



# CISH NEWS

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## FROM THE DIRECTOR'S DESK



In order to enhance livelihood and profitability of medium and small farmers, not only interventions such as increasing productivity, enhancing quality, reducing farmer level post harvest losses and intelligent marketing but also developing fruit based cropping system will go a long way. Several varieties of mango and guava have potential for increasing farmers' income through better yield, regular bearing and improved fruit quality. Well established hybrids like Amrapali and Mallika have become popular among consumers and fetching good price in the markets because of late availability in the season. Mango hybrids, Ambika, Arunika developed at ICAR-CISH are highly attractive in fruit colour with regularity in cropping and get premium price for this variety in local as well as distant markets. Guava varieties Lalit, Shweta and Dhawal are heavy yielder, responsive to pruning and suitable for high density plantation. New and improved varieties of aonla, bael and jamun developed by Institutes suitably fits in to diversified horticulture based farming system. Area is major limiting factor for expansion of horticulture. Plant density manipulation has become an important feature of mango and guava production system by accommodating a more number of plants which starts yielding economic yield in initial years of the planting. Canopy architecture management can convert trees into high yielding canopies with good fruit quality. Technologies developed for pruning can be useful in keeping the plants of small stature, requiring less plant protection measures and enabling easy and safe fruit harvesting. Interspace in young and rejuvenated orchards can be used for producing vegetables for income enhancement. Diseases and pest problems can be addressed with the effective management techniques using integrated pest management. Vertical farming and container gardening is also gaining high ground among urban dwellers. Postharvest interventions required for reducing losses during transportation and storage is made available. Technologies for production of value added products are helpful in utilization of surplus produce and glut reduction in the market. Enhancing farmers' income of mango and guava farmers through various interventions is possible which can significantly improve the economy and livelihood of a large number of the fruit growers of the region.

(SHAIENDRA RAJAN)

## RESEARCH HIGHLIGHTS

### Promising Guava Genotype Identified

CISH-G-14 was found to be promising for fruit attractiveness, yield and other quality. It is derived from half sib population of guava cultivar Sardar. This accession has better fruit weight (21%), TSS (6%) and appearance over Sardar. The seeds of this accession are 10.11 per cent softer than Sardar cultivar.



### Major Nutraceuticals in Mango Profiled

Health industry is expanding in the country. In order to select nutraceutically rich mango varieties, pulp of fifty mango varieties was analyzed for total antioxidants, total phenols, total flavonoids and total carotenoids. The total antioxidant content was 0.13-1.58  $\mu$  mol Trolox/100g, total phenols 22.64-148.33 mg gallic acid equivalent/100g, total flavonoids 10.33-49.0 mg quercetin equivalent/ 100g, total carotenoids 0.48-7.50 mg/100g. The Safeda Mualgoa recorded highest total antioxidants (1.583  $\mu$  mol Trolox/100g) and total phenols (148.33 GAE mg/100g) The variety Saheb Pasand found to be rich in total carotenoids content with highest carotenoids (7.50 mg/100g).Mango cultivar

Chandrakaran recorded higher content (49.0 QE mg/100g) of total flavonoids. The study will pave the way for breeding neutraceutically rich mango varieties in days to come.

**Promising Litchi Selection Identified**

ICAR-CISH-L-1 is a seedling selection having attractive, deep red colour, big size bunches, with average fruit weight 29.4g, seeds are small like chicken tongue and average seed per cent is 3.6, aril is 81.0 per cent with TSS-19.4 °Brix. Fruits are free from sun burn with least fruit cracking (2.7%) under Lucknow conditions.



**Modified Growing Conditions for Strawberry Evaluated**

Festival and Chandler produced bold sized fruit weighing 25-30 g. Higher productivity of 290 q/ha in Festival followed by 270 q/ha in Chandler was observed. Advancement of 25 days fruit harvesting period in Festival was recorded in the ventilated poly cover. Ventilated polythene row cover promoted greater difference in microbial activity. Control field showed highest microbial activity because of very high surface soil temperature. Strawberry vars. Festival, Chandler and Sweet Charlie were suitable for subtropics.



Early harvest under ventilated polycover



Delayed harvest under open conditions

**Improved Mango Harvester Developed**

Plastic CISH mango harvester has been designed and fabricated which is lighter, efficient, reduces drudgery of farmers and easy to fabricate in large number to meet the demand of farmers. Institute is linking farmers with community based organization for demonstration of this tool among mango growers.



