



NEWS

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In This Issue

Events

- Swachh Bharat Mission
- Women in Agriculture Day
- National Seminar on Underutilized Fruits
- NICRA SC Meeting
- 46th SAC Meeting
- Interaction Meet on Pests
- 2nd TF Meeting of DUS
- MoU between IIHR and IWST
- ICAR South Zone Sports Meet
- Cutting-edge Lecture
- World Food Day 2014

Research

- Guava hybrid Arka Rashmi
- French bean Arka Arjun
- Registration of IIHR Varieties
- Off Season Production of Litchi
- Post-harvest Loss of Flowers

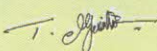
Others

- Human Resource Development
- Transfer of Technology
- Publications
- Paper Presentations
- Honours/Recognitions/Awards
- Personalia
- Visitors



From Director's Desk

Modern bio-technology emphasizes more on biotechnological techniques for the manipulation of genetic material beyond normal breeding barriers. Genetic engineering, the trump card tool of biotechnology has the potential to address some of the most challenging biotic constraints viz., doubling the yields beyond the potentials of conventional plant breeding, insect pest resistance (pest resistance, viral resistance, fungal and bacterial resistance, herbicide resistance, increasing shelf life of the produce (slow ripening), higher nutritional content, improvement in the quality as per the consumers need, value addition etc., resulting in a host plant having all the above traits. Broadly speaking, genetic engineering is creating genetically modified/genetically engineered organism (GMOs/GEOs) through transgenic technology involving the insertion or deletion of genes. Genetically Modified crops can help to face major challenges of food security, nutritional security, sustainability, alleviation of poverty and hunger, besides addressing some of the issues associated with climate change etc. Even though remarkable progress has been made in food crops (field crops) and non-food crops during the past two decades, transgenic crop technology in horticultural crops remained in infancy. Breeding transgenic pest/herbicide resistant/tolerant horticultural cultivars can bring down management costs and also contribute to a less toxic environment. Transgenic horticultural cultivars, particularly the vegetable cultivars with tolerance to abiotic stresses or enhanced input efficiency could also provide various benefits to farmers and to the environment. Host plant resistance to insects, nematodes, fungi, bacteria, and viruses, extended shelf-life of the produce, herbicide tolerance, enhanced nutritional status, and seedless fruit and better flavor are some of the traits on which work has been initiated under the National Agricultural Research System in India. Even though little progress has been observed in horticultural crops, the most promising traits applied to crops seem to be host plant resistance to insects and other pathogens, especially for tomato, potato, eggplant, summer squash, sweet corn, papaya, plum and banana. Work in this direction is under progress at IIHR, Bengaluru since past one decade where in development of transgenic pomegranate resistant to bacterial wilt and bacterial blight, transgenic papaya resistant to PRSV, transgenic citrus resistant to Tristeza virus, transgenic tomato resistant to early blight, transgenic chilli resistant to anthracnose, transgenic tomato resistant to peanut bud necrosis virus and combined resistance to PBNV & TLCV, transgenic watermelon resistant to watermelon bud necrosis virus, transgenic brinjal resistant to shoot and fruit borer, transgenic tomato and chilli tolerant to drought and salinity, are some of the areas work at the Institute is in progress. A National Network Project on Transgenics in Crops (NPTC) is also in operation at the Institute working on these aspects. The results achieved so far are very much encouraging and I am very much sure that the Institute would address the problems of major biotic and abiotic stress problems influencing the productivity and quality of horticulture produce in the coming years.


(T. Manjunatha Rao)

Events

Launching of Swachh Bharat Mission

Responding to the nationwide call given by Honorable Prime Minister of India for the Swachh Bharat Mission in commemoration of birth anniversary of Mahatma Gandhi ji, the father of the Nation, the ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bengaluru launched Swachh Bharat Mission on October 02, 2014. All the staff members of the Institute attended the office on October 02, 2014 and took Cleanliness Oath (Swachh Sapath) in Hindi and English administered by Dr. T. Manjunatha Rao, Director of the Institute. To create awareness about the ill effects of wet waste and dry waste on human health and environment and utilization of the solid waste generated in the day to day life of the civilians for the wellbeing of the human kind, a guest lecture by Shri C. Basavaiah, formerly the Managing Director, Karnataka Compost Development Corporation, Bengaluru was organized on the topic 'Municipal solid waste management made easy' followed by screening of a short film on the success story of Solid waste management by a citizens' society in Bengaluru for the benefit of the staff members. Later the staff members voluntarily attended cleaning of inside and outside the Institute premises.



Shri C. Basavaiah addressing

The Central Horticultural Experiment Stations at Bhubaneswar, Chettalli and Hirehalli and Krishi Vigyan Kendras at Gonikoppal and Hirehalli also



Dr. P. C. Tripathi, Head, CHES, Chettalli administering the Oath

launched the Swachh Bharat Mission on October 2, 2014. The respective Heads of the stations and the KVKs administered the Swachh Sapath (Cleanliness Oath) in Hindi and also in the regional languages to the staff members of their respective stations. The staff members of the Stations and KVKs also took part in mass cleaning of the inside /outside premises of the office, farm and the surroundings.

Celebration of Woman in Agriculture Day

The Institute celebrated Woman in Agriculture Day at its campus on December 12, 2014. Mrs. Chaya Nanjappa, Nector Fresh Honey, Dr. Geetha Suresh Novel Biotech, Bengaluru and Mrs. Susheelamma, Sumangali Sevashram, an NGO, Bengaluru were invited as Guests of Honour. Dr. T. Manjunatha Rao, Director, IHR presided over the function. Mrs. Sushelamma in her address stressed upon providing safe and healthy environment for woman at work place as well as in society. Mrs. Chaya Nanjappa quoted agricultural produce processing as a prospective enterprise and motivated the women to become entrepreneurs. Mrs. Geetha Suresh reiterated woman as backbone of Indian agriculture and emphasized on adopting improved agriculture technologies like tissue culture to start small business units. Presiding over the function Dr. Manjunatha Rao said that families can be empowered, if women become entrepreneurs and reiterated the need of women empowerment in research as well as in development sector.



Dr. T. Manjunatha Rao, distributing mushroom spawn bags

In the beginning Dr. Girija Ganeshan, Chairman Woman Cell gave welcome address. Mushroom spawn bags were distributed to farm woman to popularize how farm waste could be utilized in remunerative way.

The CHES, Bhubaneswar also observed Women in Agriculture Day on December 04, 2014. Dr. Neelam Grewal, Director, ICAR-Directorate of Research on Women in Agriculture, Bhubaneswar was the Chief Guest and Dr. (Mrs.) Meena Senapati, Director, Centre for Plant Tissue Culture and Biotechnology, Bhubaneswar and Mrs. Anupama Raut of Joint Endeavour for Emancipation and Tribal Awareness

(JEETA) – Land Entitlement for Tribal Women, Deogarh, Odisha were the Guests of Honour. Dr. H. S. Singh, Head of the Station presided over the function. All the staff members and students of the Station, and women farmers from nearby villages of Bhubaneswar participated in the program.



Dr. Neelam Grewal addressing

An In the interactive session was organized on the occasion during which Mrs. Anupama Raut, Dr. G.C. Acharya and Dr. P. Srinivas delivered talks on 'Agriculture and tribal women', ICAR and Women farmer issues and 'Participation of women farmers in horticulture' respectively. A field visit to the farm of the Station was also organized for the benefit of visiting women farmers.

National Seminar on Strategies for Conservation, Improvement and Utilization of Underutilized Fruits

The ICAR-IIHR-Central Horticultural Experiment Station, Chettalli and the Society for Promotion of Horticulture (SPH), Bengaluru organized National Seminar on Strategies for Conservation, Improvement and Utilization of Underutilized Fruits at Chettalli, Kodagu, Karnataka on December 01-03, 2014. Dr. T. Janaki Ram, Assistant Director General (Horticulture), ICAR, New Delhi inaugurated the Seminar. Dr. T. Manjunatha Rao, Director, ICAR-Indian Institute of Horticultural Research, Bengaluru presided over the inaugural session. Dr. P.C. Tripathi, Head CHES, Chettalli and the organizing Secretary of the Seminar welcomed the invited guests, dignitaries and delegates including growers in the beginning.



The Guests releasing a publication on the occasion

More than 25 lead papers and 125 posters presentation were made during the seminar. Dr. V.A. Parathasarthi,

National Co-coordinator for UNDP-TFT Project, Dr. S.K. Sharma, Director, CIAH, Bikaner, Dr. P.L Saroj Director, DCR, Puttur, Dr. H. Ravisankar, Former Director, CISH, Lucknow, Dr. Vishal Nath, Director, NRC Litchi Muzzafarpur, Dr. P. Chowdappa, Director, CPCRI, Kasaragod, Dr. Ramanath Rao, Bioversity International, Dr. N. Kumar, Former Dean, TNAU, Coimbatore, Dr. B.C. Uthaiiah, Ex Dean College of Forestry, Ponnampet, Dr. B.C. Deka Joint Director, ICAR - NEH, Barapani, Dr. G.S. Pandey, Director, Agriculture, Andaman & Nicobar, Dr. M.R. Dinesh, Head, Division of Fruits IIHR, Bengaluru were among the lead speakers. Scientists, entrepreneurs, students etc. from ICAR institutes, SAUs, KVKs and other Govt. and Non - Govt. organizations from across the country associated with underutilized fruits and more than 500 farmers from Karnataka, Tamil Nadu, Maharashtra and Kerala participated in the Seminar. An exhibition was also organized on the occasion. Three farmers who are maintaining and utilizing underutilized fruits were given certificate of appreciation on the occasion.

Steering Committee Meeting on Technology Demonstration Component of NICRA Project

The Steering Committee Meeting on "Technology Demonstration Component (TDC) of NICRA Project" was conducted at Krishi Vigyan Kendra, Hirehalli, Tumkuru district on October 10, 2014.

Dr. L.B. Naik, Principal Scientist, Section of Seed Science Technology, Member of NICRA-TDC and formerly the In-charge Head, CHES, Hirehalli under whose leadership the project started gave a brief introduction of the project and its past achievements. Dr. Loganandhan, N., Program Co-ordinator, KVK Hirehalli gave an account of the progress of the project till to date under the guidance of Zonal Project Directorate, Zone VIII Bengaluru. Officials from the different line departments and few NGOs invited for the meeting, offered their suggestions for effective implementation of various programs under the project in the ensuing season. A total of 18 official, non official, special invitee and Subject Matter Specialists of KVK participated in the meeting. A field visit to NICRA village, D. Naganhalli, Koratagere, Tumkuru district where all the technological interventions of NICRA are demonstrated was organized. Dr. Sreenivas Reddy, Principal Scientist, ZPD, Zone VIII, Bengaluru, appreciated the accomplishments of KVK, Hirehalli in transferring the need based technologies to the farmers of the NICRA village and acknowledged the support extended by the host institute for the overall development of D. Naganhalli, a model village under NICRA.

46th Scientific Advisory Committee (SAC) Meeting of KVK, Gonikoppal

The Krishi Vigyan Kendra, Gonikoppal, Kodagu conducted the 46th SAC meeting on October 21, 2014 under the Chairmanship of Dr. T. Manjunatha Rao, Director, Indian Institute of Horticulture Research, Bengaluru. Dr. Saju George, Program Coordinator presented the progress report for the year 2013-14 and plan of work for the forthcoming season. Dr. B. T. Rayudu, Principal Scientist, ZPD, Bengaluru in his remarks appreciated the efforts of KVK in transferring need based technologies to the farming community.



Guests releasing a publication during the Meeting

Dr. V. V. Sulladmath, Principal Scientist, Division of fruit crops, Dr. L. B. Naik, Principal Scientist, Section of Seed Science technology, Dr. M. V. Dhananjaya, Principal Scientist, Division of Ornamental crops from IIHR, Bengaluru, Dr. P. C. Tripathi, Principal Scientist and Head, CHES, Chettalli, Dr. N. Loganandan, Program Co-ordinator, KVK, Hirehalli, Dr. G. Karunakaran, Senior Scientist, CHES, Hirehalli and Mr. Run Balamatti, Program Co-ordinator, JSS KVK, Mysore present in the meeting offered their valuable suggestions. Presiding over the meeting Dr. T. Manjunatha Rao appreciated the initiatives and efforts of faculty of KVK in overall development and dissemination of the need based technologies for the benefit of the farming community of the district. The KVK website www.kvkkodagu.org was launched and a technical bulletin on "Activities of ATMA- a KVK experience" was released by the Director on this occasion. An exhibitions depicting different technological products produced in the KVK Instructional farm were displayed for the benefit of the participants. Apart from the members and guests a total of 45 official, non-official, special invitee and progressive farmers and the Subject Matter Specialists of KVK participated in the meeting.

