



NRCL

newsletter

(An ISO 9001:2008 Certified Institute)

From the Director's Desk

It gives me immense pleasure to share that NRCL has developed three new litchi varieties viz. Gandaki Sampada, Gandaki Lalima and Gandaki Yogita with desirable traits like bright red colour and smaller seed with high pulp content which is the main highlight in the present issue of NRCL Newsletter. These varieties have export potential too. In the country like India, where there is predominantly small and marginal farmers, practicing "Zero Budget Natural Farming (ZBNF)" is advocated which will be sustainable on long term basis. NRCL has successfully demonstrated the ZBNF method of organic farming that eliminates the dependence of farmers on market purchased inputs like fertilizers and pesticides. It incorporates locally available natural biodegradable materials and combines the scientific knowledge of ecosystems and modern techniques with traditional farming practices.



Quit often during litchi season the print and electronic media reports regarding consumption of litchis leading to deaths of malnourished children due to acute encephalopathy (AES) outbreaks but hypoglycaemia alone is not able to explain encephalopathy, which usually persists in spite of infusion of glucose. We are of the view that the association between litchi and AES occurrence is far from being established irrefutably. Further studies and critical examinations are required to understand the causal agents and their mechanism of action for the occurrence of AES before it can be unequivocally related only to litchi consumption. The environment is changing at rapid pace. Not only the physical environment i.e., water, soil, air and climate but also the social, economic and cultural dimensions of the environment are also changing. So when the surrounding ecosystem is changing, litchi cultivation must too. Cultivation of litchi has also changed with time, though slowly. Earlier our emphasis was to harvest more produce but there are several pre-and post-harvest measures that need to be implemented with all sincerity for ensuring livelihood security of the litchi farmers. Crop insurance can be a risk management measure to mitigate environmental disaster like hailstorm which Muzaffarpur region faced on 15th May, 2017.

On the occasion of 17th Foundation Day of the centre, NRCL Muzaffarpur organized a 2-day National Conference on "Perspective of Challenges and Options in Litchi Production and Utilization. The Centre felicitated five progressive litchi growers with "Litchi Ratna" on the occasion who had played a leading role in litchi fruit production and cool chain management by adopting technologies and skills developed by the Centre. A Litchi Treatment Plant (LTP) was established in NRCL campus in collaboration with Bhabha Atomic Research Centre, Mumbai which will act as a model facility for litchi growers and entrepreneurs in postharvest management of litchi. The facility was inaugurated by Shri Radha Mohan Singh, Hon'ble Union Minister, Ministry of Agriculture & Farmers' Welfare, Govt. of India. Litchi shelf-life increase and its export to outside world has been realized by ensured availability of proper pack house with 4 degree Celsius temperature and 55% RH.


(Vishal Nath)
Director

Highlights

- New Improved varieties of Litchi
- Inauguration of Litchi Treatment Plant
- National Conference on Perspectives of Challenges and Options in Litchi Production and Utilization
- 17th Foundation Day Celebrated
- Swachhata Pakhwada and International Yoga Day celebrated
- Commercialization/licensing of technology

In this issue

NRCL Technology	2
Success Story	3
News Features	4
Events and Meetings	6-9
Human Resource Development	9
Visitors	10



New Improved Cultivars in Litchi

Three genotypes from the existing gene pool with superior yield and quality attributes have been identified by Institute Technology Management Unit for release. The striking features of these varieties are presented below.

Gandaki Sampada

- A late maturing strain that ripens during mid June
- Fruits are large in size (36.85 g), conical in shape
- Vermilion to carmine colour, and cracking resistant
- Fruit consists of creamy-white, soft and juicy pulp with 80 to 85 per cent pulp recovery
- It has very high percentage of shrivelled and small seeded fruits
- Yield ranges from 120-140 kg/tree



Gandaki Sampada, a large fruited variety

Gandaki Yogita

- Dwarf plant stature, tolerant to hot waves and fluctuations in soil moisture
- Tolerant to fruit borer and fruit cracking
- Late maturing variety (5-15th June)
- Fruits are round in shape, tyrant rose in colour with creamy-white and juicy pulp
- Good yield potential (70-80 kg/tree)
- Suitable for high density planting



