for his contribution in the field of Plant Improvement for the biennium 2007-08. The award consist of Citation, a Medal and cash prize of Rs. 50,000/-. He will be given the award at the 9th NAAS Agricultural Science Congress to be held in June, 2009 at Sri Nagar.

**Nomination in ICAR Society**

One of the contact farmwoman of CPR, Smt. Asha Kashyap of Village Pawar, Panchayat Thadi (Shoghi), Dist. Shimla, has been nominated as one of the 7 national members in the Farmers Category of ICAR Society.
Nutritional Quality Index" (ONQITM) or NuVal Score. A single score between 1 and 100 summarizes all nutritional aspects of a food, the higher the number, the healthier. These researchers developed complex and proprietary algorithm as input for a range of "healthy" and the "unhealthy" substances in the food, that eventually results in a single score. The idea is summarized in the graph below:

This Nuval score is now published for a range of foods including potato as given below:

<table>
<thead>
<tr>
<th>Food</th>
<th>Nuval Food Score</th>
<th>Nuval Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>Brown</td>
<td>82</td>
<td>99</td>
</tr>
<tr>
<td>Rice</td>
<td>57</td>
<td>96</td>
</tr>
<tr>
<td>Pasta</td>
<td>50</td>
<td>91</td>
</tr>
<tr>
<td>Broccoli</td>
<td>100</td>
<td>87</td>
</tr>
<tr>
<td>Pineapple</td>
<td>99</td>
<td>25</td>
</tr>
<tr>
<td>Apple</td>
<td>96</td>
<td>10</td>
</tr>
<tr>
<td>Skim milk</td>
<td>91</td>
<td>2</td>
</tr>
</tbody>
</table>

Potatoes score better than all meats and fish and better than milk, even if it is skim milk. Although many vegetables and fruits score higher than potatoes, potatoes score better than grapes, bananas, blackberries and Iceberg lettuce. The system is expected to be introduced shortly - by at least three supermarket chains in the United States.

To counter problems of food aid, try potatoes.

With governments having trouble feeding the growing number of hungry poor and grain prices fluctuating wildly, food scientists are proposing a novel solution for the global food crisis: Let them eat potatoes. Poor countries could grow more potatoes, they say, to supplement or even replace grains that are most often shipped in from far away and are subject to severe market gyrations. Even before a sharp price spike earlier this year, governments in countries from China to Peru to Malawi had begun urging both potato growing and eating as a way to ensure food security and build rural income.

Source: Internet
Cheaper Indian potatoes flood Pakistani markets

Indian potatoes have flooded Pakistani markets during the last couple of months due to its low price as compared with the local commodity. Around 2,000 tonnes of Indian potatoes are being imported through Wagah border daily. The import is continuing despite the availability of new local crop. The high price of the local product in the market is making the imported item a favourite commodity for the importers. Growers and farmers attributed high prices of locally produced potato on account of increasing production cost compared to Indian commodity. In terms of Indian currency, a 50 kg bag of Indian potato costs Rs 70 after reaching Pakistan through Wagah border. “Imported potatoes cost Rs 3 to Rs 3.50 per kg at the wholesale level in Lahore while at retail level it is sold in the range of Rs 5 to Rs 10 per kg depending upon the distance of the city from Lahore,” claimed President, Wholesale Vegetable Welfare Association Sabzi Mandi. Pakistani product is available at wholesale level at Rs 10 to Rs 12 per kg, which is far higher as compared to Indian Potatoes. Attributing reasons of high production cost of Pakistani potato, he said they include higher fertiliser cost, increasing seed cost, higher diesel price in Pakistan and costly rates of tractor, which have pushed potato price sharply up.

Source: Internet

New CIPC rates in Britain

Potato Council is urging store managers to review chlorpropham (CIPC) product labels. New application rates are in place and it’s vital that applications are carefully planned to ensure they follow label recommendations. New limits apply to CIPC applications, following a review by PSD. In addition, some products have been re-registered which has resulted in significant label changes. This is the first season of CIPC stewardship and the use of the chemical is going to be under scrutiny both by the regulatory bodies and production protocol auditors. CIPC is now subject to a Maximum Residue Level (MRL) of 10 mg/kg. Up to 36 grammes of CIPC per tonne of treated crop can be applied over a season to potatoes destined for the fresh market. The maximum dose for processed potatoes, including those used for peeling and fish & chip shops, is 63.75 g/tonne.