Interaction Meet on Emerging Pests and Diseases of Horticulture Based Cropping Systems in Eastern India

The IIHR-CHES, Bhubaneswar and the Applied Zoologists Research Association (AZRA), Bhubaneswar organized an Interaction Meet of Plant

Protection Workers on "Emerging Pests and Diseases of Horticulture Based Cropping Systems in Eastern India" on November 17, 2014 at the Station. Dr. B. K. Mishra, Dean, OUAT, Bhubaneswar, Dr. Anand Prakash, Secretary, AZRA, Dr. R. S. Mishra, Head, RC-CTCRI and Dr. H. S. Singh, Head, CHES, Bhubaneswar shared their views about the threat of emerging pests and diseases in horticulture production system. More than 50 participants from CRRRI Cuttack, DRWA Bhubaneswar, NCIPM Bhubaneswar, OUAT Bhubaneswar, RC-CTCRI Bhubaneswar, CHES, Bhubaneswar and various KVKs in Odisha participated in the Interactive Meet.



A view of the Interaction Meet in progress

2nd Task Force Meeting for Validation of DUS Test Guidelines

The Second meeting of the Task Force for validation of DUS test guidelines for China aster, Jasmine, Tuberose, Papaya and Custard Apple was organized during October 07-08, 2014 at IIHR, Hesraghatta Bengaluru. Dr. R.R. Hanchinal, Chairperson of the PPV &FRA, New Delhi chaired the meeting Co-chaired by Dr. T. Manjunatha Rao, Director, IIHR, Bengaluru. Dr. Manoj Srivastava, Registrar (Field Crops) and Dr. Tejbir Singh, Registrar (Horticulture) were also present in the meeting.



The Task Force meeting in progress

On October 07, 2014, draft guidelines of China aster, jasmine and tuberose were presented by Dr. Rajiv Kumar, Dr. M. Ganga and Dr. T. Usha Bharathi, respectively. Dr. M. Jawaharlal, Dr. M. Kannan and Dr. M. Ganga from TNAU, Coimbatore, Dr. S.M. Katwate from NARP, Pune and Dr. C. Kameshwar Rao,

Bengaluru also attended the meeting. On October 08, 2014, draft guidelines of papaya and custard apple were presented by Dr. C. Vasugi and Dr. P. Sampat Kumar, respectively. Dr. C.P.A. Iyer, formerly the Director, CISH, Lucknow, Dr. Suryaanantha Sundaram and Dr. N. Kumar from TNAU, Coimbatore, Dr. M. R. Dhinesh, Head and all the scientists of the Division of Fruit Crops also attended the meeting.

MoU between IIHR and IWST

ICAR-Indian Institute of Horticultural Research and Institute of Wood Science and Technology (IWST), Bengaluru signed a Memorandum of Understanding (MoU) on research in biotechnology on October 10, 2014 at the IWST campus. Dr. T. M. Rao, Director IIHR and Dr. V. Ramakantha, IFS, Director, IWST exchanged the MOU signed. Dr. Akella Vani, Head, Biotechnology and Dr. Vageeshbabu S. Hanur, Senior Scientist and research collaborator under MoU, Dr. Sudha Mysore, Chairman, BPD & ITMU from IIHR and IWST team including Shri. M. Srinivasa Rao, CCF & Head, Forest Biometry, Dr. Shakti Singh Chauhan, Scientist-E and Dr. Ashutosh Srivastava, research collaborator under MoU and other staff members from IWST participated in the event.

ICAR South Zone Sports Meet

The ICAR- Indian Institute of Horticultural Research, Bengaluru hosted the ICAR South Zone Sports Meet at Sree Kanteerava Stadium, Bengaluru during October 13-17, 2015. The five days tournament brought together nearly 745 athletes from 25 institutes to compete in 18 sports events. Mr. C. Ramesh, Arjuna Award Winner and formerly the Captain of National Kabaddi team was the Chief Guest, inaugurated and declared the Meet open on October 13, 2015. Dr. T Manjunatha Rao, Director, IIHR, Bengaluru presided over the inaugural session. Officials from State Sports Associations of respective games and athletics conducted the events as per schedule. Competitions



The IIHR Sport contingent with Dr. G. S. Randhawa Memorial Overall Champion's Trophy with Ms. Rosa Kutty and Director, IIHR, Bengaluru

were held in athletic events, Volley ball (Shooting) Volley ball (Smashing), Kabaddi, Badminton, Basketball, Table-Tennis, Football, Carom and Chess during the five day sports meet. IIHR, Bengaluru bagged the overall Champions for the fourth consecutive time with 74 points. The Sports Meet was concluded on October 17, 2015. Ms. Rosa Kutty, two times Olympian and an Arjuna Award winner was the Chief Guest on the occasion who distributed the prizes to the winners of the events

Medal Winners of IIHR, Bengaluru

| Events | Winners | Position |
|------------------------|---|----------|
| 200 M (Men) | Rajanna, A. | II |
| 400 M (Men) | Rajanna, A. | I |
| 800 M (Men) | Rajanna, A. | I |
| 4X100 Relay (Men) | Mallesha, B., Sreedhar, R., Rajanna, A., Venkatesh, H. R. | I |
| Cycling (Men) | Naveen kumar | II |
| | Avinash | III |
| 100M (Women) | Meenakshi | I |
| 200M (Women) | Meenakshi | II |
| Long jump (Women) | Meenakshi | III |
| | Vekatlakshmi | III |
| Javelin throw (Women) | Vekat lakshmi | I |
| | Bhagyalakshmi | II |
| Discus throw (Women) | Vekatlakshmi | II |
| Kabaddi | | I |
| Volley ball (Shooting) | | II |

Cutting-edge Lecture Series

The Institute organized "Cutting-edge lecture series in insect physiology, toxicology and RNAi for pest management" on December 09-10, 2014. Dr. Palli Subba Reddy, insect physiologist, University of Kentucky, US made presentations on various topics. About 60 scientists, research scholars from different ICAR institutes and Agricultural University in Bengaluru attended the lecture. Role of next



Dr. Palli Subba Reddy delivering the Lecture

generation technologies in pest management: approaches and opportunities, role of RNAi in pest management, applications of genomics and functional genomics technologies in insecticide resistance management, GM crops in pest management, and exciting opportunities for students and early career scientists were discussed during the event. The Division of Entomology and Nematology, IIHR, Bengaluru and Association for Advancement of Pest Management in Horticultural Ecosystems (AAP-MHE), IIHR, Bengaluru jointly organized the event.

World Food Day 2014

The KVK, Hirehalli celebrated 'World Food Day' on October 16, 2014 on the theme - "Family farming: feeding the World, caring for the earth" - chosen to raise the profile of family farming and small holder farmers. It focuses world attention on the significant role of family farming in eradicating hunger and poverty, providing food security and nutrition, improving livelihoods, managing natural resources, protecting the environment, and achieving sustainable development, in particular in rural areas. 120 farmers participated in the program.

RESEARCH HIGHLIGHTS

Varieties / Hybrids Identified for Release

The variety and technology identification committee of the Institute identified the following varieties/hybrids for release.

Guava hybrid Arka Rashmi

A hybrid 3-29 - with the parentage of Kamsari x Purple Local. Average fruit weight of 200-220 g, TSS - 12 ° Brix, Lycopene content of 4 mg/100 g, ascorbic acid 235 mg/100 g with medium soft seeds 8 kg/cm² and pulp deep pink in colour.



French bean Arka Arjun

Resistant to mung bean yellow mosaic virus (MYMV)

The pods are green round, smooth and string less. Yield potential - 17.4 t/ha and suitable for summer cultivation under Bengaluru (up to 35°C). This line was developed through pedigree method of breeding.



French bean var. Arka Arjun showing resistance to MYMV along with susceptible lines and pods

Registration of IIHR varieties with NBPGR

Four China aster pure lines mentioned below have been registered with NBPGR, New Delhi

1. IIHR CA H13A (IC0610420; INGR14048) for uniqueness in early flowering, higher number and weight of flowers per plant.
2. IIHR CA J 17 (IC0610421, INGR14049) for uniqueness in early flowering, higher number and weight of flowers per plant.
3. IIHR-35 (IC0610422, INGR14050) for unique flower colour and flower type.
4. IIHR-42 (IC0610423, INGR14051) for unique flower colour, flower type and resistant to root knot nematode (*Meloidogyne incognita* race 1).



China aster pure line
IIHR CA H13A



China aster pure line
IIHR CA J 17



China aster pure line
IIHR-35



China aster pure line
IIHR-42

(IC0610422, INGR14050) (IC0610423, INGR14051)

Off season production of litchi in South India

In India Bihar, West Bengal, Uttar Pradesh, Jharkhand, Uttarakhand are the major litchi growing states of the country. Litchi requires specific climate for flowering and fruiting. Thus its commercial cultivation is limited few states located in certain latitudes. In the northern states of India, litchi fruits mature in the months of

May and June. Contrary to this, litchi fruits mature in the months of December and January in some of the non-traditional litchi growing regions of South India. Litchi is grown as home stead trees or as isolated trees in coffee plantations in parts of Coorg in Karnataka, Waynad in Kerala and Lower Pulenyhills, Kallar and Burliar of Nilgiri hills and some parts of Kanyakumari district of Tamil Nadu. Litchi trees produce flowers in the month of August –September and fruits mature in the month of December and January. The common varieties grown in this region are Shahi, Rose Scented, Early Seedless, Dehradun, Shahi, Maclean, Green and Calcuttia. The fruit quality is on par with the fruits grown in Northern India but lack of suitable packages of practices and poor marketing are hurdles for popularization of off season litchi produced in these areas. The survey of litchi cultivation in Coorg and Waynad areas revealed that litchi is grown on a smaller scale with 1-10 trees in gardens/plantation/back yard and there are few coffee plantations (1-10 acres) with litchi as intercrop. The performance of litchi trees shows that Coorg and Waynad areas has optimum climatic conditions for off season cultivation of litchi and it has a potential to become major crop in future not only for the domestic supply but even for the export .



View of litchi tree in full bearing at CHES, Chettalli

The experiment conducted by CHES, Chettalli revealed that Early Seedless, Dehradun, Shahi varieties of litchi are performing well. These varieties have higher TSS, smaller seed and lower acid content. To promote litchi in this area, CHES, Chettalli has supplied more than 10,000 litchi plants to the growers of Coorg during recent years. The station has more than 4 acres of litchi orchard comprising of more than 10 varieties.

Post-harvest loss / wastage in flowers

A study was conducted to assess post-harvest loss/wastage of flowers during marketing by the Division of Post Harvest Technology of the Institute. The information collected from Mangaluru flower

market revealed that except the Udupi Mallige, flowers to Mangaluru come from Hassana, Shivamogga, Bengaluru and Tumakuru. The post-harvest losses in flowers at this market are in the range of 20-25% at traders' level. The petal drop in chrysanthemum and roses is common, and such losses are more when the agent's supply 1-2 days old harvested flowers. Other losses are due to soiled appearance of flowers due to mishandling and drying or wilting. These losses range from 10% to even 35% (up to 15 kg in a bag of 40 kg). After making garlands if they are not sold the same day, the entire produce goes as waste and is dumped in dust bins as fresh flowers start coming the very next day. In such cases losses are huge, crossing even 50%. This kind of losses are more in chrysanthemum and marigold compared to other flowers. Quantity wise chrysanthemum and marigold are predominant as they are mostly used for large garlands. Others like rose, jasmine, aster, neerium, etc., are handled in small quantities and is generally sold out the same day. Chrysanthemum and marigold mainly goes for decoration, while others for puja in temples and homes (except marigold). Rose is mostly sold as loose flowers or inserted into the garlands of other flowers. The scented roses are not much in demand as people go for jasmine types for fragrance. Petal drop is the main post-harvest problem in chrysanthemum and rose, while loss of freshness, discoloration and wilting are the other causes of loss in flowers. The conspicuous information was that the traders are not aware of improved packaging materials or any other scientific post-harvest operation or treatment. Unstable prices of flowers were reported to be a matter of major concern in marketing of flowers.

HUMAN RESOURCE DEVELOPMENT

Post Graduate Research and Education

IIHR Scientists as Chairman/Co-chairman / External Examiners

- ❖ Dr. Narayanaswamy, B. conducted colloquium of PG student, Miss Asha, Department of Agricultural Extension, UAS, GKVK, Bengaluru as Research Advisory Member on October 10, 2014.
- ❖ Dr. Rajasekharan, P. E. conducted Open Defense and viva-voce of Mr. Krishna Kumar, G. on his Ph. D. thesis "Phyto-pharmacological and tissue culture studies on *Ophiorrhiza prostrate* D. Don" submitted to Dept. of Biotechnology, Kerala University on October 24, 2014.
- ❖ Dr. Narayanaswamy, B. conducted final viva-voce of Ph. D student Mr. Lawrence Prabhu, Department of Agricultural Extension, TNAU, Coimbatore on November 07, 2014.
- ❖ Dr. Rajasekharan, P. E., conducted Open Defense

and viva-voce of Mrs. C. P. Archana on her Ph. D. thesis "Scaling up of microtubule and microtubule technology for disease free planting material production in ginger and turmeric" submitted to Kannur University, Kerala on November 11, 2014.