**Rain Proof Fruit Fly Trap Developed**

Fruit fly is one of the major problems in horticultural crops. The existing traps available in the market are costlier and in some case it is cheaper but cannot withstand during rainy season, the lures are getting drowned and lose its viability soon. Keeping this in view, ICAR-CISH has developed a cost effective design of fruit fly trap to overcome such problems. It is economical, effective and suitable for rainy season. The trap having peculiar future with entry hole placed either side on the unique slant at the neck and also the flap along the edge of cap top are designed in such a way to minimize the entry of water during rainy season. Further the design is effective and protects the lure from drowning in to the rain water. It is cost effective when compared to other existing trap designs in the market.



**Protein Fortified Mango Bar Developed**

Protein fortified mango fruit bar was prepared from mango pulp, foxnut and almond using different ratios. Ascorbic acid, acidity and protein content decreased, whereas non-enzymatic browning increased during storage. Organoleptic score (8.5 and 8.0 out of 9) and protein content (8.53 and 7.24%) were maximum for mango: foxnut: almond ratio of 73:25:2 during zero and six months of storage. Zero microbial load was observed in all treatments



### Doubling Farmer's Income through mango Based Poultry Farming

Malihabad is famous for its delicious world renowned Dashehari mango. However, dwindling land resources, rampant urbanization, emergence of newer pest and disease have added to the woes of farmers. ICAR-CISH, Lucknow used diversified approach for increasing profitability through rural poultry in existing orchards. Sixty small and marginal farmers of Nabi Panah and Mohammad Nagar Talukedari villages whose annual income ranged from Rs.36,000 to 1,20,00 per annum from mango orchards were supplied with 11,793 improved breed of rural poultry suitable for orchard ecosystem such CARI-Devendra, Hitkari, Nirbheek, Shyama, Upkari along with technical knowhow. This is a low input-high profit mango farming system module which is generating income from third month after its intervention. These birds feed in the orchard leading to control of mango insects which is added bonanza for farmers besides, enriching their soil in organic content. Most mango farmers are free after mango sale is over but after this intervention whole family is engaged in rearing poultry, selling eggs and birds which have led to timely interventions of cultural practices in mango orchard. This intervention will give additional annual income of Rs.1,50,000 per farmer.



### EVENTS

#### Workshop on IPR Organized

A workshop on IPR was organized on 11.1.2017 at the Institute. During the workshop Dr. A K Sharma, Chairman PME Cell, ICAR-IISR, Lucknow delivered a lecture on 'Defining "Technology" and role of ITMU in facilitating scientists for creating technology portfolio eg. Creating Technology Package Systems for commercialization' and Dr. S Rajan, Director & Chairman ITMU, ICAR-CISH, Lucknow on 'Technology Development: What, Why and How'.



### Foundation Stone Laid for KVK at Malda

Foundation Stone Laying Ceremony for CISH-Krishi Vigyan Kendra, at Malda was held on 21st January, 2017 at ICAR-CISH Regional Research Station, Malda, West Bengal. The foundation stone was laid by Dr. A. K. Singh, Deputy Director General (Agricultural Extension & Horticulture) in presence of Swami Viswamayananda Ji (Secretary, Ramakrishna Mission Ashrama, Sargachi), Dr. Randhir Singh, Assistant Director General (Agricultural Extension), Dr. P. K. Chakrabarty, Assistant Director General (PP&B), Prof. S. K. Mitra, Former Dean, BCKV, Mohanpur, Dr. S. K. Roy, Director, ICAR-ATARI Kolkata, Dr. S. Rajan, Director, ICAR-CISH, Lucknow,



Inaugural session of foundation stone laying ceremony (left) and chief guest and dignitaries (right)

Dr. B. K. Das, Director, ICAR-CIFRI, Barrackpore, Dr. R. K. Thakur, Project Coordinator (AICRP on Honey Bee & Pollinators, IARI) and other dignitaries. Inauguration of Seed Hub for Pulses and Rabi Krishi Mela cum Adibasi Kishan Sammelen were also organized during the occasion.