Source: Internet

Article on Potato

Scenario and prospects of potato cultivation in the northeastern region

History of potato cultivation in NE states

Potato was introduced into India in the beginning of the 18th Century and was reported to have been cultivated in several parts of the country including the North-eastern parts. However, records show that potato cultivation in this region probably came into existence with the introduction of popular variety ‘Khasi’ in Meghalaya (then Assam hills) around 1830. A report of the Horticultural Show in Calcutta in 1842 states “....potatoes grown in the hills of Cherapunjee are still finer” showing the suitability of the NE hills for potato growing. ‘Khasi’ proved susceptible to late blight and a number of other varieties were introduced from England and Australia between 1892 and 1946 which were evaluated against some local varieties. After a few years of trials only ‘Magnum Bonum’ and Darjeeling Red Round (DRR) survived and gave satisfactory yields. Over the years, several trials were conducted involving various exotic and indigenously developed hybrids, but all of them proved a failure in the fight against degenerative diseases and the dreaded late blight. Continuing varietal confusion has been prevalent in the area and suitable varieties to suit the differing agro-climatic conditions in the region have not been developed. The Central Potato Research Station, Shillong, after being established in 1959, addressed the problems related to potato production in this region.

Area, production and productivity

Potato is an important crop of the NE region contributing nearly 10% of the country’s total potato area. Though the area under potato in the region, as a percentage of the net-cropped area, is about four times the national level the yield in all NE states except Tripura (18.5 t/ha) is low (4-8 t/ha) as compared to the national average of 18.2 t/ha. The main reasons for the low yield are inadequate availability of healthy seed vis-a-vis poor management practices followed and presence of serious diseases like late blight, brown rot, bacterial wilt, etc. in the region. Area, production and productivity of potato in different states of NEH

![Map of NEH region showing potato cultivation](image)
region are given in figures. Assam, Meghalaya and Tripura contribute to about 81% of total area, but account for 87% of the total production of NE region.

Recently released variety Kufri Himalini for this region is performing well in demonstrations and on-farm trials.

Popular potato varieties in the NE region

<table>
<thead>
<tr>
<th>Variety</th>
<th>Year</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kufri</td>
<td>1968</td>
<td>Undesirable tuber shape</td>
</tr>
<tr>
<td>Khasigaro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Jyoti</td>
<td>1968</td>
<td>Very popular, still maximum area in the region</td>
</tr>
<tr>
<td>K. Megha</td>
<td>1989</td>
<td>Highly resistant to late blight, late in maturity</td>
</tr>
<tr>
<td>K. Giriraj</td>
<td>1998</td>
<td>Resistant to late blight, medium maturing</td>
</tr>
<tr>
<td>K. Kanchan</td>
<td>1999</td>
<td>Red skinned and Resistant to wart disease</td>
</tr>
<tr>
<td>K. Shailja</td>
<td>2003</td>
<td>Resistant to late blight, medium maturity</td>
</tr>
<tr>
<td>K. Hinali</td>
<td>2005</td>
<td>Early bulking, medium maturity, late blight resistant</td>
</tr>
<tr>
<td>K. Giridhari</td>
<td>2007</td>
<td>Highly resistant to late blight, late maturing</td>
</tr>
</tbody>
</table>

Popular potato varieties

Some of the exotic varieties: Arran Consul, Royal Kidney, Up-to-date, Great Scot, Red Pimpernel and Magnum Bonum are still being cultivated in the hill regions and DRR and Phulwa to a limited extent in the plains. With the intention of replacing the old varieties which are riddled with plenty of problems, improved varieties like Kufri Khasigaro, Kufri Jyoti, Kufri Megha, Kufri Giriraj, Kufri Kanchan, Kufri Himalini and more recently, Kufri Giridhari were developed by CPRI for the NE states. Kufri Jyoti is very popular and occupies the largest area in this region because of its fast bulking habit, good keeping quality and taste, though now it has lost its resistance to late blight. Kufri Megha is also popular as it has high resistance to late blight, but it is a slow bulker. Kufri Giriraj is gaining popularity because of its high yield and resistance to late blight. Farmers are, however, sceptical about its poor keeping quality and short dormancy.