Gandaki Yogita, a late maturing variety

Gandaki Lalima

- A highly nutrient efficient strain possessing dark green leaves and the capability to withstand climatic aberrations
- Late maturing cultivar that ripens during second week of June
- Fruits are conical, bright marigold-orange red in colour
- Fruit weighs between 28-32 g with creamy white pulp
- High yielder with average yield of 130-140 kg/tree



Gandaki Lalima, a nutrient efficient variety



Success Stories

Zero budget natural farming promoted under *Mera Gaon Mera Gaurav* programme at Kankatti, East Champaran

In view of the harmful effects of modern farming (inorganic input intensive agriculture), nowadays organic farming is emphasized, however, if farmers depend on purchased inputs from market, organic farming may even prove costlier than modern farming. In the country like India, where there is predominantly small and marginal farmers, practicing "Zero Budget Natural Farming (ZBNF)" is advocated which will be sustainable on long term basis. ZBNF is a method of farming that eliminates the dependence of farmers on market purchased inputs like fertilizers and pesticides. It incorporates locally available natural biodegradable materials and combines the scientific knowledge of ecosystems and modern techniques with traditional farming practices. It harnesses the naturally occurring biological processes. While modern farming uses synthetic pesticides and fertilizers, the ZBNF encourages use of natural mulches, soil safety techniques, natural fertilizers and insecticides. These measures use the ecological engineering principles which encourage beneficial microbes and pest predators to take care of crop health and productivity. Natural plant leaves like neem, karanj, aak, dhatura, lantana, catnip etc. and the cow based products like cow dung, cow urine, milk, curd, ghee are backbone of ZBNF. Dr. Vinod Kumar at NRCL is currently studying effect of various plant leaf extracts such as neem (*Azadiracta indica*), catnip or catmint (*Nepeta cataria*), karanj (*Pongamia pinnata*), goma or thumba (*Lucas aspera*), aak (*Calotropis procera*) etc. to manage Alternaria disease of litchi.

With this background, Dr. Vinod Kumar and his team (Sanjay Kumar Singh, Prabhat Kumar along with young professional, Ajit Kumar Dubedi Anal) conducted scientist-farmers interactive meetings on 17th February 2017 and 10th March 2017 in the village Kankatti (Kothia Hariram), Mehsi an adopted village in East Champaran district under *Mera Gaon Mera Gaurav* programme. They were made not only aware of the benefits of ZBNF, but also the scientific principles through talk and video show in Hindi and local languages. Method of preparation and application of various products viz., Panchgavya, Jeevamrit, Beejamrit, Amritpani and plant extract based biopesticides were demonstrated to farmers on 29th March 2017. A group of identified farmers are applying these products in vegetable crops like, brinjal, lady's finger, cucumber, bittergourd and pointed gourd besides litchi

in the current season and efficacy will be monitored in due course. Application of 'NRCL Trichoderma' for crop health was also emphasized to the farmers for a holistic impact on crop health and productivity in these meetings.

किसानों को जीरो बजट में जैविक खेती के सीखाएं गुर

भारत न्यूज़ | मेरठ
मेरा गाँव मेरा गौरव कार्यक्रम के तहत मेरठ की केनकट्टी गाँव में कृषि वैज्ञानिकों के दल ने किसानों को प्रशिक्षण दिया। उन्हें जीरो बजट में जैविक खेती करने की जानकारी दी गई। राष्ट्रीय लीची अनुसंधान के तत्वाधान में कृषि वैज्ञानिक डॉ. विनोद कुमार व डॉ. संजय कुमार ने किसानों को संबोधित करते हुए कहा कि पंचगव्य एक अत्यधिक प्रभावी जैविक खाद है।
जो पौधों की बुढ़ि एवं विकास में सहायता करता है। उनकी प्रतिरक्षक क्षमता को बढ़ाता है। पंचगव्य का निर्माण सूखे वाली गाँव अथवा देसी गाँव के पाँच उत्पादों दूध, घी, ची, गोमूत्र व गोबर से होता है। पंचगव्य की 3 प्रतिशत मात्रा को पानी के साथ मिलाकर खेतों में प्रयोग किया जाता है। इस दौरान उन्होंने जैविक कीटनाशी की विधि को समझाया।
इसे नीम के पत्ते, मटर, छाछ, पानी से बहुत ही सरल विधि से बनाया जा सकता है। अपने फसलों को कीट एवं रोगों से बचाने के लिए जैव आगारित विभिन्न कीटनाशी का उपयोग करने की सलाह किसानों को दी। मौके पर राष्ट्रीय लीची अनुसंधान केंद्र के वैज्ञानिक डॉ. विनोद कुमार, डॉ. संजय कुमार सिंह, डॉ. प्रभात कुमार, अजीत कुमार द्विवेदी अनाम, किशन गणेश कुशवाहा, सोहन राम, इंवर चंद, रमेश अहमद सहित कई किसान शामिल थे।