- ❖ Dr. Dinesh, M. R. conducted qualifying viva-voce examination of Mr. Ahire Dipakkumar Bakram, Ph. D student, Department of Horticulture (Fruit Science), Mahatma Phule Krishi Vidyapeeth, Rahuri as an External Examiner on December 22, 2014.
- ❖ Dr. Girija Ganeshan acted as a Committee Member for final thesis viva-voce examination of Mr. Bharath Kumar M.V., at UHS campus, Bengaluru.
- ❖ Dr. Singh, T. H. was nominated as external examiner for M. Sc. and Ph. D students of College of Horticulture, Rajendranagar, Hyderabad for conducting the comprehensive qualifying examination on November 29, 2014.
- ❖ Dr. Rajasekharan, P. E., acted as external examiner of M. Sc. Integrated Biotechnology student Miss. Dhanya C. S, Kerala Agriculture University.

Attachment Training of ARS Scientists

- ❖ Dr. Pravita Lakhota, ARS Scientist (Spice, Plantation & Medicinal and Aromatic Plants) from ICAR-Indian Institute of Spices Research, Calicut, Kerala has been attached to the Division of Fruit Crops for three months Professional Attachment Training under the guidance of Dr. M. R. Dinesh w. e. f. November 21, 2014.

Training of IIHR Staff

Dr. Suresh, S. C. was deputed for training on Farm Fork approach for quality pork production in the country at NRC - Pig, Rani, Guwahati, December 01-10, 2014.

Training Imparted

- ❖ Dr. C. Vasugi imparted training on seed production, extraction, processing and storage in papaya to farmers (Shri. Shivyogi Kulkarni and Shri. Prakash Patil) from 20-22 October, 2014.
- ❖ The Division of Plant Genetic Resources imparted training on "Pollen cryopreservation in chilli, capsicum, eggplant and tomato" to five Vegetable Production Officers of VNR Seeds Pvt. Raipur, Chattisgarh during October 13-22, 2014.
- ❖ The Division of Plant Genetic Resources imparted training on "*In vitro* conservation of genetic resources particularly in vegetative propagated crops" to Dr. Ashwini Chouhan, Scientist, Directorate of Onion and Garlic Research, Rajgurunagar, Pune Maharashtra during December 01-17, 2014.

Participation in Seminar / Symposium / Conferences / Meetings etc.

The following scientists participated in various national and international seminar / symposium and conference / workshop / meeting etc.

- ❖ Dr. Manjunatha Rao, T. - Meeting of review of retention in service in respect of ARS scientists under the Chairmanship of DDG (HS) at ICAR, New Delhi, October 09, 2014.
- ❖ Dr. Narayana, C. K. and Dr. Girija Ganeshan - National conference on food processing & packaging - investment opportunities in India, organized by Indian Institute of Packaging, Mumbai at Hotel Lalit Ashok, Bengaluru, October 10, 2014.
- ❖ Dr. Singh, H. S. - TSG meeting at Directorate of Horticulture, Bhubaneswar, October 20, 2014.
- ❖ Dr. Narayana, C. K. - IRC meeting of ICAR-Directorate of Cashew Research, Puttur, October 21, 2014.
- ❖ Drs. Manjunatha Rao, T., Tripathi, P. C., Senthil Kumar, R., Sankar, V. and Reddy, T. M. - 46th SAC Meeting at KVK, Gonikoppal, October 21, 2014.
- ❖ Dr. Sudha, M. - Brainstorming session on strategies for creating & sustaining interest of youth in agriculture at CIBA, Chennai, October 25, 2014.
- ❖ Dr. Rajiv Kumar and Dr. Bhuvanawari, S. - 3rd International Conferences on Agricultural and Horticultural Science (Agri-2014) OMICS Group Conferences, Los Angeles, CA, USA, at Hyderabad, October 27-29, 2014.
- ❖ Dr. Singh, H. S. - National symposium on management options for enhancing farm productivity and livelihood security under changing climate at OUAT, Bhubaneswar, October 30, 2014.
- ❖ Dr. Rajiv Kumar - 2nd Biennial International Congress on Green Urban Futures organized by Center for Urban Green Spaces, New Delhi at Hotel Lalit Ashok, Bengaluru, November 03-05, 2014.
- ❖ Drs. Varalakshmi, B., Singh, T. H., Sankar, V., Ravishankar, H., Upreti, K. K. and Sudhakar Rao, D.V. - 6th Indian Horticulture Congress, CODISSIA Trade fair Complex, Coimbatore, November 06-09, 2014.
- ❖ Dr. Venkatta Kumar, R. and Dr. Loganandhan, N. - 7th National Extension Education Congress-2014, on "Translational Research-Extension for Sustainable Small Farm Development" organized by Society of Extension Education, Agra at ICAR Research Complex for NEH Region, Umiam, Meghalaya, November 08-11, 2014.

- ❖ Dr. Satisha, G. C. and Dr. Rajasekharan, P. E. - Workshop on Alignment of National Action Program on Combating Desertification to 10 year Strategy of UNCCD organized by Indian Council of Forestry Research and Education at Institute of Wood Science and Technology, Bengaluru, November, 12, 2014.
- ❖ Dr. Acharya, G. C. - 16th Scientific Advisory Committee of KVK, CRRI, Cuttack, November 15, 2014.
- ❖ Dr. Venugopalan, R. - Brainstorming Meeting for Pre-testing of ASTI Survey Forms, under IFPRI sponsored project "Implementing Agricultural Science & Technology Indicators Data Collection and Policy Analysis in India" at NAARM, Hyderabad, November 17, 2014.
- ❖ Dr. Sudha, M. - Seminar-Cum- NRDC Industry Interaction Meet on Technology Transfer-Innovation is Key to Change, Organized by NRDC in association with Tamil Nadu Technology Development & Promotion Centre (TNTDPC) of CII, Chennai Chapter at Chennai, November 21, 2014.
- ❖ Dr. Reddy, Y. T. N. - Workshop-cum-Interaction Session on Mechanization in Horticulture organized by KVK, Kolar in collaboration with National Horticulture Board, New Delhi at College of Horticulture, Kolar, November 21, 2014.
- ❖ Dr. Manjunatha Rao, T. and Dr. Sadashiva, A. T. - Meeting convened by DG and DDG (HS), ICAR regarding Vision 2050 at ICAR, New Delhi, November 25-26, 2014.
- ❖ Drs. Varalakshmi, L. R., Satisha, G. C. and Panneerselvam, P. - Nation seminar on developments in soil science organized by Indian Society of Soil Science at Prof. Jayashankar Telangana Agricultural University, Hyderabad, November 24-27, 2014.
- ❖ Dr. Panneerselvam, P. - 55th Annual Conference of Association of Microbiologist of India at Tamilnadu Agricultural University, Coimbatore, November --, 2014.
- ❖ Dr. Sadashiva, A. T. - 8th review meeting on ICAR network project on transgenic in crops -functional genomics in tomato at NRCPB, New Delhi, December 01-02, 2014.
- ❖ Drs. Manjunatha Rao, T., Tripathi, P. C., Prakash Patil, Dinesh, M. R., Ravishankar, H., Sulladmath, V. V., Murthy, B. N. S., Reju M. Kurian, Sakthivel, T., Sampath Kumar, P., Vasugi, C., Yogisha, H. S., Reddy, P. V. R., Gopalakrishna Pillai, K., Suryanarayana, M. A., Shivaramu, K., Achala Paripoorna, K., Senthil Kumar, R., Sankar, V., Reddy, T. M., Priti Sonavane and Mandal, S. - National seminar on scope of host plant resistance in selected under-utilized fruit crops: An appraisal of germplasm evaluation at CHES, Chettalli, December 01-03, 2014.
- ❖ Dr. Dinesh, M. R. - Indo-Australian workshop on mango genome organized by NRC on Plant Biotechnology, IARI, New Delhi, December 04-05, 2014.
- ❖ Dr. Narayana, C. K. - Project Monitoring Committee meeting of Department of Horticulture, Lalbagh for establishment of Cold Storages and Pack house at Vijayapura and Kolar at Lalbagh, Bengaluru, December 05, 2014.
- ❖ Dr. Panneerselvam, P. - National seminar -cum-exhibition on pomegranate for nutrition, livelihood security and entrepreneurship development at NRC, Pomegranate, Solapur, December 05-07, 2014.
- ❖ Dr. Raghupathi, H. B. - ISPRS International symposium organized by National Remote Sensing Center, Hyderabad, December 09-12, 2014.
- ❖ Dr. Ganeshan, S. - One day workshop on the biological diversity act and rules to create understanding on access and benefit sharing provisions, prior informed consent (PIC), mutually agreed terms (MAT), material transfer agreements (MTA) organized by Karnataka Biodiversity Board, Government of Karnataka at the Institute of Wood Science and Technology, Bengaluru, December 11, 2014.
- ❖ Ms. Priti Sonavane - National symposium on plant diseases: new perspectives and innovative management strategies at UAS, Dharwad, December 11-12, 2014.
- ❖ Mr. Veerendra Kumar, K. V. and Mr. Devaiah, K. A. - Seminar on production and protection technology in black pepper organized by Progressive Farmers Group comprising of Kodagu, Hassan and Chickmangaluru at Hudikeri village of Virajpet taluk, December 12, 2014.
- ❖ Drs. Murthy, B. N. S., Kurian, Reju M., and Sakthivel, T. - XIX Group Workers Meeting of AICRP on Arid Zone Fruits organized by ICAR-Central Institute for Arid Horticulture, Bikaner and Project Co-ordinator, Arid Zone Fruits at Sri Karana Narendra Dev Agriculture University, Jobner, Rajasthan, December 12-14, 2014.
- ❖ Dr. Saju George - Management development program for newly recruited Program Coordinators of KVKs at MANAGE, Hyderabad, November 09-25, at KVK Ahmednagar, November 27- December 06, and at ZPD Bengaluru, December 15-19, 2014.

- ❖ Dr. Manjunatha Rao, T. and Dr. Sadashiva, A. T. - Indo-German Bilateral Cooperation Meeting on Protection of Plant Varieties, Plant Breeders Rights, DUS Testing and Capacity Building at NASC Complex, New Delhi, December 16, 2014.
- ❖ Dr. Manjunatha Rao, T. - 395th Academic Council Meeting at IARI, New Delhi, December 20, 2014.
- ❖ Dr. Rajasekharan, P. E. - Research advisory group meeting of IWST Malleshwaram, December 16-17, 2014.
- ❖ Dr. Narayana, C. K. - 17th RAC meeting of ICAR-Indian Institute of Vegetable Research, Varanasi, December 17-18, 2014.
- ❖ Dr. Reddy, Y. T. N. - Meeting of Board of Directors, Karnataka Mango Development and Marketing Corporation Ltd., Lalbagh, Bengaluru, December 22, 2014.
- ❖ Dr. Saju George, Mr. Prabhakar, B. and Mr. Veerendra Kumar, K. V. - Celebration of Kisan Divas organized by Zilla Panchayath and Agricultural Department, Madikeri, December 23, 2014.
- ❖ Drs. Manjunatha Rao, T., Tripathi, P. C., Ganeshan, S. and Sudha, M. - Silver jubilee symposium on strategic approaches for horticulture research, education and development - way forward at NAAS, New Delhi, December 26-27, 2014.

Special / Guest Lectures Delivered

The scientists of the Institute delivered special lectures / guest lectures on various topics as detailed below:

- ❖ Dr. Balakrishna, B. - Plant management in protected cultivation and marketing the agriculture produce during the training program on protected cultivation organized by Agricultural Office of Kerala, October 10, 2014.
- ❖ Dr. Girija Ganeshan - Entrepreneurial opportunities for women in the field of horticulture at Mangala Gangotri, Mangalore in the 'Special Lecture Series in Life Sciences' organized by Karnataka State Council for Science and Technology – Govt. of Karnataka, October 28, 2014.
- ❖ Dr. Narayanaswamy, B. - Communication methods and leadership skill for the trainees of KVK, Hirehalli, November 11, 2014.
- ❖ Mr. Veerendrakumar, K. V. - Plant protection of important crops of district during the vocational training program organized by COBSETI, Kodagu, Suntikoppa, November 18, 2014.
- ❖ Mr. Prabhakar, B. - Plant nursery management practices during the vocational training program

organized by COBSETI, Kodagu, Suntikoppa, November 19, 2014.

- ❖ Dr. Venkatta Kumar, R. - Group dynamics and team building in the national training program on imagining and minimally invasive diagnostic techniques in farm and pet animal practice organized by Centre for advanced facility in veterinary clinical medicines, ethics and jurisprudence at Chennai, November 22, 2014.
- ❖ Dr. Singh, T. H. - Cultivation aspects, processing and marketing strategies of tomato at the training program sponsored by Department of Horticulture, Chittore district AEZ (Agri Export Zone) Government of Andhra Pradesh at Madanapalli, December 18, 2014.
- ❖ Girija Ganeshan – IDM in tomato at the training program sponsored by Department of Horticulture, Chittore district AEZ (Agri Export Zone) Government of Andhra Pradesh at Madanapalli, December 18, 2014.
- ❖ Dr. Doreyappa Gowda, I. N. - a). Processing as value addition: nature and importance. b). Vegetable and fruit variety and maturity for processing and raw material handling. c). Processing techniques for vegetables and fruit. d). Model SME cases: Good practice in vegetable and fruit processing chains at the SATNET Asia Regional Training Program on Post-harvest Management and Market Linking for Vegetables and Fruits in South Asia at ICRISAT, Hyderabad, November 25-29, 2014.
- ❖ Rajasekharan, P. E - Conservation of RET medicinal plants at a training program on 'Medicinal Plants - Role of State Forest Departments in Conservation, Cultivation, Harvesting, Marketing and Benefits Sharing by the Communities' for the Senior Officers of the Indian Forest Service, Forest Research Institute, Peechi, Thrissur, Kerala., December 09-10, 2014.