#### Group Meeting with Bee Keepers Held

ICAR-CISH Regional Research Station, Malda, W. B. organized a group meet with beekeepers of Malda district on 22.01.17 at Malda Beekeeping & Honey Processing Industrial Co-operative society Ltd in the presence of Dr. R. K. Thakur (Project Coordinator, AICRP on Honey Bee and Pollinators, IARI, New Delhi), Dr. S. K. Shukla (Principal Scientist, ICAR-CISH, Lucknow), Dr. Dipak Nayak (Scientist & In-charge, ICAR CISH Regional Research Station, Malda) and others. Very fruitful discussion was held on problems of beekeeping and their probable solutions and away forward. More than 15 progressive beekeepers attended the meet and urged to





ICAR-CISH Regional Research Station, Malda for technical support in scientific beekeeping and honey processing.

### Honorable Governor inaugurated Farmers First Project

Farmers First Project was inaugurated by Shri Ram Naik Ji, Honorable Governor, Uttar Pradesh at the ICAR-Central Institute for Subtropical Horticulture, Lucknow on March 21, 2017. The project was inaugurated at the launch of the Farmers First project as well as "Farmers training programme on safe and judicious use of pesticides" jointly organized by ICAR-CISH, Lucknow and Hindustan Insecticides Limited, New Delhi. Farmers' First project is being launched in the selected villages of Malihabad - Nabi Panah, Meethenagar and Mohammadnagar Talukedari to demonstrate the impact of various technological interventions in enhancing farmers income. He further added that 1100 farmers have been selected where the Farmers' First project would be implemented.



### Connecting People to the Nature

ICAR-CISH celebrated World Environment Day on 5th June 2017. On this occasion, Dr. D. Pandey emphasized on role of biodiversity conservation and plantation of new mango varieties as well as judicious use of natural resources. Adaptation of diversified crops like Strawberry and Papeno under subtropical environment condition, soil carbon sequestration to mitigate elevated atmospheric CO<sub>2</sub>, climate change and environmental issues along with pesticide free environment were discussed.



### International Yoga Day Celebrated

The scientists, officers and staff of the ICAR-Central Institute for Subtropical Horticulture, Rehman Khera, Lucknow actively participated in the Yoga programme organized on the occasion of International Yoga Day (21.6.2017) at its Rehmankhera Campus. The function began with the chanting of mantra Om. On this occasion, Dr Shailendra Rajan, Director talked about the importance of Yoga in one's life.



### Institute Participated in Mango Shows

Institute participated in Mango Festival organized at Indira Gandhi Pratisthan, Lucknow on 27 June, 2017. U.P. Chief Minister Sri Yogi Adityanath Ji showed keen interest in mango hybrid ARUNIKA developed at ICAR-CISH, Lucknow displayed in Mango Festival. He took keen interest in mango diversity conserved at CISH, Lucknow which is the largest mango variety collection of the world. He was appraised about the new hybrids being developed in the Institute.



Institute participated in Mango Show at Delhi and Honorable minister for tourism GNCTD Shri. Rajender Pal Gautam visited ICAR-CISH Lucknow stall during Mango festival at Dilli Haat, N.Delhi and keenly observed the varieties released by our institute. He also appreciated institute for displaying large number of varieties and hybrids.



### Other Events Held

- ◆ Institute organized a workshop on "Micro-irrigation in horticultural Crops" on February 4, 2017 which was attended by staff of Department of Horticulture, Government of Uttar Pradesh and farmers.
- ◆ Organized "National Productivity Week" from 12 to 18.2.2017.
- ◆ Organized "National Science Day 2017" under the theme "Science and Technology for especially-abled persons" on 28.2.2017.
- ◆ Organized workshop on "How to increase productivity" on 18.3.2017.
- ◆ Institute has organized a workshop on April 26, 2017 on the occasion of "World Intellectual Property Day. A guest lecture was delivered by scientist from IISR, Lucknow on the occasion.
- ◆ Institute organized Swachhta Pakhwada from May 16-31, 2017.

### SEMINARS/SYMPOSIA

- ◆ A.K. Bhattacharjee and Abhay Dikshit attended one day seminar on "Analytical solutions for today's science" organized by Agilent Technologies India Pvt. Ltd. at Hotel Golden Tulip, Lucknow on March 24, 2017.
- ◆ All the scientists of the Institute attended workshop on "Micro irrigation in horticultural crops" held at ICAR-CISH, Lucknow on February 4, 2017.