Kufri Jyoti and Kufri Giriraj are popular in Mizoram, Nagaland, Meghalaya and Arunachal Pradesh. In addition red skinned varieties Kufri Kanchan, Beeta and Red Pimpernel are popularly grown in Sikkim. Kufri Badshah and Kufri Kanchan are grown by farmers in Nagaland while Meghalaya farmers cultivate Kufri Megha, Great Scot, Royal Kidney and Lah Shidieng.

Cultivation practices

Farmers in Meghalaya plant potato with nur and bun method and believe this method (i.e. soil burning) helps in improving soil fertility status and makes hard forest soil friable, thereby, making potato cultivation easy. The nur and bun method of planting reduces the incidence of insect pest infestation but causes heavy soil erosion in the hill slopes. In most other states of the North eastern region, planting is done by the pit method in heavy slopes and some row planting in terraces. In the plains of Assam and Tripura, ridge and furrow method of planting is adopted.

Crop management practices

The potato crop is grown throughout the year in one or the other part of the NE region. The different seasons of crop growth are given in the table beneath:

Pet management

The major pests and disease of potato are late blight, brown
Optimum planting and harvesting time in different parts of NE region

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Planting time</th>
<th>Harvesting time</th>
<th>Part of NE region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plains (up to 500 m)</td>
<td>Sept- Oct</td>
<td>Jan- Feb</td>
<td>Assam, Tripura, Manipur valley, Dimaapur district of Nagaland and lower parts of Arunachal Pradesh</td>
</tr>
<tr>
<td>Mid-hill (up to 1500 m)</td>
<td>Feb- March to end July</td>
<td>End June</td>
<td>Siang district (Basar area) of Arunachal Pradesh, Jowai sub division of Jaintia Hills, some areas in Khasi Hills</td>
</tr>
<tr>
<td>High hills (up to 2400 m)</td>
<td>March-April</td>
<td>July- August</td>
<td>Parts of Arunachal Pradesh, Upper Shillong, Mawphlang and Mairang area of Meghalaya, Mao and Ukhrul area of Manipur, Blue mountains in Mizoram</td>
</tr>
<tr>
<td>Very high hills (above 2400 m)</td>
<td>-do-</td>
<td>-do-</td>
<td>Tawang, Upper Subansiri, Siang and Kameng districts of Arunachal Pradesh</td>
</tr>
</tbody>
</table>

Farmers do not harvest the crop and allow the tubers to remain in soil. This method is however, used for short storage of 2-3 months only. This system is followed both in the upland and lowland areas. Several types of in-situ indigenous potato storage structures are used viz., pit, wooden structure, baskets and heap storage. Farmers of NE states are not aware of scientific storage methods for both table and seed potatoes. Several on-farm demonstrations held to train the farmers of the region on proper harvesting, tuber treatment, and storage under diffused light have resulted in some adoption.

There is very little post-harvest processing of potato. It is consumed as a boiled vegetable or along with other vegetables and meat. The farmers prefer selling large size potatoes directly to the retailers in local vegetable market. Some produce is also sold to the fellow farmers. Since small size tubers do not fetch good price, these are sold to the middleman/traders who send it to neighbouring states where small tubers are preferred both for table as well as for seed purposes. There is a need to popularise processing grade varieties in the region.