TRANSFER OF TECHNOLOGY

Training

At IIHR, Hesaraghatta

Interaction Meeting

The Division of Extension and Training conducted farmers' interaction meetings on transfer of technology aspect of IIHR Technologies at Amanaghatta and Vardanahalli of Gubbi taluk, Tumakuru district on December 10, 2014 in which a total of 20 farmers participated.

On Campus Training

The Division of Extension and Training in association with other divisions of the Institute organized the

following on campus training programs.

| Sl. No. | Title | Dates |
|---------|---|---------------|
| 1. | Advances in production technology of horticultural crops for the farmers of Ranchi, Jharkhand | 20-23.10.2014 |
| 2. | Advances in production technology of horticultural crops for the officers of Kerala | 24-29.11.2014 |
| 3. | Advances in production technology of horticultural crops for the officers of Kerala | 01-07.12.2014 |
| 4. | Post-harvest management of horticultural crops for the officers sponsored by Kerala Horticultural Mission, Kerala | 08-13.12.2014 |
| 5. | Rejuvenation of important fruit crops for the farmers of Bihar | 16-20.12.2014 |

IIHR Scientists as Resource Persons

Drs. Reddy, Y. T. N. and Reddy, P. V. R. participated as resource persons in a training program on production of quality mangoes for export from Kolar and Chikkaballapur districts organized by Karnataka Mango Development and Marketing Corporation Ltd., at Mango Development Centre, Hogalagere Horticulture Farm, Srinivasapura taluk, Kolar district on October 30, 2014.

At CHES, Bhubaneswar

The CHES, Bhubaneswar organized the following on farm / off farm trainings.

| Sl. No. | Title | Dates |
|---------|---|---------------|
| 1. | Integrated crop pest management of bitter gourd at Pitapalli, Khurda, Odisha | 07.11.2014 |
| 2. | Commercial vegetable cultivation for sustainable livelihood in collaboration with Paradeep Phosphate Ltd. (30 farmers) | 10-12.11.2014 |
| 3. | Nursery management for underutilized cucurbits like ivy gourd, pointed, teasle gourd at Kadanjhola, Nayagarh, Odisha | 18.12.2014 |
| 4. | Horticultural interventions for enhancing tribal livelihood under Tribal Sub plan at Mohna block, Gajapati, Odisha (88 farmers) | 29.12.2014 |

At CHES, Chettalli

The CHES, Chettalli conducted on campus training programs under the Tribal sub plan for 20 tribal beneficiaries of Avaregunda village, Kodagu on pepper nursery management on November 05 and 08, 2014.

At KVK, Gonikoppal

Upgrading the knowledge of different stakeholder viz. farmers, farm women, rural youths and extension functionaries in agriculture and its allied fields is one of the mandates of the Krishi Vigyan Kendra. During the period, twenty two training programs were conducted in different disciplines benefitting 786 farmers.

| Discipline | No. of trainings | No. of participants | | Total |
|------------------|------------------|---------------------|------------|------------|
| | | Male | Female | |
| Horticulture | 06 | 209 | 56 | 265 |
| Home science | 06 | 00 | 244 | 244 |
| Livestock | 02 | 10 | 40 | 50 |
| Plant protection | 04 | 79 | 92 | 171 |
| Soil science | 02 | 46 | 55 | 101 |
| Total | 20 | 344 | 487 | 831 |

KVK Staff as Resource Persons

- ❖ Dr. Saju George, Mr. Devaiah, K. A. and Mr. Prabhakar, B. participated as a resource persons in the field day on paddy at Nalloor village of Virajpet taluk organized by Extension Education Unit, Ponnampet on December 09, 2014.
- ❖ Mr. Veerendrakumar, K. V. participated in the paddy field day at Kokeri and Cheyandane village of Madikeri taluk organized by Department of Agriculture on December 11 and 13, 2014 respectively.
- ❖ Mr. Devaiah, K. A. and Mr. Veerendrakumar, K. V. participated as a resource person in the training program on black pepper organized by Department of Horticulture at Cherambane village of Madikeri taluk on December 15, 2014.

At KVK, Hirehalli

The KVK, Hirehalli conducted the following training programs during the quarter.

On Campus Trainings

| Sl. No. | Title | Dates | No. |
|---------|---|------------|-----|
| 1 | Mushroom cultivation | 14.10.2014 | 10 |
| 2 | Organic farming in horticultural crops & IFS | 20.10.2014 | 22 |
| 3 | Mushroom cultivation | 18.11.2014 | 21 |
| 4 | Leaf sampling method in coconut and its importance | 24.11.2014 | 41 |
| 5 | Leaf sampling method and organic farming in coconut crops | 27.11.2014 | 41 |
| 6 | Livestock feed and fodder management | 12.12.2014 | 27 |

Off Campus Trainings

| Sl. No | Title | Dates | No. |
|--------|--|------------|-----|
| 1 | ICM in Ragi ML-365, soil and leaf testing and its importance at Rangapur, Sira | 07.10.2014 | 27 |
| 2. | Soil, water and leaf testing at Konehalli | 13.10.2014 | 37 |
| 3. | ICM in pomegranate at Pavagada | 16.10.2014 | 116 |
| 4. | Seed production in French bean and okra at Hunasakatte, Sira | 03.11.2014 | 26 |
| 5. | Commercial floriculture at Tumakuru | 31.12.2014 | 101 |

Sponsored/Vocational Trainings

| Sl. No | Title | Dates | No. |
|----------------------------|---|------------|-----|
| Sponsored Training | | | |
| 1. | Organic farming in minor millets at Kytahgondanahalli, Koratagere sponsored by KSDA | 22.11.14 | 59 |
| 2. | IDPM in betel vine at Gowdanakunte, Pavagada sponsored by IIHR, Bengaluru | 12.11.14 | 110 |
| 3. | Organic farming in betelvine at Balenahalli, Tumakuru sponsored by IIHR, Bengaluru | 29.12.14 | 61 |
| Vocational Training | | | |
| 1. | Coconut friends at CHES, Hirehalli sponsored by Coconut Dev. Board, Bengaluru | 15.11.2014 | 20 |

Field Days / Campaigns / Awareness Programs / Farmers Interface Meetings

Farmers Interface Meeting on Pomegranate Plant Health Management

The Div. of Soil Science, IIHR, Bengaluru in collaboration with KVK, Hirehalli, organized a Farmers Interface Meeting on October 16, 2014 at the farm of Sri Mohan Kumar, Madde village, Pavagada taluk, Tumakuru in order to raise awareness about pomegranate health management particularly bacterial leaf blight & wilt which causes severe yield loss and take up suitable control measures on demonstration mode. Dr. Ganesh Murthy, Head, Div. of Soil Science, IIHR, Bengaluru inaugurated the Meet. Various aspects of plant health management like application of organic manures and chemical fertilizers, use of soil micro-organisms particularly the IIHR developed Arka Microbial Consortium (AMC) - one of the important products in promoting antagonistic effect to soil borne pathogens, time and method of application *etc.* were explained and demonstrated to the farmers by the soil scientists of IIHR, Bengaluru and the KVK Subject Matter Specialists.

Guava Field Day

The CHES, Bhubaneswar organized a Field Day on Guava on November 12, 2014 at its campus. The main objective of the Field Day was to strengthen the knowledge base of participants about varietal wealth and performance of guava varieties and agro techniques for enhancing yield and quality. More than 50 participants comprising of farmers/growers and scientists and staff of ICAR institutes (CTCRI, DRWA, and CARI from Odisha participated in the Field Day. An exhibition displaying different guava varieties with their brief features was organized on the occasion for the benefit of the participants. A field visit of participants to guava demonstration block was arranged during which the scientists of the Station explained varieties/hybrids of guava, advanced production and protection technologies, importance of guava in enhancing income and in improving health *etc.* to the participants.



Different guava varieties displayed at the exhibition **Awareness Program on Future Trading of Agricultural Commodities**

The KVK, Gonikoppal in collaboration with NABARD organized a one day district level awareness program on future trading of agricultural commodities for the farmers at its campus on November 07, 2014. Shri Nellamakkada Thimmiah, Director, Forward Market Commission, Government of India delivered a lecture and participated in the interface meet on various issues and policy matters. A total of 40 progressive farmers participated in the program. Mr. M. C. Nananaiah, District Development Manager, NABARD, Kodagu graced the occasion.

Interaction Meet on Emerging Pests and Diseases of Horticulture Based Cropping Systems in Eastern India

The CHES, Bhubaneswar organized an interaction meet of plant protection workers on "Emerging Pests and Diseases of Horticulture Based Cropping Systems in Eastern India" jointly with Applied Zoologists Research Association (AZRA), Bhubaneswar on



A view of Interaction Meet in progress

November 17, 2014 at the station. Dr. B. K. Mishra, Dean, OUAT, Bhubaneswar, Dr. Anand Prakash, Secretary, AZRA, Dr. R. S. Mishra, Head, RC-CTCRI and Dr. H. S. Singh, Head, CHES, Bhubaneswar shared their views about the threat of emerging pests and diseases in horticulture production system. Scientists from CRRRI Cuttack, DRWA Bhubaneswar, NCIPM Bhubaneswar, OUAT Bhubaneswar, RC-CTCRI Bhubaneswar, CHES, Bhubaneswar and various KVKs in Odisha participated in the Meet.

Soil Health Campaign

The KVK, Gonikoppal organized a soil health campaign at K. Badaga village on November 26, 2014 in collaboration with local farmers club. A total of 40 farmers participated in the program.

Field Day on Effect of *Bacillus* spp. Bio-Pesticides in Management of Nematodes in Tomato and Chilli (Anaheim type)

The Division of Entomology and Nematology, IIHR, Bengaluru organized a Field day on effect of *Bacillus* spp. bio-pesticides in management of nematodes in tomato and chilli (Anaheim type) at Thammarsanahalli village, Bengaluru, Karnataka on December 08, 2014. More than 65 farmers participated in the program. Shri. Hanumatharayappa and Shri. Rajanna, progressive farmers shared their experience with the farmers about the use of bio-agents that boosted the yield and maintained the crop healthy throughout the season without infestation of nematodes and associated diseases. *Bacillus subtilis* and *B. pumilus*



Scientists of the Institute interacting with farmers

enriched in vermicompost or FYM or neem cake which not only fight against the nematodes and associated soil-borne pathogenic fungi and bacteria but also enhance the crop growth and yield in an eco-friendly and cost-effective manner. There was also an interactive session on plant protection measures. Director IIHR, Bengaluru distributed the bio agents, *Bacillus subtilis* and *B. pumilus* formulations to the farmers to popularize the use of biopesticides against nematodes.

Field Day on Banana

The KVK, Gonikoppal organized a field day on banana at Shirangala village of Somwarpet taluk on integrated nutrient management in banana variety Poovan (Hoobale). Soil application of FYM at planting, split dose application of NPK and foliar nutrition of micronutrients (Banana special) were demonstrated in the plot of Mr. Krishnappa. The Subject Matter Specialists of KVK, Gonikoppal and Smt. Komala, Assistant Director of Agriculture participated in the event as resource persons. A total of 65 farmers and farmwomen participated in the field day.

Frontline Demonstrations (FLDS)

The KVK, Gonikoppal organized the following FLDs.

Enhancement of bunch size in banana: Ten demonstrations on integrated nutrient management in banana were demonstrated in farmers' fields at Thornier and Shirangala village of Somwarpet taluk. The growth and yield parameters were higher compared to control. A field day was also arranged at one of the farmer's field at Shirangala village. A total of 65 farmers and farmwomen and extension functionaries attended the program and got benefited.

Field Demonstrations

The Division of Extension and Training organized the following field demonstrations of IIHR technologies.

| Sl. No | Title | Locations | No. |
|--------|---|--|-----|
| 1 | Arka Rakshak tomato F1 hybrid and CRT's in tomato cultivation | Kolar, Bengaluru Chikkaballapura | 6 |
| 2 | IPM in vegetable crops | Bengaluru rural, Chikkaballapura Kolar | 10 |
| 3 | IPM in brinjal | Hosahallipalya, Agrahara | 2 |
| 4 | IPM in bhendi | Hosahallipalya, Agrahara | 2 |

Demonstration of effective acaricide against mite problem in pigs: Ten demonstrations were initiated at Srimangala block of Virajpet taluk to overcome the problem of external mite and ticks in pigs as it affects the growth and health of the animals.