- ◆ Shailendra Rajan, Maneesh Mishra and Gundappa participated in brain storming session on "Innovative approaches in *in-vitro* mass multiplication, management and plant protection for sustainable banana production in northern plains" held at ICAR-CSSRI, RRS, Lucknow on March 22, 2017.
- ◆ Neelima Garg attended national conference on "Farmers' centric agri-innovation for sustainable development" at CSAUA&T, Kanpur during March 24-25, 2017.
- ◆ P.K. Shukla and Gundappa participated in training programme on "Integrated pests and diseases management of mango" held at CISH-RRS, Malda and Murshidabad (W.B.) during March 7-8, 2017.
- ◆ R.A. Ram attended national conference on "Diversification of agriculture for food and nutritional security", at ITM University, Gwalior during February 27-28, 2017.
- ◆ R.A. Ram participated in national seminar on "Integrated development of horticulture in subtropical and hill region" at HRS, AAU, Kahikuchi during February 17-19, 2017.
- ◆ R.M. Khan attended "1<sup>st</sup> meeting of coordination committee for Uttar Pradesh on Doubling farmer's income by March 2022" on March 20-21, 2017 at ICAR-IVRI, Bareilly.
- ◆ Shailendra Rajan attended 19<sup>th</sup> Indian agricultural scientists and farmer's congress on "Prospects of green economy and value addition technology for attracting and retaining youth in agriculture and rural sector" on February 18, 2017 at Allahabad.
- ◆ Shailendra Rajan attended consultation meeting on "Management of abiotic stress in agriculture across the different discipline" at ICAR-NIASM, Baramati, Pune on January 30, 2017.
- ◆ Shailendra Rajan attended the Joint Session of Vice-Chancellor and ICAR Directors' Conference at NASC Complex on February 14, 2017.
- ◆ Shailendra Rajan attended the national seminar on "Enhancing productivity of fruit crops-mitigating major challenges" held at ICAR-IIHR, Bengaluru on January 8, 2017.
- ◆ Shailendra Rajan, A.K. Misra, G. Pandey, Ram Kumar, S.K. Shukla, P.K. Shukla and Gundappa attended "Uttar Pradesh Mango Festival-2016" organised by Uttar Pradesh Horticulture and Food Processing Ministry at Janeswar Mishra Park, Lucknow during June 25-26, 2016.

### HUMAN RESOURCE MANAGEMENT

#### Training Attended

- ◆ Jitendra Kumar attended training on "IP Procedures" at RGNIPM Training Center, Nagpur from February 13 to 17, 2017.



- ◆ Neelima Garg attended national training programme on Entrepreneurship development & management for women scientists & technologists with the government sector at EDII, Ahmedabad from February 6-10, 2017.
- ◆ Swosti S. Das attended ICAR Sponsored 21 days winter school on "Recent advances in breeding approaches and varietal development in perennial horticultural crops" at ICAR--IARI, New Delhi from January 12- February 1, 2017.
- ◆ Umesh Hudedamani attended the training programme on PGR management in fruit crops at NBPGR, New Delhi from March 22-15, 2017.

**Training Organized**

- ◆ Dipak Nayak organized a residential training programme on Scientific backyard poultry for tribal master trainers at Ramakrishna Mission Ashrama, Sargachi during February 3-5, 2017.
- ◆ Dipak Nayak organized a training programme on Integrated pests and diseases management at Malda on March 7-8, 2017.
- ◆ Dipak Nayak organized inauguration of Seed hub for pulses at ICAR-RRS, Malda on January 21, 2017.
- ◆ Maneesh Mishra organized Launch of Farmer FIRST and Awareness program on Safe use of pesticide on fruits and vegetables at ICAR-CISH, Lucknow on March 21, 2017.
- ◆ Maneesh Mishra imparted two months summer training to one student of Integral University, Lucknow on In vitro regeneration and genetic transformation of fruit crops during June 01 to July 02, 2016.
- ◆ Maneesh Mishra organized Farmer's Meeting at Nabi Panah, Malihabad on March, 29, 2017
- ◆ Neelima Garg provided two week professional training to 4 B. Tech. 3<sup>rd</sup> year students from S.R. Group of Institutions in field of food microbiology and 2 B. Tech. students from DBSKKV, Dapoli.
- ◆ Shailendra Rajan and Dipak Nayak organized a Adibasi Kishan Sammelan on 21<sup>st</sup> January, 2017 and Rabi Krishi Mela at ICAR-CISH Krishi Vigyan Kendra during January 21-22, 2017.
- ◆ V.K. Singh organized a training programme on Drip Irrigation in Horticultural crops on Feb. 4, 2017 for officials/ farmers (40) sponsored by PFDC.
- ◆ One day exposure visit - cum - training programme, sponsored by Institute of Horticulture Technology, Greater Noida and ITC, Hathras, Aligarh, U.P. for 35 and 16 farmers, respectively, were conducted at the ICAR-Central Institute for Subtropical Horticulture, Rehmankhara, Lucknow on March 06 and 08, 2017 on High density plantation of guava and different management aspects was conducted.