News Feature

Hail storm damaged Litchi crop in and around Muzaffarpur (15th May 2017)

A hail storm with wind speed of about 30-35 miles per hour hit different orchards of Litchi in the evening (06.40 pm) on 15th May 2017. This is the season when litchi turns its colour to appealing red and farmer's starts contemplating its final income from almost mature fruits of Shahi cultivar. Though the bad weather has been part and parcel of Litchi cultivation in this area, this form of extreme weather has always been damaging.

The hailstorm with hails of size as high as 50 mm (ED), was accompanied by strong wind and rain. The damage was mainly in terms of fruit cracking; fruit drops but also includes breakage of branches. Following were observation in typical litchi orchards of 1 ha area and plant with age group of 14-15 years.

The direction of wind during the event was primarily from North -West direction and it has caused maximum damage along the line of wind i.e., North-West and South -East side. The damage takes place by direct hit of hails, direct momentum of high speed wind and also due to swing of branches along the line of wind. It is the swing that causes damage in South -East side of Litchi tree. The outer side canopy which remains exposed to damage covers about 70% of fruiting area. Average fruit damage percentage on tree was 6.3%. The main loss was in terms of fruit drops. The total number of fruit drop at the end of event was 172 per tree which

was about 3.44 % of total fruit on the tree. The fallen fruits were immature with no economic value. Out of 172 fallen fruits 24.64 % were damaged by hail. There was breakage of fruit bearing branches in some orchards. The total loss in terms of fruit damaged on the tree and fruit drop from the tree was 9.74 %.

Table 1. Damage to Litchi fruit due to hail storm on 15.05.2017 in Shahi (Tree observation)

Location on tree	Direction	Total fruit/panicle	Fruit damaged/panicle	Damage %	Expected yield (kg/tree)
Outer side canopy	East	14	1	7.14	65.00
	South-East	6	1	16.67	
	South	7	0	0.00	
	South-west	11	0	0.00	
	West	18	1	5.56	
	West-North	7	1	14.29	
	North	17	1	5.88	
	North-East	14	1	7.14	
Inside canopy	East	8	0	0.00	
	South	9	1	11.11	
	West	17	0	0.00	
	North	14	1	7.14	

Table 2. Damage in Shahi cultivar of Litchi due to hail storm (Fallen fruits observation)

Total number of fallen fruit	Damaged fruit	Undamaged fruit	Percentage damaged fruit	Expected Yield (kg/tree)
172	34	138	24.64	65.00

The prolonged bad weather phenomena increases the risk of pest attack mainly fruit borer.

Centre rebuts report linking consumption of litchi fruits with AES

The centre strongly condemned and rebutted the news appeared in print and electronic media regarding consuming litchis leading to deaths of malnourished children in Bihar's Muzaffarpur.