Survey/Field Visits

The following field visits/surveys were conducted by the scientists of the Institute.

- ❖ Dr. Murthy, B. N. S. surveyed pomegranate gardens in and around Belagur on October 17, 2014.
- ❖ Dr. Sankar, V. visited Nilgiri hills of Tamil Nadu for collection of exotic vegetable seeds on November, 04-05, 2014.
- ❖ Dr. Tripathi, P. C. and Dr. Sankar, V. visited Nariyanda Village, Kadanga for survey and identification of underutilized fruits of Kodagu on October 22 and November 28, 2014.
- ❖ Dr. Tripathi, P. C. and Dr. Sankar, V. visited rice fallow areas of Forestry College, Ponnampet and farmer field at Gonikoppal for demonstration of vegetable cultivation in Kodagu region on November 25, 2014.
- ❖ Dr. Tripathi, P. C. and Dr. Sankar, V. visited the Lakshmi estate, Horour, Madikeri to see various value added products prepared from different underutilized fruits of Kodagu on 29.11.2014.
- ❖ Dr. Tripathi, P. C. visited Somarvarpet taluk of Kodagu for survey and identification of underutilized fruits on December 09, 2014.
- ❖ Dr. Tripathi, P. C. and Dr. Sankar, V. visited Dubare Forest, Valanur and Balgundy tribal Hadis for implementation of TSP 2014-2015 on December 18, 2014.
- ❖ Dr. Tripathi, P. C. and Dr. Sankar, V. visited Subrahmaya estate Suintikoppa for vegetable demonstration trails on December 22, 2014.
- ❖ Dr. Sankar, V. visited Valanur and Balgundy tribal Hadis for implementation of TSP 2014-2015 on December 23, 2014.
- ❖ Dr. Reddy, T. M. visited Sandal Kad estate and surveyed newly planted grafts of Coorg mandarin and provided technical guidance on cultivation aspects on November 18, 2014.
- ❖ Dr. Panneerselvam, P. and Dr. Selvakumar, G. visited Chitradurga and Tumakuru districts and identified three pomegranate fields in each district for field demonstration of Arka Microbial Consortium and Actinobacterial Consortium for revitalizing pomegranate plant health.
- ❖ Drs. Sadashiva, A. T., Venkattakumar, R. and Kashinath, B. L. visited trial plot of tomato hybrid Arka Rakshak at Seethakempanna Halli, Bengaluru North on December 24, 2014.
- ❖ Drs. Sadashiva, A. T., Aghora T. S. and Kashinath, B. L. visited seed plots of French bean and onion at Dodda Tumkur village, Bengaluru rural district on December 27, 2014.

- ❖ Dr. Narayana, C. K. visited the fields of KVK/farmers at Kankanady, Mangaluru and also the flower market at Car Street in Mangaluru on October 22, 2014.
- ❖ Ms. Linta Vincent conducted exploration with a team from NBPGR Regional Station, Hyderabad for Amaranthus at parts of Cuddapah, Nellore and Chittoor districts of Andhra Pradesh, collected 100 accessions including 6 species consisting of wild and weedy types. Also, one accession of bottle gourd, two of Roselle and two accessions of Pallaku were collected during October 26- November 03, 2014.
- ❖ A team of scientists from Division of Vegetable Crops, IIHR, Bengaluru visited field demonstration block of vegetable crops (amaranth, brinjal, chilli, tomato, French bean, dolichos, yard long bean, garden peas, okra, knolkhol, cabbage, radish and beet root) raised at CHES, Chettalli and field demonstrations at KVK, Gonikoppal to access the performance of vegetable cultivation in Kodagu region. The Team also visited College of Forestry at Ponnampet to plan for a field demonstration block of all the vegetable crop varieties/hybrids developed by IIHR, Bengaluru to be taken up in 2015.

T.V and Radio Programs

The following television programs on various aspects of horticulture were given by the scientists of the Institute were telecasted on DDK, Bengaluru

| Sl. No | Topic | Date | Resource person |
|--------|--|-------------|----------------------|
| 1 | Importance of Krishi Melas and utilization by the stake holders. | 16.10. 2014 | Narayanaswamy, B. |
| 2 | ATIC facilities and use of micronutrients specials in crops. | 24.10.2014 | Narayanaswamy, B. |
| 3 | Nendran banana cultivation (success story) | 25.10.2014 | Prabhakara, B. |
| 4 | Coriander Arka Isha and palak Arka Anupama varieties | 12.11. 2014 | Varalakshmi, B. |
| 5 | Important activities of IIHR and farmer friendly programs. | 08.12.2014 | Narayanaswamy, B. |
| 6 | Arka Microbial Consortium for revitalizing pepper plant health | - | Ganeshamurthy, A. N. |
| 7 | Disease management in cole crops | 26.12.2014 | Girija Ganeshan |

Radio talks

The following radio talks were given by the staff of IIHR, Bengaluru.

| Sl. No | Topic | Date | Resource person |
|--------|---------------------------------------|------------|----------------------|
| 1 | Buffalo management in summer | 11.10.2014 | Suresh, S.C. |
| 2 | Chilli diseases and control | 27.10.2014 | Girija Ganeshan |
| 3 | Pest and disease management in paddy. | 23.11.2014 | Veerendrakumar, K.V. |
| 4 | Ripening of fruits (an interview) | 28.12.2014 | Sudhakar Rao, D.V. |

Fairs / Exhibitions

The Institute and its regional stations organized/participated in the following exhibitions.

| Sl. No | Event | Place and date |
|--------|--|----------------|
| 1 | Krishi Mela-2014 at UAHS, Shivamogga. | 18-20.10. 2014 |
| 2 | ICAR Institutes-SAU -State Department Interface Meet 2014-2015, CRRI, Cuttack. | 21-22.10. 2014 |
| 3 | Regional Agriculture Fair, Bhubaneswar, Odisha. | 28-30.10. 2014 |
| 4 | Rashtriya Kisan Mela on Citrus, NRCC, Nagpur | 30-31.10.2014 |
| 5 | Krishi Mela 2014, UAS, Bengaluru. | 17- 21.11.2014 |
| 6 | Exhibition at Agricultural Research Station, Ponnampet, Kodagu. | 21.11.2014. |
| 7 | National Seminar on underutilized fruits, CHES, Chettalli. | 01-03.12.2014 |
| 8 | Krishi Mela at UHS, Bagalkot. | 12-15.12. 2014 |
| 9 | Kissan Divas Celebration at Madikeri. | 23.12. 2014 |
| 10 | Regional Krishi Mahostava, Berhampur, Odisha. | 28-30.12.2014 |

Commercialization of Technologies

A total of 11 technologies developed by the Institute have been commercialized by licencing the technologies with 22 private companies generating a revenue of Rs.1, 59, 552/- during the quarter.

Revenue Generated by Mushroom Laboratory

An amount of Rs. 601220/-was generated by the mushroom laboratory through sale of Mushroom spawn (Rs. 5, 93,860/-) and RTF bags (Rs. 7360/-).

Sale of Technological Products through ATIC

The technological products of IIHR viz., Banana Special Mango Special, Vegetable Special, Citrus Special, Trichorich-N, *Pseudomonas fluorescens*, *Paecilomyces lilacinus*, Microbial Consortium,

Pongemia Soap, Neem Soap, Sealer cum Healer, Vegetable fruit fly traps and lures, Institute Publications, VCDs and DVDs, Vegetable Seeds Kit & Sample Packets, PHT products, Sapota, Mango and Lime Harvesters etc. were sold through the ATIC, IIHR, Bengaluru to the visiting farmers and general public, and generated a revenue of Rs. 10, 19,845/-

General Visitors

- ❖ A total of 445 farmers, 2672 students and 36 others/officers visited the Institute at Hesraghatta, Bengaluru. The visitors were taken round the Institute farm and laboratories and the activities and achievements of the Institute were explained to them by the staff of Division of Extension and Training
- ❖ A total of 388 farmers and 219 trainee/students from Odisha, Andhra Pradesh, Tamil Nadu, sponsored by nine different organizations / agencies/ NGO's visited CHES, Bhubaneswar for exposure in horticultural technologies and got benefitted.

Publications

Research Papers

1. Bellishree, K. Girija Ganeshan, Ramachandra, Y. L., Archana, S. Rao and Chethana, B. S. (2014). Effect of plant growth promoting rhizobacteria (pgpr) on germination, seedling growth and yield of tomato. *International Journal of Recent Scientific Research*. 5(8): 1437-1443.
2. Chithiraichelvan, R., Ravindra Kumar, Ganesh, S. and Venugopalan, R. (2013). Simple models for non-destructive leaf area prediction in fig (*Ficus carica* L.) cv. Deanna and Poona. *Ind. J. Arid Hort.*, 8(1-2):10-15.
3. Ganeshamurthy, A. N. (2014). Ground water decline putting perennial horticultural crops in peril: Urgent policy intervention needed. NAAS news.
4. Ganeshamurthy, A. N. (2014). Towards a national soil policy for food and nutritional security. *Ind. J. Fert.*, 10(12):62-67.
5. Gothandapani, S., Boopalakrishnana, G., Prabhakarana, N., Chethana, B. S. Aravindhan, M., Saravanakumar, M. and Girija Ganeshan (2014). Evaluation of entomopathogenic fungus against *Alternaria porri* (Ellis) causing purple blotch disease of onion. *Archives of Phytopathology and Plant Protection*.
6. Kamala Jayanthi, P D., Vivek Kempraj, Ravindra M. A., Soumya, B. R., Ravindra Kothapalli Venkataramanappa, Bakthavatsalam Nandagopal and Abraham Verghese. (2014).

- Centuries of domestication has not impaired oviposition site-selection function in the silkworm, *Bombyx mori*. *Nature Scientific Reports* 4, 7472 doi: 10.1038/srep07472.
7. Kamala Jayanthi, P. D., Arthikirubha, A., Vivek Kempuraj, Ravindra, M. A., Selvakumar, G. and Abraham Verghese. (2014). *Aspergillus flavus* impairs antioxidative enzymes of *Sternochetus mangiferae* during mycosis. *J. Invertebrate Pathol.*, 12/2014; DOI: 10.1016/j.jip
 8. Laxman, R. H., Rao, N. K. S., Geeta Biradar, Sunoj, V. S. J., Shivashankara, K. S., Pavithra, C. B., Dhanyalakshmi, K. H., Manasa, K. M., Bhatt, R. M., Sadashiva, A. T. and Christopher, M. G. (2014). Antioxidant enzymes activity and physiological response of tomato (*Lycopersicon esculentum* M.) genotypes under mild temperature stress. *Ind. J. Pl. Physiol.* 19(2):161-164.
 9. Lokeshwari, D., Hayat, M., Krishna Kumar, N. K., Manjunatha, H. and Venugopalan, R. (2014). First occurrence of the Aphid Parasitoid, *Aphelinus basilicus* (Hymenoptera: Aphelinidae), on *Aphis gossypii* (Hemiptera: Aphididae) color forms in India. *Florida Ento.*, 97(2):809-813.
 10. Lokeshwari, D., Verghese, A., Shivashankar, S., Krishna Kumar, N. K., Manjunatha, H. and Venugopalan, R. (2014). Effect of *Aphis odinae* (Hemiptera: Aphididae) infestation on sugars and amino acid content in mango. *African Ento.*, 22(4):823-827.
 11. Mahesh Badiger, Pitchaimuthu, M., Parvati, B. and Sachin, U. (2014). Combining ability analysis of male fertile and male sterile lines in okra [*Abelmoschus esculentus* (L.) Moench]. *Green Farming*, 5(5):746-748.
 12. Mamatha, H., Srinivasa Rao, N. K., Laxman, R. H., Shivashankara, K. S., Bhatt, R. M. and Pavithra, K. C. (2014). Impact of elevated CO₂ on growth, physiology, yield and quality of tomato (*Lycopersicon esculentum* Mill) cv. Arka Ashish. *Photosynthetica*, 52(4):519-528.
 13. Manjunatha Rao, T., Rajiv Kumar, Katwate, S. M. and Manoj Srivastava (2014). DUS test guideline of China aster [*Callistephus chinensis* (L.) Nees.]. *Plant Variety J. Ind.*, 8(12):66-74.
 14. Mohapatra, S. (2014). Angurme kitanasak avaseshon ka pravandan. *Bagawani*, 5:29-31.
 15. Muttappanavar, R. D., Sadashiva, A. T., Vijendrakumar, R. C., Vasantha, P. T. and Geeta, S. V. (2014). Assessment of quality and biochemical traits of parents and F₁ hybrids of cherry tomato (*Solanum lycopersicum* var. *Cerasiforme*), *Green Farming*, 5(3):408-410.
 16. Muttappanavar, R. D., Sadashiva, A. T., Vijendrakumar, R. C., Roopa, B. N. and Vasantha, P. T. (2014). Combining ability analysis of growth, yield and quality traits in cherry tomato (*Solanum lycopersicum* var. *Cerasiforme*). *Molecular Pl. Breeding*, 5(4):18-23.
 17. Padmini, K., Sadashiva, A. T. and Naik, L. B. (2014). Natural outcrossing and isolation distance requirements in excreted stigma tomato (*Solanum lycopersicum* L) seed production. *Ind. J. Agril. Sci.*, 84(12):1453-6.
 18. Pandey Meera, Senthil Kumaran, G, and Vasudeo, G (2014). Making mushroom production process a zero waste enterprise, *Intl. J. Envmtl. Sci.*, 5 (2):236-242.
 19. Patil, R. A., Sudhakar Rao, D. V., Sumitha, N. and Manasa. B. (2014). Sensory quality of custard apple fruits stored at low temperature. *Bioinfolet*, 11 (3B): 858-860.
 20. Reddy, P. V. R., Chakravarthy, A. K., Sudhagar, S. and Kurien, Reju M. (2014). A simple technique to capture, contain and monitor the fresh-emerging beetles of tree borers. *Curr. Biotica*, 8(2):191-194.
 21. Reddy, Y. T. N., Upreti, K. K. and Shivu Prasad, S. R. (2014). Effect of cultar on flowering, fruit yield and quality of mango cv. Totapuri. *Ind. J. Agril. Sci.*, 84:81-85.
 22. Reddy, Y. T. N., Upreti, K. K. and Shivu Prasad, S. R. (2014). Response of paclobutrazol treatment on flowering, fruit maturity, yield and quality of mango (*Mangifera indica*) cv. Totapuri. *Ind. J. Agril. Sci.*, 84(10):1231-5.
 23. Renuka, D. M., Sadashiva, A. T., Kavitha, B. T., Vijendrakumar, R. C. and Hanumanthiah, M. R. (2014). Evaluation of cherry tomato (*Solanum lycopersicum* var. *Cerasiforme*) for growth, yield and quality attributes. *Pl. Archives*, 14(1):151-154.
 24. Sadashiva, A. T., Aghora, T. S., Madhavi Reddy, K., Mohan, N. and Rao, E. S. (2014). Growing interest in doubled haploidy for improvement of horticultural crops in India. *Curr. Sci.*, 107(1):16-17.
 25. Santhosha, H. M., Varalakshmi, B. and Shivashankara, K. S. (2014). Characterization of early cauliflower germplasm under tropical conditions. *The Bioscan*, 29(2):869-874.
 26. Shivaramu, K., Souravi, K., Rajasekharan, P. E., Reddy, P. V. R. and Achala Paripoorna (2014). A new record of the occurrence of *Thunberia sanguinarius* (Stal.) (Hemiptera: Lygaeidae) on *Decalapis hamiltonii* Wight & Arn. An