- ◆ Prof. P.K. Chhonkar, Ex-Head, Division of Soil Science and Emeritus Scientist, ICAR-IARI, New Delhi conducted a capacity building programme on "Developing soft skill for achieving excellence in science" for the benefit of staff of ICAR-CISH, Lucknow on 15th and 16th March, 2017.

**STUDENT READY**

**Summer Training to Graduate Students**

B.Sc. (Ag) Students (12 nos.) from Agriculture and Veterinary Sciences, Mewar University, Gangrar (Chittorgarh) Rajasthan are undergoing 21 days short-term summer training programme on various aspect pertaining to improvement, crop health and postharvest management of subtropical fruits at ICAR-CISH, Lucknow from June 12 to July 3 2017.



**Capacity Building of Rural Youth**

Institute organized Skill training programme for Gardeners under ASCI from 24.5.2017 to 23.6.2017 at Institutes. Sixty youths from nearby villages were given 200 hours rigorous training on nursery management. After successful completion of training, the candidates were given certificate and nursery tools. This will enhance entrepreneurship among the trained youths.



**COMMERCIALIZATION OF TECHNOLOGY**

CISH signed MOU with CST UP for transfer of improved technology for making Vinegar. CST UP will extend the technology to the end user. MoU was signed by Dr. S. Rajan Director, CISH and Dr. Anil Yadav, Secretary CST UP. Dr. Neelima Garg, the inventor of technology informed that this protocol is very simple and has immense potential for farmers and small scale processors engaged in vinegar production.



Preparation of sugarcane vinegar through improved technology at Basaraiyan and Ranikheda villages of Gosainganj, Lucknow in collaboration with UPCST under Technology Transfer scheme (June 22, 23 and July 5, 2017).

**Mobile App developed**

ICAR-CISH, Lucknow has developed two mobile apps on methods for preparing RAW MANGO PRODUCTS and RIPE MANGO PRODUCTS. These apps will be helpful in preparing mango products at home or cottage scale. The apps are in Hindi for easy understanding by Hindi speaking people. The apps also have audio facility.



**AMERA GAON AMERA GAURAV**

A total number of 40 villages in Malihabad, Uttar Pradesh have been adopted under Mera Gaon Mera Gaurav scheme. Many programs including scientists-farmer interface, focused group discussion, cleanliness drive in schools and panchayat bhawan were organized. A Kisan Gosthis was organised at Rasoolpur village on 06-03-2017. Sensitization programme for management of leaf webber among mango growers of Naibasti Village, Malihabad, Lucknow was also organized. Demonstration and distribution of fruit fly trap to farmers was organized for better management of fruit fly for next season's crop. Planting material of vegetables and fruit crops were also distributed.



Scientists distributing planting material and giving technical know how to farmers

**DEMONSTRATION**

Evaluation of the demonstration trial at farmer's field was conducted at Bhawanipur, Jalalabad, Kannauj, U.P. by PFDC, ICAR-CISH, Lucknow on 22.02.2017. The potato crop was raised under different coloured polyethylene mulching *i.e.* silver, black (50  $\mu$  thick) and unmulched condition under drip irrigation. The mulch was applied on the raised bed surfaces with the edges held tightly under the soil. The holes in the film were made at the distance of 20x15 cm for potato sowing. The inline lateral lines with emitter flow rate of 2litre/hour were used. The optimum yield was obtained under silver mulching (300 quintal/ha) followed by black mulching (275 q/ha) as compared to unmulched control (220 q/ha). Under silver mulching the yield was uniform in size with very less



undersize and oversize tubers and extent of greening was reduced significantly. Plastic mulch along with drip reduced irrigation water requirement for quality production of potato. The demonstration trial was successfully conducted and the farmer Sh. Arun Kumar Tripathi was motivated to use mulching in potato.