Damage caused by hail storm





The scientific opinion of NRC Litchi, Muzaffarpur is as follows:-

1. The litchi fruit is being consumed from the last 400 years in India. Acute toxic encephalopathy (AES) outbreak is being reported from last two decades. However, hypoglycaemia alone may not be able to explain encephalopathy, which usually persists in spite of infusion of glucose. As per reports, only about 60% of the affected children show symptoms of hypoglycaemia. In contrast even, hyperglycaemia has been reported from many AES affected children in Muzaffarpur.
2. AES cases were reported in 2013 and 2014 but despite a very good crop of litchi in 2016 season, very few AES cases (about 15) were reported in 2016. Further, many AES cases are reported from as early as March last week and first week of April and as late as July when litchis have either not even set or barely set (less than 1 g in size) or when their season is already over. This supports and substantiates the view that AES is not related to litchi consumption.
3. China is the leading producer of litchi. However, the AES reports have come only from Muzaffarpur in India, However, litchi is grown in many other states of India but cases of AES have erupted only from Bihar and one district of West Bengal, i.e. Malda if it is indeed occurring only due to litchi consumption. Even if we talk of only Bihar, districts Bhagalpur, Samastipur, Darbhanga, Begusarai, Katihar and Purnea remained unaffected from AES despite having good crop of litchi. Moreover, the AES cases have been reported in past from Gaya district as well where litchi is not cultivated. In the past, All India Institute of Medical Sciences, Patna and United Nations Children Fund have stressed that the AES is occurring due to enterovirus while investigating the AES cases (source: newspaper clipping). They observed that the enterovirus is spreading due to faecal and oral contamination. This situation warrants a serious thought as if AES is occurring due to litchi then why all the regions with concentrated litchi pockets are not affected.
4. Changing symptoms. As per the reports published in print media, "Only 62% of the total admitted children had low blood glucose levels." Previous reports have showed that high blood sugar levels have also been recorded in AES affected children in Muzaffarpur in 2015. If AES is indeed occurring due to hypoglycaemia caused by litchis, no explanation is conceivable for the abnormally high blood sugar levels in the patients observed in 2015.
5. The MCPG present in litchi might have caused hypoglycaemia in the affected children, but hypoglycaemia alone may not be held responsible for

AES occurrence. Hypoglycaemia alone may not be able to explain encephalopathy, which usually persists in spite of infusion of glucose. Thorough analysis of MCPG in different litchi cultivars is under process in first year of study, no such indication has been found.

6. Bandyopadhyay *et al.*, 2014 had concluded that the evidence gathered by them points towards a viral etiology although the causative virus remained unidentified. They recommended further studies using high throughput sequencing technology and resequencing micro-arrays for identification and characterization of the causal. They reported that the hypoglycaemia caused by eating litchis might have aggravated the AES rather than actually causing it.
7. The AES occurrence coincides with the litchi harvest season. This period is also marked by very high temperatures and hot winds prevalent during this time of the year. Heat stroke may also be a contributory factor for AES.
8. It is reported that each affected child seemed to be an isolated case in a village having approximate population of about 2500. This again brings questions as to only one child ate too many litchis than others and missed the evening meal as well. If it is indeed caused by only by litchi consumption, it must result in AES in children of similar nutritional status and belonging to the same age group on consuming litchi fruit.
9. It is worth mentioning that in some of the studies, among the affected AES children some were in the age group of below 1 year who cannot eat litchi fruits (Dinesh *et al.* 2013). It is indeed mind-boggling that if AES is occurring due to consumption of litchi, then how it is affecting children below the age of 1 year for whom eating litchi is unthinkable. This cannot be overlooked and plausible reason need to be found out by the researchers for this phenomenon.

We are of the view that the association between litchi and AES occurrence is far from being established irrefutably. Further studies and critical examinations are required to understand the causal agents and their mechanism of action for the occurrence of AES before it can be unequivocally related only to litchi consumption. In our view, an unidentified virus, the hot climatic condition prevalent at that time of the year along with rampant malnutrition and lack of hygiene might be the causes of occurrence of AES.

However, as a precautionary measure, it is advised that attention should be given on the nutrition of children, intake of proper evening meal and consumption of fully mature fresh litchi fruits by children in rural areas of vulnerable districts, particularly in malnourished children.



Events and Meeting

17th Foundation day

The 17th Foundation Day of the centre was celebrated on 6th June 2017. On this occasion, NRCL Muzaffarpur organized a 2-day National Conference on "Perspective of Challenges and Options in Litchi Production and Utilization". More than 200 farmers from Muzaffarpur, Vaishali, Samastipur, Sitamarhi, East Champaran and West Champaran districts of Bihar were present on this occasion. The Centre felicitated five progressive litchi growers with "*Litchi Ratna*" who played a leading role in litchi fruit production and cool chain management by adopting litchi technologies and skills developed by this Centre. Also five eminent correspondents of local print and electronic media were also felicitated in recognition and appreciation of their role in active dissemination of NRCL Technologies, and establishing interface between farmers and scientists. Further, five eminent scientists from different states were also honoured in recognition and appreciation of their commitment to the furtherance of litchi research and development in different states of India. The programme was coordinated by Dr. Vinod Kumar, Senior Scientist supported by all the scientists, administrative and technical staffs of the centre.