endangered medicinal plant, *Pest Managt. Hortil. Ecosy.*, 20(1):103-104.

27. Sridhar, V., Latha, N., Lokeshwari and Chakravarthy, A. K. (2014). Insecticide resistance management: reflection and way forward, *Curr. Sci.*, 107(10):1640-1642.
28. Saudhagar, S., Reddy, P. V. R., Sridhar, V., Kamala Jayanthi, P. D. and Vani, R. (2014). Qualitative and quantitative differences in DNA extracted from different body parts of *Apis* spp. (Hymenoptera: Apidae) and its validation using microsatellite markers. *Pest Mang. Hortil. Ecosy.*, 20(1):53-58.
29. Thomas Pious, Sadashiva, A. T., Upreti, R. and Mujawar Mohammed (2014). Direct delivery of inoculum to shoot tissue interferes with genotypic resistance to *Ralstonia solanacearum* in tomato seedlings. *J. Phytopath.* (JPHY-13-398.R1.) doi: 10.1111/jph.1228
30. Thomas, P. and Upreti, R. (2014). Influence of seedling age on the susceptibility of tomato plants to *Ralstonia solanacearum* during protray screening and at transplanting. *Amer. J. Pl. Sci.*, 5:1755-1762.
31. Thomas, P. and Upreti, R. (2014). Testing of bacterial endophytes from non-host sources as potential antagonistic agents against tomato wilt pathogen *Ralstonia solanacearum*. *Adv. Microbiol.*, 4:656-666.
32. Upreti, K. K., Shivuprasad, S. R., Reddy, Y. T. N. and Rajeshwara, A. N. (2014). Paclobutrazol induced changes in carbohydrates and some associated enzymes during floral initiation in mango (*Mangifera indica* L.) cv. Totapuri. *Ind. J. Pl. Physiology*, 19:317-323.
33. Vijayakumar, K. V., Gangappa, E., Nagaraju, N., Padmaja, A. S. and Pitchaimuthu, M. (2014). Comparative transmission, varietal reaction and management of yellow vein mosaic virus in okra. *J. Mycol. Pl. Pathol.*, 44(3):274-281.

Popular Articles

1. Bhuvaneshwari, S. and Narayana, C. K. (2014). Corrugated fiber board (CFB) boxes - an ideal package for long distance transportation of tropical fruits. *Vatika, spring-2014-(I)*, pp.35-37.
2. Rajiv Kumar, Manjunatha Rao, T. and Janakiram, T. (2014). Arka Aadya and Arka Archana: new China aster varieties. *Ind. Hort.*, 59(5): 13-14.
3. Saju George, Suresh, S. C., Prabhakara, B. (2014) Success story on piggery. *The Hindu, Science & technology - farmers' notebook section*, 21.08.2014.
4. Tripathi, P. C., Sankar, V. and Senthilkumar, R. (2014). Off season litchi cultivation in Coorg.

Coffee land news, Oct. 2014. pp. 7-8.

5. Veerendramkumar, K. V., Prabhakara, B. and Saju George (2014). Pest and disease management in Coorg mandarin. *Raitha Mitra, Kannada monthly*.

Books / Chapters in Books

1. Dinesh, M. R., Vasudeva, R., Shailendra Rajan, Sanjay Kumar Singh, Singh, I. P., Gajanana, T. M., Vinoth, S., Reddy, BMC, Parthasarathy, V. A. and Bhuvon Sthapit. (2014). Custodians of tropical fruit tree genetic resources in India, NPMU, UNEP-GEF Project on TFT, IIHR, Bengaluru.
2. Girija Ganeshan, Chethana, B. S., Archana S. Rao, Bellishree, K. and Chowdappa, P. (2014) Diseases of onion. *In: Diseases of vegetable crops: diagnosis and management*, Today and Tomorrow printers and publishers, pp: 15-565,
3. Lawande, K. E. and Tripathi, P. C. (2014). Garlic. *In: Managing Post-harvest Quality and Losses in Horticultural Crops*. Chadha, K. L. and Pal, R. K. (Eds.) Vol 3:643-63, Daya Publishing House, New Delhi.
4. Narayana, C. K. (2015). Banana, *In: Managing Post-harvest Quality and Losses in Horticultural Crops*. Vol.2. Fruit Crops, Chadha, K. L. and Pal, R. K. (Eds.), Daya Publishing House, New Delhi. pp. 291-317.
5. Sudhakar Rao, D. V. (2014). Technological advances in packaging of horticultural produce. *In: Horticulture for Inclusive Growth*. Chadha, K. L., Pritam Kalia and Singh, S. K. (Eds.). Westville Publishing House, New Delhi, pp: 605-621. ISBN: 978-93-83491-23-0.
6. Upreti, K. K. (2014). Plant growth regulators in horticultural crops: global advances and potential use in India. *In: Horticulture for Inclusive Growth*. Chadha, K. L., Pritam Kalia and Singh, S. K. (Eds.). Westville Publishing House, New Delhi, pp.345-358.
7. Vasugi, C., Dinesh, M. R., Ravishankar, K. V. and Chithiraichelvan, R. (2014). *Ex-situ* conservation and evaluation: a method for selection of indigenous varieties of mango. *In: Perspectives on biodiversity of India*. Vol. I, Biju Kumar *et al.* (Eds.), CISSA, pp.258-265.

Extension Folders / Technical Bulletin

1. Sankar, V., Tripathi, P. C., Karunakaran, G. and Senthil Kumar, R. (2014). Pummelo, Chettalli, Kodagu, Karnataka, Tech. Bullt. 8/2014, pp.10.
2. Senthil Kumar, R., Tripathi, P. C., Sankar, V. and Karunakaran, G., (2014). Kokum-a potential fruit of Western Ghats. Chettalli, Kodagu, Karnataka, Tech. Bullt. 6-/2014, pp.10.

3. Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V. and Senthil Kumar, R. (2014). Rambutan cultivation in India. Chettalli, Kodagu, Karnataka, Tech. Bullt. 1/2014, pp.18.
4. Tripathi, P. C., Prabhkara, B., Veerendrakumar, K. V. and Suresh, S. C. (2014). Documentation of ATMA activities–Kodagu KVK experience. pp. 1-22.
5. Tripathi, P. C., Karunakaran, G., Sankar, V. and Senthil Kumar, R. (2014). Karonda - a potential fresh fruit of future. Chettalli, Kodagu, Karnataka. Tech. Bullt. 7/2014, pp.14.
6. Tripathi, P. C., Karunakaran, G., Sankar, V. and Senthil Kumar, R. (2014). Dragon fruit-nutritive and ruminative fruit. Chettalli, Kodagu, Karnataka. Tech. Bullt. 11/2014, pp.10.
7. Tripathi, P. C., Karunakaran, G., Sankar, V. and Senthil Kumar, R. (2014). Prospectus of off season litchi cultivation in Coorg. Chettalli, Kodagu, Karnataka. Tech. Bullt. 4/2014, pp.10.
8. Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V. and Senthil Kumar, R. (2014). Avocado cultivation in India. Chettalli, Kodagu, Karnataka, Tech. Bullt. 2/2014, pp.18.
9. Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V. and Senthil Kumar, R. (2014). Passion fruit cultivation in India. Chettalli, Kodagu, Karnataka, Tech. Bullt. 3/2014, pp.18.
10. Tripathi, P. C., Sankar, V. and Senthil Kumar, R. (2014). Sour Sop - an emerging fruit of future. Chettalli, Kodagu, Karnataka. Tech. Bullt. 5/2014, pp.14.

Proceedings / Abstracts / Souvenirs

1. Tripathi, P. C., Sankar, V., Senthilkumar, R. and Karunakaran, G. (2014). Souvenir and Abstracts, National seminar on strategies for conservation, improvement and utilization of underutilized fruits, CHES, Chettalli, December 01-03, 2014. pp.419.

Paper Presented in Seminar / Symposium / Conferences etc.

International Research Conference on Incubation and Regional Development, Toulouse Business School, Toulouse, France, 23rd October 23, 2014.

- Sudha Mysore, Ganeshan, S, Krishnamoorthy, A., Sivakumar, P. and Kavitha, M. - Business incubators and incubation policies and approaches for enhanced regional development: a case study of horticulture in India.

3rd International Conference on Agricultural

and Horticultural Sciences (Agri-2014) OMICS Group Conferences, Los Angeles, CA, USA, Hyderabad, October 27-29, 2014.

- Bhuvaneswari, S. - Effect of packaging film of different thicknesses on shelf life and quality of minimally processed onion.
- Gourishankar, S., Mohapatra, S., Lekha, S. and Radhika, B. - Persistence of fluopicolide on cauliflower under semiarid climatic conditions.
- Keshava Rao, V., Madhavi Reddy, K. and Bujjibabu, C. S. - Genotypic variability in color, pungency and antioxidant activity among chilli genotypes.
- Lekha, S., Mohapatra, S., Gourishankar, S. and Radhika, B. - Persistence and degradation of spiromesifen in cabbage and soil.
- Mohapatra, S. - Dynamics of difenoconazole and propiconazole residues on pomegranate over a period of 2 years under field conditions.
- Radhika, B., Mohapatra, S., Lekha, S. and Gourishankar, S. - Behaviour of flubendiamide insecticide in grapes and soil.
- Raghupathi, H. B. and Srinivas, S. - Spatial variability studies in mango for identification of nutrient imbalance using GIS technique.
- Rajiv Kumar, Gayatri Khangjarakpam, Manjunatha Rao, T. and Dhananjaya, M. V. - Genetic variability for quantitative traits in China aster.
- Varalakshmi, L. R. - Effect of different fertigation by drip irrigation on growth, yield, soil and leaf nutrient status of tomato.

6th Indian Horticulture Congress organized by the Horticultural Society of India, New Delhi at TNAU, Coimbatore, November 06-09, 2014.

- Dinesh, M. R. - Breeding strategies for important fruit crops.
- Karunakaran, G., Prasath, D., Tripathi, P. C., Senthil Kumar, R. and Sankar, V. - Nutritional and unexploited indigenous vegetables of Kodavas in Western Ghats, Coorg.
- Meera Pandey - Introduction and acclimatization of new culinary medicinal mushrooms for India.
- Pitchaimuthu, M., Krishna Reddy, M., Sreenivasa Rao, E., Nageshwari, K. and Bharathi, L. K. - Screening advanced lines and wild species of okra for resistance to yellow vein mosaic virus in natural hotspots.
- Sadashiva, A. T., Krishna Reddy, M., Ravishankar, K.V., Girija Ganeshan, Gopalakrishna, Madhavi Reddy, K., Singh, T. H., Dominic P D'mello, Punith

Kumar, R., Amrutha Sindhu, B., Shwetha, N., Aradana Singh and Kashinath, B. L. - Breeding tomato (*Solanum Lycopersicum* L.) for triple disease resistance to tomato leaf curl virus, bacterial wilt and early blight.