Production constraints

The constraints of potato production in NE region have been identified as:
- Inadequate availability of quality seed in affordable price
- Non-adoption of suitable varieties
- Potato cultivation under rainfed condition
- Imbalanced dose of fertilizer, phosphate deficient soil
- Prevalence of disease (Late blight, bacterial wilt and phoma blight etc.) and pests like PTM, white grub, cutworm and red ant
- Inappropriate plant protection measures
- Lack of proper storage facility under ambient condition

Priority needs for improvement of potato production are:
- Need to produce potato seed locally
- Production of quality seed through tissue culture
- Use of TPS as an alternate source of planting material
- Adoption of late blight resistant varieties
- Integrated Disease Management (IDM) of bacterial wilt and late blight
- Production of processing grade potato
- Multiplication of seed by the State Governments through registered growers should be strengthened
- Popularisation of on-farm scientific storage methods

Role of CPRJ, Shillong

Production of seed and planting material:
Disease free planting material of Kufri Girijai, Kufri Jyoti and Kufri Kanchan is produced through micro-plants, micro tubers/mini tubers and TPS tuberlets under controlled condition in polyhouses. The mini-tubers are multiplied for the production of basic seed/quality planting materials. The disease free quality seed produced through tissue culture is pooled and supplied to various states in NEH region. Improved production, protection and post harvest technologies have been evolved and evaluated through on-farm trials and demonstrations to suit the local needs. Need based training has been imparted to the farmers, farm women, rural youth and extension personnel on improved cultivation practices in potato. The impact of the improved technologies is being assessed. The yield advantage realised through on-farm demonstration of improved technologies was to the extent of 84 per cent over farmers’ practice.

Potato seed system

Seed Potato production has been practised in the region through conventional and non-conventional systems or integration of both. The conventional system follows production of nucleus seed, breeder seed, foundation seed and certified seed. In non-conventional system nucleus seed production is achieved through large-scale multiplication of disease free microtubers/micro plants. Production of potato for table as well as for quality seed through TPS is also becoming popular in some of the states like Assam, Tripura and Nagaland. It has been estimated that for an area of 182.23 thousand ha. in North-eastern region, the total requirement of healthy seed (certified) comes to around 455.58 thousand tonnes @ 2.5t/ha. Since, the production of breeder seed is not feasible due to presence of virus vectors and bacterial wilt, it leaves no option but to produce good quality disease free healthy potato seed in the region itself for enhancing productivity of potato in the region. Now emphasis is also being given to identify the areas/locations with low vector and virus pressures in this region to produce breeder/quality seed required for the NE states.

Average yield advantage in on-farm demonstration with K. Girijai and improved package of practices

True potato seed technology

Besides the regular seed production systems, potato production from true potato seed (TPS) has been possible in most of the potato growing areas of NE region. TPS can be used as a low input alternative for raising commercial crop especially in areas where availability of quality tuber seed at reasonable price is a major
constraint. An eye catching advantage of this method is that the planting of one ha potatoes require only 100-150 g TPS instead of 20-25 tonnes of tubers, which could result in a tremendous saving in cost of production. Added advantages are that the problems and high cost of transport and storage of potato tubers can be avoided by the use of TPS. Following two methods have been found successful for raising commercial potato crop using TPS derived planting materials – i) transplanting seedlings and ii) planting seedling tubers. Transplanting TPS seedlings is successful in areas where the winters are mild, irrigation is available, seedlings get established in shorter-time and produce acceptable yields. Second method using seedling tubers as planting material is successful in all areas wherever potato is grown through seed tubers.

Strategies for increasing production and productivity of potato in NE region

The potential strategies for increasing potato productivity in the NE region are:

- Disease resistant high yielding potato varieties in combination with improved crop management, crop protection and storage and post-harvest technologies.
- Availability of critical inputs like seed, fertiliser and plant protection chemicals is to be ensured for greater adoption of improved technologies.
- Farmers of hill region plant potato early and harvest early to avoid late blight infestation and this calls for developing varieties that are early bulking with moderate degree of resistance to late blight so that it caters to the needs of the farmers of the region.
- Dissemination of improved technologies to the farmers is very crucial and information dissemination mechanisms have to be further strengthened.