A glimpse of inaugural session of the 17th Foundation Day



A glimpse of inaugural session of the 17th Foundation Day

Inauguration of Litchi Treatment Plant

A Litchi Treatment Plant (LTP) was established in NRCL campus. With the signing of MoU with Bhabha Atomic Research Centre, Mumbai, the LTP was commissioned, which will act as a model facility for litchi growers and entrepreneurs in postharvest management of litchi. The facility was inaugurated by Shri Radha Mohan Singh, Hon'ble Union Minister, Ministry of Agriculture & Farmers' Welfare, Govt. of India on 29th May, 2017. Litchi preservation, shelf-life increase and its export to outside world has been realized by ensuring availability of proper pack house with 4 degree Celsius temperature and 55% RH before next litchi season. It will not only establish the reliability of the Technology but at the same time it will make this technology popular amongst farmers and entrepreneurs of the region.



Glimpses of inauguration of litchi treatment plant by Hon'ble Union Minister of Agriculture and Farmer's Welfare



NHB-sponsored Seminar on Litchi Farming: A sustainable approach for production processing & marketing

A two day Seminar on "Litchi Farming: A sustainable approach for production, processing & marketing" sponsored by National Horticultural Board and Litchi Growers Association of Bihar was organized at NRC on Litchi, Muzaffarpur preservation of litchi was organized at the centre from 22-23th May 2017 in collaboration with BARC, Mumbai. Several litchi growers, entrepreneurs and stakeholders took part in the training.



National Conference on Perspectives of Challenges and Options in Litchi Production and Utilization

National Conference on Perspectives of Challenges and Options in Litchi production was organized by ICAR-National Research Centre on Litchi, Muzaffarpur, Bihar in collaboration Confederation of Horticulture Associations of India (CHAI), Pusa Unit Bihar from 6-7 June, 2017 to address the challenges and develop strategies for enhancing income of litchi growers. Deliberations in the conference were organized in six technical sessions.

- Litchi improvement utilizing modern tool and techniques
- New paradigm in Litchi production and value chain management



Dr. H.P. Singh, Former DDG (HS) and President, CHAI addressing the participants during the National Conference

- New paradigm in production system management for improved profitability including fertigation
- Plant canopy architecture, regulation of bearing and harvesting systems
- Diagnostic for pest and disease management-A strategies for smart protection system.
- Industrial utilization, value chain management, branding and marketing for better farmer's income

Each session had 2-3 keynote speakers, well known in their field of expertise, followed by oral and poster presentations. The papers of keynote speakers and abstract of oral and poster presentation was compiled in the form of souvenir - Gyan Manthan Vol. 6, for the benefit of the delegates. The conference was sponsored by ICAR, NABARD, BARC, NHB and APEDA.

Research Advisory Committee Meeting

The 11th Research Advisory Committee (RAC) meeting was held on 11th May, 2017 under the chairmanship of Dr. S.D. Shikhamany. The meeting was attended by members of the committee, Dr. Manjeet Singh Dr. D.S. Khurdiya, Dr. V.V. Ramamurthy, Dr. Jitendra Kumar, Dr. S.K. Mitra, Sh. Ranjan Kumar Sahu, Dr. Vishal Nath, Dr. S.K. Purbey and scientists of the centre. The RAC members were apprised of the ongoing research activities at the centre. The scientists of the centre gained much encouragement and new directions for research from the valuable experience and expertise of the



11th RAC meeting in progress



Interaction of RAC members with the scientists of NRCL



RAC members. The committee visited the farmer's field and experimental farms and laboratories of the centre and expressed their appreciation.

Swachha Bharat Abhiyan

Swachhata Pakhwada was observed from 16 - 31 May 2017 and all employees participated in "Swachhata Abhiyan" spreading the awareness "Swachha Bharat-Swastha Bharat". Activities undertaken during this period were voluntary cleaning drive (cleaning of campus premise, office, laboratory, library, hall etc.); yoga session (to create awareness about health and healthy life style); POS machine installed (a step towards making cashless transaction); GeM portal of Ministry of commerce initiated and all employes were



sensitized towards digitization, e-office, maintain records through file. Water purifier being maintained at different location in office, cleanliness was being maintained in toilets, office and residential campus, guest house and potted plants were placed in office corridor beautifying office. All the staff residing in the staff quarters along with the other institute staff members enthusiastically participated in the cleaning programme.