- Sadashiva, A. T., Shivashankar, K. S., Rao, V. K., Ravishankar, K. V., Kavitha, P. and Shilpa, P. - Breeding tomato (*Solanum lycopersicum* L.) for high nutritive value.
- Sankar, V. and Tripathi, P. C. - Feasibility and economic viability of vegetable cultivation in rice fallow areas of Kodagu.
- Sankar, V., Tripathi, P. C., Sadashiva, A. T. and Aghora, T. S. - Performance evaluation of improved vegetables varieties of IIHR under hilly region of Coorg conditions.
- Singh, T. H., Sadashiva, A. T. and Madhavi Reddy, K. - Breeding for resistance to bacterial wilt (*Ralstonia solanacearum*) in eggplant (*Solanum melongena* L.).
- Sudhakar Rao, D.V. - Technological advances in packaging of horticultural produce.
- Tripathi, P. C., Karunakaran, G., Sankar, V. and Senthil Kumar, R. - Evaluation of kokum collections for yield and quality under humid tropics conditions of Western Ghats.
- Tripathi, P. C., Sankar, V. and Senthil Kumar, R. - Status and scope of cultivation of humid tropical underutilized fruits in India.
- Upreti, K. K. - Plant growth regulators in horticultural crops: global advances and potential use in India.
- Varalakshmi, B., Chowdappa, P., Krishnamurthy, D. and Sanna Manjunath, K. S. - Reaction of ridge gourd advanced selections against downy mildew.
- Vasugi, C. - Evaluation of intergeneric hybrid progenies of papaya for PRSV tolerance.

7th National Extension Education Congress-2014 on Translational Research-Extension for Sustainable Small Farm Development organized by Society of Extension Education, Agra, ICAR Research Complex for NEH Region, Umiam, Meghalaya, November 08-11, 2014.

- Loganandhan, N. - Post adoption behavior of farmers towards soil and water conservation technologies in a semi-arid watershed.

National Symposium on Agriculture Diversification for Sustainable Livelihood and Environmental Security organized by Indian Society of Agronomy, New Delhi at Punjab Agricultural University, Ludhiana, November

18-20, 2014.

- Manjunath, B. L. - Sources of nutrients in influencing the organic rice yield and the economics.

8th International Conference on Mushroom Biology and Mushroom Products, New Delhi, November 19-22, 2014.

- Meera Pandey and Veena, S. S. - Conservation and characterization of *Pleurotus* variability of India.
- Ramakrishna, M., Veena, S. S., Rajeshbabu, D., Meera Pandey and Nageswara Rao, G. - Comparative study on bioactive constituents and biological, activities of indigenous cultivated strains of *Ganoderma lucidum*.
- Saikiran, M., Meera Pandey and Rajeshbabu, D. - *In vitro* antioxidant properties of cultivated edible mushroom *Agrocybe aegerita*.

Seminar-Cum- NRDC Industry Interaction Meet on Technology Transfer- Innovation is Key to Change, organized by NRDC in association with Tamil Nadu Technology Development & Promotion Centre (TNTDPC) of CII, Chennai Chapter at Chennai, November 21, 2014.

- Sudha Mysore - Technologies developed by IIHR and ready for commercialization by the industries.

79th Annual convention of Indian Society of Soil Science, Hyderabad, November 24-27, 2014.

- Panneerselvam, P., Ganeshamurthy, A. N., Selvakumar, G., Ragini, S. and Saritha, B. - *Bacillus aryabhattai* inoculation improves the zinc content of French bean.
- Satisha, G.C. and Ganeshamurthy, A. N. - Micronutrient status of soils and plants in mango orchards of different agro-ecological regions of Karnataka.

National Seminar on Conservation, Improvement and Utilization of Underutilized Fruits, CHES, Chettalli, December 01-03, 2014.

- Anuradha Sane, Shetti, D. L. and Ganeshan, S. - Morphological and molecular characterization of Governor's Plum (*Flacourtia montana* J. Graham) - a less known fruit.
- Attri, B. L. and Tripathi, P. C. - Under exploited and nutritionally rich wild fruits of Uttarakhand.
- Chandrakant Awachare Madhav - Biochemical profiling in pomegranate (*Punica granatum* L.) cv. Bhagwa.
- Deepa Samant - Prospects of preservation of Star gooseberry (*Phyllanthus acidus* Skeels) as *Murabba*.

- Ganeshan, S. - Genetic resource management of underutilized fruits of Western Ghats.
- Ganga Visalakshy, P. N., Swathi, C., Darshana, C. N. and Pillai, G K. - Prospects of biological control of *Helopeltis antonii* Signoret by using entomopathogen *Beauveria bassiana*.
- Jayalakshmi, K., Raju, J., Sangeetha, K. D. and Priti, S. Sonavane - Post harvest diseases of Rambutan (*nepheliumlappaceum L.*).
- Jayanthimala, B. R., Sunanda Sanganal and Tripathi, P. C. - Pollinators diversity and their roll in pollination of Rambutan.
- Karunakaran, G., Tripathi, P. C., Sakthivel, T., Ravishankar, H., Sankar, V. and Senthil Kumar, R. - Evaluation of kokum accessions for yield and quality traits in high rainfall zone of Kodagu.
- Karunakaran, G., Tripathi, P. C., Sakthivel, T., Ravishankar, H., Sankar, V. and Senthil Kumar, R. - Evaluation of avocado accessions for yield and quality traits.
- Karunakaran, G., Tripathi, P. C., Sakthivel, T., Sankar, V. and Senthil Kumar, R. - Dragon fruit - a new introduction crop to India: a potential market with promising future.
- Karunakaran, G., Tripathi, P. C., Sankar, V., Sakthivel, T. and Senthilkumar, R. - Inspirational and successful growers: growing high value tree fruits of exotic origin.
- Kundan Kishore and Singh, H. S. - Status and potential of underutilized fruits in Eastern tropical region of India.
- Mandal, M. - Insect pests of tropical and sub-tropical underutilized fruits.
- Murthy, B. N. S. - The quest to develop pomegranates cultivars for alimentation, sustenance and entrepreneurship: intricacies and accomplishments.
- Narayana, C. K. and Shamina Azeez - Postharvest management and value addition of tropical and subtropical under-utilized fruits.
- Priti, S. Sonavane, Saxena, A. K. and Tripathi, P. C. - Major fungal diseases in Rambutan: causes, status and need based management.
- Raju, J., Jayalakshmi, K., Priti, S. Sonavane and Sangeetha, K. D. - Avocado-pre and post-harvest diseases and their control.
- Reddy, P. V. R., Shivaramu, K., Achala Paripoorna K, Prakash Patil and Suryanarayana, M. A. - Scope of host plant resistance in selected under-utilized fruit crops: an appraisal of germplasm evaluation.
- Reddy, T. M. - Factors determining cultivation of underutilized fruits in Coorg region.
- Reddy, T. M. - Marketing of underutilized fruits in Coorg region.
- Rekha, A. and Anuradha Sane - Polyembryony among jamun (*Syzygium cumini* (L.) Skeels) accessions.
- Sangeetha, K. D., Jayalakshmi, K., Raju, J. and Priti, S. Sonavane - Anthracnose of Carambola – a menace in quality fruit production.
- Sangeetha, K. D., Priti, S. Sonavane, Jayalakshmi, K. and Raju, J. - Phytophthora root rot – a serious menace in avocado.
- Sankar, V., Tripathi, P. C., Karunakaran, G., Sakthivel, T., Ravishankar, H. and Senthil Kumar, R. - Evaluation of elite pummelo (*Citrus maxima*) lines for yield and yield contributing parameters and fruit quality under Coorg conditions.
- Sankar, V., Tripathi, P. C., Karunakaran, G., Sakthivel, T., Ravishankar, H. and Senthil Kumar, R. - Evaluation of Malayan apple (*Syzygium-malaccense*) lines for growth, yield and fruit quality.
- Senthil Kumar, R., Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V. and Ravishankar, H. - Characterization of malabar tamarind (*Garcinia gummigutta L.*) accessions at Kodagu region.
- Senthil Kumar, R., Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V. and Ravishankar, H. - Characterization of yellow mangosteen (*Garcinia xanthochymus Hook.*) accessions at Kodagu region.
- Shivaramu, K., Rekha, A. and Anuradha Sane - Screening of jamun (*Syzygium cumini*) germplasm against leaf damage by insect pests.
- Singh, H. S. - Reaction of Apm; a (*Emblcia officinallis* Gaertn.) varieties to Shoot Gall Maker *Betousa stylophora* (Swinhoe) (Thyrididae: Lepidoptera) in Eastern India.
- Singh, H. S. and Mandal, S. - Insect pests of tropical and sub-tropical underutilized fruits.
- Tiwari, R. B., Sarojini Jalali and Tripathi, P. C. - Dehydrated processed products from underutilized fruits work done at IIHR.
- Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V., Senthil Kumar, R. and Ravishankar, H. - Evaluation of rambutan accessions under humid tropical conditions of Western Ghats.
- Tripathi, P. C., Karunakaran, G., Sakthivel, T., Sankar, V., Senthil Kumar, R. and Ravishankar, H. - Studies on variability in morphological and physico-chemical characters of karonda.
- Uthaiiah, B. C., Tripathi, P. C., Sankar, V. and Senthil Kumar, R. - Under exploited fruits of Western Ghats.
- Utpala Parathasarathy, Nand Kishore, O. P.,

Senthil Kumar, R. and Nirmal Babu, K. - The nutrient profile of important *Garcinia* species of India.

- Yogeesh, H. S. - Seed germination studies in *Baccaurea courtellensis*-Muell Arg. - a threatened under-utilized fruit species of Western Ghat region.

National Seminar-cum-Exhibition on Pomegranate for Nutrition, Livelihood Security and Entrepreneurship Development jointly organized by ICAR-National Research Centre on Pomegranate, Solapur and Society for Advancement of Research on Pomegranate, Solapur, December 05-07, 2014.

- Chandrakant Awachare Madhav - Biochemical profiling in pomegranate (*Punica granatum* L.) cv. Bhagwa.
- Murthy, B. N. S. - The quest to develop pomegranates cultivars for alimentation, sustenance and entrepreneurship: intricacies and accomplishments.
- Panneerselvam, P. and Ganeshamurthy, A. N. - Microbial consortium and their role on pomegranate plant health management.
- Prakash Patil and Najeeb Naduthodi -Advances in jackfruit production technology.
- Sudhakar Rao, D. V. and Narayana, C. K. - Post harvest management of pomegranate fruits.

Mango Seminar organized by KVK, Gangavathi, Koppal, Karnataka at Gangavathi ARS/KVK campus, December 09, 2014.

- Reddy, Y. T. N. - High density planting technology in mango.

Workshop on Medicinal Plants Role of State Forest Departments in Conservation, Cultivation, Harvesting, Marketing and Benefits Sharing by the Communities' for the Senior Officers of the Indian Forest Service, Kerala Forest Research Institute, Thrissur, December 09-10, 2014.

- Rajasekharan, P. E. - Conservation of RET medicinal plants.

National Seminar on Extension Management Strategies for Sustainable Agricultural Challenges and Opportunities, Agricultural College and Research Institute, TNAU, Madurai, December 12-13, 2014.

- Venkattakumar, R. - Attracting rural youth and fostering entrepreneurship in agriculture: lessons for Indian agricultural universities.
- Narayanaswamy, B. -

1. An effectiveness of participatory extension approach for IPM technologies.

2. An analysis of self-help group members for their constraints.

National Symposium on Plant Diseases: New Perspectives and Innovative Management Strategies, UAS, Dharwad, Karnataka, December 11-12, 2014.

- Priti, S. Sonavane and Prameela Devi, T. - A Comparative taxonomic study employing morphological and molecular method for re-evaluation of *Helmintho sporium* species complex.

Indo-German Bilateral Meeting on PPV & FRA at NASC Complex, New Delhi, December 16-12, 2014.

- Sadashiva, A. T. - Status report on DUS testing in vegetable crops.

National Seminar on Present Scenario and Future Strategies for Processing and Value Addition organized by CIPHET, Ludhiana, December 19-20, 2014.

- Narayana, C. K. - Strategies to reduce processing wastes from fruit and vegetable processing industries and adding value.

National Dialogue on the Occasion of 25 years of Achievements of Horticulture Research and Development - The Way Forward organized by NAAS, New Delhi, December 26-27, 2014.

- Ganeshan, S. - Cryo-preservation in horticultural crops.
- Murthy, B. N. S. - ICT in horticulture.
- Sudha, M. - Commercialization of horticultural technologies.