**EXHIBITIONS**

Institute participated and displayed its exhibits in the following event:

- ◆ Rabi Krishi Mela & Adibasi Kisan Sammelan during the foundation stone laying of KVK at ICAR-CISH RRS, Malda (W.B) (Jan.21, 2017).
- ◆ Workshop-Cum-Exhibition organized by IHT in collaboration with Ministry of Agriculture & Farmers Welfare, Govt. of India at IHT Park, Greater Noida (UP) (Feb.9, 2017).
- ◆ IISR, Lucknow Foundation Day (Feb.16, 2017).
- ◆ State Fruit, Vegetables & Flower show organised by Directorate of Horticulture & Food Processing, Lucknow at Governor House, Lucknow ( Feb 25-26, 2017).
- ◆ Kisan Unnati Mela at ICAR-IARI (March15-17, 2017).
- ◆ Krishi Kumbh at Motihari, Bihar (April 15-19, 2017).
- ◆ Uttar Pradesh Aam Mahotsav- 2017 at Indira Gandhi Pratishthan, Gomtinagar, Lucknow (June 24-25, 2017).
- ◆ Mango and Tourism Festival at Malda (W.B.) (July 8-9, 2017).
- ◆ Mango Show organized by National Media Club at Swaroop Nagar, Kanpur (July 14, 2017).

**MEETINGS**

- ◆ The 40<sup>th</sup> meeting of Institute Research Committee was convened on May 3-4, 2017.
- ◆ Dr.G. Pandey attended a consultative meeting for finalization of the Status Focus Paper-2017-18 of NABARD on 6.1.2017 at NABARD, Lucknow.
- ◆ Dr. Neelima Garg and Anju Bajpai attended the workshop on "Sexual harassment at work place" at NIPCCD, Lucknow on Feb.2-3, 2017.
- ◆ Director attended the Directors' Conference held on Feb.14-15 at NASC Complex, New Delhi.
- ◆ Dr. Maneesh Mishra attended 16th Advisory (Expert) Committee of Agriculture & Allied Sector Division held on March 1, 2017 at UPCST, Lucknow.
- ◆ Dr. S.R. Singh attended the Brain Storming Session on "Present Status of Seed Demand and Availability in State" held on 7th March, 2017 in UPCAR, Lucknow.

**LECTURES DELIVERED**

- ◆ Dr. Bidyut Sarmah, ICAR-National Professor (Norman Borlaug Chair) and Director DBT-AAU Centre, Assam Agriculture University, Jorhat delivered a lecture on "Genetically Engineered Crops: A Contribution of Modern Biotechnology" on 4.1.2017.
- ◆ Dr. Anfal Arshi Scientist-D visited the Institute for technical discussion on organic farming with the scientist at CISH, Lucknow on February 3, 2017.

**VISITORS**

- ◆ Abishnash Singh Tiwari, Deputy Director, SIMA and Jiwan Prakash, Dy. Director, SIMA Rehmankhara,, Lucknow visited on January 10, 2017.
- ◆ Anil Kumar, Assistant Horticulture Inspector, District Horticulture Office, Sultanpur, Uttar Pradesh visited on February 16, 2017.
- ◆ Ashok Shah, Green Gold Farmer, Itanagar, Arunachal Pradesh visited on February 10, 2017.
- ◆ Bidyut Sharma, ICAR-National Professor (Norman Borlaug Chair) and Director DBT-AAU Centre, Assam Agriculture University, Jorhat (Assam) visited on January 04, 2017.
- ◆ Gaurav Deep, Territory Incharge, Bayer Crop Science, Amar Shaheed Parth, Opp. Kanpur Road, Aurangabad Jagir, Lucknow visited on February 23, 2017.
- ◆ Pradeep Singh, Survey of India, Lucknow visited on January 28, 2017.
- ◆ Rahul Chaturvedi, Vice President-Agro (R&D), Pepsico India, 4<sup>th</sup> Floor Mehraouli Gurgaon Road, Gurgaon-122002, Haryana visited on January 09, 2017.
- ◆ Rajesh Patkar, Crop Manager Fruits and Plantion, APAC, Crop Science Division, Bayer Crop Science Limited, Mumbai visited on March 02, 2017.
- ◆ Russian delegation visited the Institute on June 1, 2017 and gave presentation on Horticulture research work being carried out in Russia.
- ◆ Satish Kumar Singh, Manager Export Cell, U.P. Mandi Parishad, Lucknow visited on March 08, 2017.



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