International Yoga Divas

ICAR - NRC on Litchi celebrated "International day of Yoga" on 21st June 2017 as per common yoga protocol issued by Ministry of Ayush, Govt of India and ICAR's guidelines. Yoga is an invaluable gift of India's ancient tradition. It embodies the unity of mind and body, a holistic approach to health and

well-being. On the eve of "International day of Yoga" NRCL endeavoured towards making Yoga a part and parcel of daily lifestyle, motivating to practice yoga. All the staff of ICAR-NRC on Litchi participated in the yoga with great enthusiasm. The event was inaugurated by the Dr. Vishal Nath, Director, which was followed by talks on various topics including Yoga and consciousness. A Yoga practice session was conducted in the morning session.



Awards and Honours

- Dr. Vinod Kumar, Sr. Scientist (Plant Pathology) was selected as "Fellow of Indian Phytopathological Society (FPSI)" for the year 2016.
- Dr. Vinod Kumar received 'Best Paper Award' for "Advances in understanding beneficial plant microbe interaction and their applications in litchi" presented at National Conference on "Perspective of Challenges and Options in Litchi Production and Utilization" (6-7 June, 2017), ICAR-National Research Centre on Litchi, Muzaffarpur.
- Dr. Sanjay Kumar Singh was awarded with the 'Best Paper Award' on Growth and physiology of flowering affected by paclobutrazol and potassium nitrate in litchi (*Litchi chinensis* Sonn.) trees." In: National Conference



on Perspectives of Challenges and Options in Litchi Production and Utilization (6-7 June, 2017), ICAR-National Research Centre on Litchi, Muzaffarpur.

- Dr. Alok Kumar Gupta was selected as "Fellow of CHAI Award-2017"
- Dr. Evening Stone Marboh was selected as "Fellow of CHAI Award-2017"

Commercialization/licensing of technology

Name of Technology/ know how	Name of Contracting Party	Mode of Partnership	Date of Licensing
Process for preparation of Litchi Squash and RTS	Mr. Pankaj Kumar, M/S Muzaffarpur Agro, Muzaffarpur	Licensing/ Know-How	23rd June, 2017 24th June, 2017
Process for preparation of Litchi Squash and RTS	Mr. Ram Sarowar Singh, M/S Ram Sarowar Agro Foods, Chhitrauli, Maniyari, Muzaffarpur	Licensing/ Know-How	