-S Ramani, R Roy Burman & VK Gupta

—is Hindi

अंतरराष्ट्रीय आलू वर्ष 2008

नवम्बर, 2005 में खाद्य एवं कृषि संस्थान (FAO) के 33वें सत्र में पेलू के स्थायी प्रतिनिधि ने एक प्रस्ताव रखा जिसमें दुनिया का ध्यान आलू की तरफ आकर्षित करने का कहा गया ताकि विश्व खाद्य सुरक्षा एवं गर्भी उम्मीदें में इस फसल की समाप्ति को पहले ही साक्ष्य के प्रामाण्य का रखा जा सके। इस प्रस्ताव का लेनिंग अमरीकी एवं केरोजियां देशों के प्रतिनिधियों ने समर्पित किया। दिसंबर, 2005 में संयुक्त राष्ट्र संघ की महासभा के 68वें सत्र में इस प्रस्ताव को स्वीकार किया गया तथा वर्ष 2008 का अंतरराष्ट्रीय आलू वर्ष घोषित किया गया। इस वर्ष में मनाने के लिये खाद्य एवं कृषि संस्थान को विभिन्न सरकारें एवं संगठनों के साथ समाज भर हेतु अक्रियता किया गया। अंतरराष्ट्रीय आलू वर्ष पूरे विश्व भर में विभिन्न समाज, सरकार, कार्यालय आदि के द्वारा मनाया गया ताकि आलू की विश्व खाद्य सुरक्षा प्रदान करने की योजना के वर्ष में लोगों को जागरूक किया जा सके।

इस संदर्भ में खाद्य एवं कृषि संस्थान के अधिकारियों ने भाग लिया। इस कार्यालय में आलू से संबंधित उन पहलुओं की पहल की गई जिन पर विश्व समुदाय को और अधिक ध्यान देने की आवश्यकता है। इसी क्रम में 7-8 अगस्त, 2008 को डोटी, स्कोटलैंड में अंतरराष्ट्रीय आलू उत्सव के लिये एक समलयन आयोजित किया गया।

भारत में आलू लगभग 400 वर्ष पहले आया, लेकिन आज यह देश का सबसे प्रमुख गैर-अनाजी फसल है तथा धान, गेहूँ एवं सकार्क के बाद सबसे प्रमुख खाद्य फसल है। ऐसे में अंतरराष्ट्रीय आलू वर्ष मनाने में भारत भी पीछे नहीं रह सकता था। भारत में इस उत्सव की शुरुआत कोेलकाता
नकद प्रोत्साहन योजना

राजभाषा विभाग, गृह मंत्रालय, भारत सरकार की प्रोत्साहन योजना के अंतर्गत सरकारी काम काज मूल रूप से हिंदी में करने वाले कर्मचारियों को वार्षिक हिंदी समारोह के अवसर पर निवेदन भेजा गया, नकद पुरस्कार देकर सम्मानित किया गया। इस क्रम में श्रीमती मोना वर्मा और श्री बलजीत सिंह का प्रधान तथा श्री जगदेश चन्द्र की द्वितीय और श्री शोधराम, श्रीमती संघ द्वारा कोटिला और श्री नरेंद्र कुमार को तृतीय पुरस्कार के रूप में नकद राशि प्रदान की गई।

प्रश्न मंच में पहला स्थान

नगर राजभाषा कार्यालय समिति, शिमला के तत्त्वावधान में आयोजित प्रश्नमंच प्रतियोगिता में इस संस्थान के डा. अरुण प्रकटवाल और श्री हरीश नन्द शर्मा ने पहला स्थान हासिल कर संस्थान का नाम रोशन किया। उल्लेखनीय है कि इन प्रतियोगिताओं में शिमला स्थित
केंद्रीय सरकार के कार्यालयों उपक्रमों निगमों, बैंकों आदि की प्रतिभागिता रही है। उन्हें यह पुरस्कार वर्ष 2009 में आयोजित होने वाले नयालिका के हिन्दी समाचार के अवसर पर प्रदान किया जाएगा।