HONOURS/RECOGNITIONS/AWARDS

- The ICAR- Indian Institute of Horticultural Research, Bengaluru was awarded the Best Stall during the Kisan Mela – 2014 organized by UAS, Bengaluru during November 17- 21, 2014 at GKVK campus, UAS, Bengaluru.
- The ICAR- Indian Institute of Horticultural Research, Bengaluru bagged the Overall Champion with 74 points in the ICAR South Zone Sports Meet held at Bengaluru during October 13-17, 2014. This is the fourth consecutive time that the Institute has bagged the Overall Champion during the ICAR South Zone Sports Meet.
- The Central Horticultural Experiment Station, Chettalli was awarded First prize in National Citrus Diversity Fair-2014 held at NRCC, Nagpur during October 30-31, 2014.

- The Krishi Vigyan Kendra, Hirehalli was awarded Best KVK Professional Award during the 7th National Extension Education Congress held at ICAR, RC, NEH, Barapani, Meghalaya Barapani during November 08-11, 2014. Dr. Loganandan, N. received the Award on behalf of the KVK.
- Dr. Sadashiva, A. T. was awarded with Dr. Kirthi Singh Gold Medal-2014 during the 6th Indian Horticulture Congress-2014 organized by the Horticultural Society of India, New Delhi held at TNAU, Coimbatore during November 06-09, 2014.
- Dr. Dinesh, M. R. was conferred Shri. Girdhar Lal Chadha Memorial Gold Medal Award in recognition of his outstanding contribution in the field of Fruit Science by The Horticultural Society of India during the '6th Indian Horticulture Congress 2014' organized by the Horticultural Society of India, New Delhi held at TNAU, Coimbatore during November 06-09, 2014.
- Dr. Venkattakumar, R. received 'Young Scientist Award' during the 7th National Extension Education Congress held at Barapani during November 08-11, 2014.
- Dr. Sudha Mysore was awarded Smt. Revati Singh Memorial Award for significant contributions to Horticulture & Social Sciences by Society for Recent Development in Agriculture (SRDA), Meerut.
- Dr. Narayana, C. K. has been nominated as RAC Member of ICAR-Indian Institute of Vegetable Research, Varanasi for a period of 3 years (2014 to 2017).
- Dr. Rajiv Kumar has been inducted as Fellow of Hind Agri-Horticultural Society (FHAS) in recognition of the significant contribution towards the advancement of Horticulture in Agricultural Sciences.
- Dr. Narayana, C. K. was invited as Expert to advice on Postharvest Technology & Food Technology research in IRC meeting of ICAR-Directorate of Cashew Research, Puttur, October 21, 2014.
- Dr. Murthy, B. N. S. acted as Subject Matter Specialist of Horticulture for accreditation and rating of horticulture nurseries initiated by NHB and visited nurseries in Bellary District along with the team, October 13, 2014.
- Dr. Meera Pandey acted as a Member, Organizing Committee of 8th International Conference on Mushroom Biology and Mushroom Products held during November, 19-22, 2014 in New Delhi.
- Dr. Tripathi, P. C. acted as Organizing Secretary for the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES, Chettalli during December 01-03, 2014.
- Dr. Sankar, V. and Dr. Senthil Kumar, R. acted as Co Organizing secretary for the National seminar on strategies for conservation, improvement and utilization of underutilized fruits, CHES, Chettalli, December 01-03, 2014.
- Dr. Rajasekharan, P. E. acted as member organizing Committee in the 3rd Biodiversity Congress, SRM University, Chennai.
- The research paper entitled "Breeding tomato (*Solanum lycopersicum* L.) for high nutritive value" by Sadashiva, A. T., Shivashankar, K. S., Rao, V. K., Ravishankar, K. V., Kavitha, P. and Shilpa, P. was awarded the Best Poster Paper at the 6th Indian Horticulture Congress held at Coimbatore during November 06-09, 2014.
- The research paper entitled "Nutritional and unexploited indigenous vegetables of Kodavas in Western Ghats, Coorg" by Tripathi, P. C., Sankar, V. and Senthil Kumar, R. was awarded the Best Poster Paper at the 6th Indian Horticulture Congress held at Coimbatore during November 06-09, 2014.
- The research paper entitled "An analysis's SHG members for their constraints" by Narayanaswamy, B. was awarded the Best Paper presentation award at the National Seminar on Extension Management Strategies for Sustainable Agriculture: Challenges and Opportunities held at TNAU- Madurai Campus during December 12-14, 2014.
- The research paper entitled "The nutrient profile of important *Garcinia* species of India" by Utpala Parathasarathy, Nandkishore, O. P., Senthilkumar, R. and Nirmal Babu, K was awarded the Best Poster Paper presentation award at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- The research paper entitled "Inspirational and successful growers: growing high value tree fruits of exotic origin", by Tripathi, P. C., Dr. Sankar, V. and Senthil Kumar, R. was awarded the Best Poster Paper presentation award at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- The research paper entitled "Studies on variability in morphological and physico-chemical characters of karonda" by Tripathi, P. C., Sankar, V. and Senthil Kumar, R. was awarded the Best Poster Paper presentation award at the National seminar on strategies for conservation, improvement and

utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.

- Dr. Venkatta Kumar, R. acted as Chairman for one of the sessions at the National Seminar on Extension Management Strategies for Sustainable Agriculture: Challenges and Opportunities held at TNAU- Madurai Campus during December 12-14, 2014.
- Dr. Praksh Patil acted as Co-chairman for a technical session on Post-harvest management and value addition at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- Dr. Anuradha Sane acted as Rapporteur for the technical session on Production technology of major underutilized fruits/tree spices at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- Dr. Vasugi, C. acted as Rapporteur for the technical session on Genetic resources, diversity, conservation and utilization of underutilized fruits at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- Dr. Najeeb Naduthodi acted as a Rapporteur for the technical session on Status of underutilized fruits and tree species with special emphasis on Western Ghats at the National seminar on strategies for conservation, improvement and utilization of underutilized fruits held at CHES Chettalli during December, 01-3, 2014.
- Dr. Singh, H. S., was invited as Chief Guest for the Hindi Seminar held at CIFA, Bhubaneswar on October 10, 2014.
- Dr. Girija Ganeshan was invited as Guest of Honour and inaugurated "INFINIA", the infotainment at Soundarya Group of Institutions, Havanoor Extension, Hesaraghatta Main Road, Bengaluru held on November 20, 2014.

Personalia

New Entrant

- Ms. Meenukumari, Scientist, reported to duty at CHES, Bhubaneswar w.e.f.13.10.2014 (FN) on completion of FOCARS training.

Promotion

Administrative Staff

- Mr. Mohan, C. M. Asst. has been promoted to the post of Asst. Administrative Officer at CHES, Chettalli w.e.f.04.10.2014.

- Mr. Praveen, D. LDC has been promoted to the post of Upper Division Clerk w.e.f. 20.12.2014.(FN)

Transfer

Scientific Staff

- Dr. Satisha, J. Principal Scientist (Hort. Sci.) has been transferred from ICAR-National Research Centre for Grapes, Pune to ICAR- IIHR, Bengaluru w.e.f.01.12.2014 (FN) and posted in Div. of Fruit Crops.
- Dr. Ravishankar, H. Principal Scientist has been transferred from ICAR-Central Institute for Subtropical Horticulture, Lucknow to IIHR, Bengaluru w.e.f. 04.10.2014. (FN)
- Mr. Kalaivanan, D. Scientist has been transferred from ICAR- DCR-Puttur to IIHR, Bengaluru w.e.f.17.11.2014 (FN) and posted in the Div. of Soil Science and Agrl. Chemistry.

Administrative Staff

- Mrs. Rama, S., Adm. Officer has been transferred from ICAR-IIHR, Bengaluru to ICAR-NBAII, Bengaluru w.e.f. 01.12.2014(AN)
- Mr. Das, J. N. L., AO has been transferred from ICAR-NBAII, Bengaluru to ICAR-IIHR, Bengaluru w.e.f. 08.12.2014.(FN)
- Mr. Rajanna, A. Technician, has been transferred from ICAR-IIHR, Bengaluru to IIHR-CHES, Chettalli.

Superannuation

- Dr. Krishnamoorthy, P. N., Principal Scientist, IIHR, Bengaluru retired from council service w.e.f. 31.12.2014(FN).
- Mr. Kishore Kumar, N., TO (Comp-Lab), IIHR, Bengaluru retired from council service w.e.f. 31.12.2014(FN).
- Mr. Hanumantharayappa, STO, IIHR, Bengaluru retired from council service w.e.f.31.12.2014 (FN).
- Mrs. Kasturi, Skilled Support Staff, IIHR, Bengaluru retired from Council Service w.e.f. 31.10.2014(FN).

Miscellaneous

- Dr. Akella Vani has been selected as Head, Div. of Biotechnology by ASRB, New Delhi and taken over the charge w.e.f 20.10.2014(AN)
- Dr. Sadashiva, A. T. has been selected as Head, Div. of Veg Crops by ASRB, New Delhi and taken over the charge w.e.f. 01.11.2014(AN)
- Dr. Harinder Singh Oberai has been selected as Head, Div. of PHT by ASRB, New Delhi and taken over the charge w.e.f. 17.11. 2014 (FN)

VISITORS

IIHR, Hesaraghatta, Bengaluru

- Shri C. Basavaiah, former Managing Director, Karnataka Compost Development Corporation, Bengaluru (02.10.2014).
- Mrs. Chaya Nanjappa, Nector Fresh Honey, Dr. Geetha Suresh, Novel Biotech, Bengaluru and Mrs. Susheelamma, Sumangali Sevashram, an NGO, Bengaluru (12.12.2014)
- Dr. Hanchinal, R. R., Chairman (PPV & FRA), New Delhi, Dr. Manoj Srivastava, Registrar (Field crops), PPV & FRA and Dr. Tejbir Singh, Registrar (Horticulture), PPV & FRA (08.10.2014).
- Dr. Dutta, O. P. Former Head, Division of Vegetable Crops, ICAR- IIHR, Bengaluru (25.10.2014).
- Dr. Palli Subba Reddy, Insect Physiologist, University of Kentucky, USA (09.12. 2014).

CHES, Chettalli

- Dr. Janakiram, T. ADG, (Hort), ICAR, New Delhi (01.12.2014).
- Dr. Manjunatha Rao, T, Director, ICAR-IIHR, Bengaluru (01.12.2014).
- Dr. Parthasarathy, V. A. National Coordinator TFT Project. (01.12.2014).
- Dr. Sharma, S. K. Director, ICAR-CIAH, Bikaner. (01.12.2014).
- Dr. Kumar, N. Former Dean, Hort, TNAU, Coimbatore. (01.12.2014).
- Dr. Saroj, P. L. Director, ICAR-DCR, Puttur. (01.12.2014).
- Dr. Vishal Nath, Director, ICAR-NRC for Litchi, Muzzafarpur. (01.12.2014).
- Dr. Korikanthimath, former Director, ICAR Research Complex for Goa. (01.12.2014).
- Dr. Chowdappa, P. Director, ICAR-CPCRI,

For further details contact:

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Kasargod. (01.12.2014).

- Dr. Pandey, G S. Director, Agril, Andaman & Nicobar. (01.12.2014).
- Dr. Ramanath Rao, Bioersity International (01.12.2014).
- Dr. Uthaiah, B. C., Ex Dean College of Forestry, Ponnampet (01.12.2014).
- Dr. Deka, B. C., Joint Director, ICAR - NEH, Barapani (01.12.2014).

CHES, Bhubaneswar

- Dr. Pandey, S. N. Ex-ADG, ICAR, New Delhi (30.10.2014).
- Dr. Neelam Grewal, Director, Directorate of Research on Women in Agriculture, Bhubaneswar, Dr. (Mrs.) Meena Senapati, Director, Centre for Plant Tissue Culture and Biotechnology, Bhubaneswar, Mrs. Anupama Raut of Joint Endeavour for Emancipation and Tribal Awareness (JEETA) – Land Entitlement for Tribal Women, Deogarh, Odisha (04.12.2014)
- Justice B. P. Ray and Justice Pujaharhi, S., Orissa High Court (15.11.2014).
- Dr. Mishra, B. K., Dean, OUAT, Bhubaneswar (17.11.2014).
- Dr. Anand Prakash, Secretary, AZRA, Bhubaneswar (17.11.2014).
- Dr R. S. Mishra, Head, RC-CTCRI, Bhubaneswar (17.11.2014).
- Prof. Akhtar Haseeb, Vice Chancellor, NDUAT, Faizabad (24.11.2014).
- Mr. Nanda, S. Director, Directorate of Horticulture, Govt. of Odisha (19.12.2014).

KVK, Gonikoppal

- Dr. T. Manjunatha Rao, Director, ICAR-IIHR, Bengaluru (21.10.2014)
- Dr. B. T. Rayudu, Principal Scientist, ZPD, Bengaluru (21.10.2014)

Obituary

The staff members of ICAR-IIHR, Bengaluru mourn the sad demise of **Mr. Siddanjanappa, M.** Senior Technical Officer (Driver-Workshop) who passed away on November 09, 2014