Human Resource Development

S. No	Title	Venue & Date	Participant(s)
1.	4th Group Workers Meet, AICRP on Fruits	ICAR-IIHR, Bangaluru, from 4-7th January, 2017	Dr. Vishal Nath Dr. S.D. Pandey Dr. Amrendra Kumar Dr. E.S. Marboh
2.	Global Seminar on Enhancing Productivity of fruit crops – mitigating major challenges	Bangaluru, 8th January 2017	Dr. Vishal Nath Dr. Amrendra Kumar
3.	National Symposium on “Diagnosis and Management of Plant Diseases: Integrated Approaches and Recent Trends”	ICAR Research Complex for NEH Region, Umiam, Meghalaya, 9-11th January, 2017	Dr. Vinod Kumar
4.	International Conference on Sustainable Natural Resource Management: from Science to Practice	Varanasi, Uttar Pradesh, 12-13th Jan, 2017	Dr. Swati Sharma
5.	International Seminar on ‘Agriculture and Food for inclusive growth and development’	Lucknow, 14-15 January 2017	Dr. Vishal Nath
6.	JPIC meeting at BARC and visit of Fruit export unit at Mumbai, Nasik and Pune	BARC, Mumbai, ICAR-NRCG, Pune, 15-21 January 2017	Dr. S.K. Purbey Dr. Alemwati Pongener
7.	Pro-Tech Kisan	ICAR-CISH, Lucknow, 21 January 2017	Dr. Vishal Nath
8.	Brain Storming workshop on Potential Collaboration in the area of Food Science and Technology	DFRL, Mysore, 27th January 2017	Dr. Vishal Nath
9.	The Second Workshop of Officer Incharge, Data Management of ICAR Knowledge Based Resources Information Systems Hub for Innovations in Agriculture (KRISHI)	NASC, New Delhi, 24-25th January, 2017	Dr. Vinod Kumar
10.	Competency enhancement programme for effective implementation of training functions by HRD nodal officers of ICAR	Hyderabad, 16-18 February, 2017	Dr. Kuldeep Srivastava
11.	MDP on Public Procurement	NIFM, Faridabad, 20-25 February 2017	Sh. Abhishek Yadav
12.	Training on Public Financial Management System	INGAF, Patna, 22-23rd February, 2017	Sh. Subhankar Dey
13.	NICS e-Procurement solution through CPP portal	IASRI, Pusa, New Delhi, 22-23rd February, 2017	Sh. Ritesh Kumar
14.	National Conference on Perspective, Challenges and Options in Maize Production and Utilization	DRPCAUI, Pusa, Samastipur, Bihar, 3-4th March 2017	Dr. Vishal Nath
15.	Training programme on ‘Canopy management and flower regulation in Mango’	CHES, Bhubaneswar, 16-18th March 2017	Dr. Vishal Nath
16.	National Conference on “Farmers Centric Agri Innovation for Sustainable Development”	CSAUAT, Kanpur, UP, 24-25th March 2017	Dr. Vishal Nath
17.	2 nd Zonal project evaluation meeting of Zone II, Farmer’s FIRST Programme	ICAR-RCER Patna, 22nd March 2017	Dr. Alemwati Pongener Dr. Kuldeep Srivastava Dr. Gopal Kumar
18.	National Sensitization cum Evaluation workshop of Farmer’s FIRST Programme	NAARM, Hyderabad 18-19th March, 2017	Dr. Gopal Kumar



19.	National Conference on Climate Change & Agricultural Productivity	BAU, Sabour, Bhagalpur 06-08 April, 2017	Dr. Vishal Nath Dr. Gopal Kumar
20.	Consultation workshop on “Promotion of Farmer’s Producers Organization” organized by JEEVIKA, BRLPS and State Rural Livelihood Mission	Patna, Bihar 27 April, 2017	Dr S K Purbey
21.	National Conference on “Perspective of Challenges and Options in Litchi Production and Utilization”	ICAR-NRC on Litchi, Muzaffarpur, 6-7 June, 2017	All Scientists
22.	3rd Krishi Road Map of Bihar Conference	Patna, Bihar 17 June, 2017	Dr. SD Pandey Dr. Amrendar Kumar

Visitors

S.No.	Distinguished Visitors	Affiliation	Date
1.	Shri. D.K. Singh, IAS	Chairman, APEDA, New Delhi	16 March 2017
2.	Dr. Suraj Nandan Kushwaha	MLC, Bihar	22 May, 2017
3.	Shri. Radha Mohan Singh	Union Minister, Govt of India	29 May, 2017
4.	Shri. Ram Vichar Rai	Minister of Agriculture, Govt of Bihar	29 May, 2017
5.	Shri. Kedar Prasad Gupta	MLA, Kurhani, Bihar	29 May, 2017
6.	Smt. Baby Kumari	MLA, Bochaha, Bihar	29 May, 2017
7.	Shri. Ashok Kumar Singh	MLA, Paroo, Bihar	29 May, 2017
8.	Dr. Shekhar Basu	Chairman, AEC, BARC, Mumbai	29 May, 2017
9.	Shri. Abhay Kumar	Director (Finance), DAE, Mumbai	29 May, 2017
10.	Dr. AK Singh	DDG (HS), ICAR, New Delhi	29 May, 2017
11.	Dr. SK Ghosh	Head, FTD, BARC, Mumbai	29 May, 2017
12.	Dr. S. Rajan	Director, ICAR-CISH, Lucknow	6 June, 2017
13.	Dr. A.S. Panwar	Director, ICAR-IIFSR, Meerut	6 June, 2017
14.	Dr. Neeraj Sinha	Technical Director, Add. State Informatics Officer, NIC, Bihar	21 June, 2017
15.	Dr. Navin Suman	Scientist E & DIO, Muzaffarpur	21 June, 2017



Dr. AK Singh, Deputy Director General (Agricultural Extension & HS), ICAR, New Delhi, at the centre on 2nd April 2017



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