मादीपुरम में हिन्दी पत्रकार

गत वर्ष की भाषा इस वर्ष भी संस्थान के मादीपुरम परिसर में हिन्दी पत्रकार की श्रृंखला रही। संस्थान के संयुक्त निदेशक डा. बीर सिंह ने आयोजन का समारोह करते हुए प्रतिपक्ष कर्मचारी से राजभाषा के प्राचीन-प्रसार में अपना संदेश देने पर बल दिया। पं. बिंदु तंक चलने वाले इस आयोजन में कम्प्यूटर पर हिन्दी टाइपिंग, निबंध, सामाजिक सागर, नोटिंग एवं ड्राफ्टिंग जैसी कई प्रतियोगिताएं रखी गईं। पारंपरिक वितरण कार्यक्रम के अवसर पर कविता पढ़ी का आयोजन किया गया। इस आयोजन पर हिन्दी के कवि मोहन शर्मा का विशेष रूप से आमंत्रित किया गया। हर वर्ष के कर्मचारियों की कविताओं ने समारोह को कवितांमय बना दिया। इस मौके पर विभिन्न प्रतियोगिताओं के विजेताओं को पुरस्कार देकर समाप्त किया गया।

केंद्रीय आलू अनुसंधान केंद्र, उत्तर में हिन्दी चेतना मास

सितम्बर 2008 के दौरान केंद्रीय आलू अनुसंधान केंद्र, उत्तर में हिन्दी चेतना मास मनाया गया जिसमें केंद्र तथा उत्तर राजमात्रा कार्यालय समिति के कर्मचारियों के बीच विभिन्न प्रकार की प्रतियोगिताओं का आयोजन किया गया। हिन्दी मास मनाने के लिए केंद्र को जिला राजभाषा कार्यालय समिति द्वारा हिन्दी पुरस्कार भी प्रदान किया गया।

केंद्रीय आलू अनुसंधान केंद्र, उत्तर में किसान मेला

अंतर्राष्ट्रीय आलू वर्ष 2008 के उपलब्धि में केंद्रीय आलू अनुसंधान केंद्र, उत्तर में संस्थान की आलू उत्पादन तकनीकों को किसानों के बीच लोकप्रिय बनाने हेतु दिनांक 1 जुलाई, 2008 को एक किसान मेले का आयोजन किया गया। इस मेले में लगभग 80 किसानों ने भाग लिया जिन्हें संस्थान द्वारा विकसित आलू की किस्मों, बीज उत्पादन तकनीक, पिढ़िया खुलासा रोग प्रबंधन तथा विभिन्न अंत: फसल प्रणालियों के बारे में जानकारी दी गई। किसानों को नव-विकसित किस्में ‘कुकरी’ हिमाली’ तथा ‘कुकरी’ नियंत्रकों के बारे में विशेष रूप से जानकारी दी गई।

उत्तर के किसान मेले में आये
पीठों का केन्द्र में रोपण किया गया।

इस कार्यक्रम के मुख्य अध्यक्ष राजमाता
विजयश्री सिंधिया कुर्मि विश्वविद्यालय
के नवमिसुका कुलपति माननीय डॉ०
विजय सिंह लोमर थे। डॉ० कुर्मिवाहे ने
अपने उद्घोषण भाषण में कहा कि
विभागीय में कृषि विश्वविद्यालय के
स्थापना होने पर आलू केंद्र का कृषि
विश्वविद्यालय के बीच विशेष संकेत
कायम होगी और आज वाले समय में
क्षेत्र के किसानों को इस्का लाभ
मिलेगा।

आकर्षण का केन्द्र है संस्थान का
समागम

आजकल केन्द्रीय आलू अनुसंधान
संस्थान का समागम रंगमंचीय और अन्य
सार्वजनिक गतिविधियों का केन्द्र बन गया
है। हो भी व्यंजन है। इस नवीकृत संसाधन
में प्रवेश करते ही आलू की विभिन्न किस्में
और संसाधन की उद्योगियों के संबंध
बोध और चार्ट अनुसार हो अपनी और
आकर्षण कर लेते हैं। फिर हरे रंग की
आसमान कुर्मिवाहे, विजय और
युवरूप रंगमंचीय सुविधाओं व प्रकाश
ब्रह्मचर्य से लैंडकार नाटक
देखने का अवसर ही अच्छा है।

इसी कार्यक्रम के बलते इस समागम
में यथार्थ रंगमंच, नवमिसुका के
कलाकारों ने सितम्बर महीने में अग्नि

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