



# ICAR-IIHR



## Newsletter

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### Contents

#### Research Highlights

- ★ Development of advanced breeding lines
- ★ New product developed
- ★ Extension of storage life of colour capsicum by shrink wrapping of CFB boxes
- ★ Cause of jelly seed disorder in Amrapali mango discovered
- ★ Soilless cultivation of tomato hybrid Arka Rakshak on Arka fermented Cocopeat

#### News and Events

- ★ First South Horticulture ZTMC Annual Review Meeting "HortIP-2016"
- ★ Group Discussion of ICAR-AICRP on Fruits
- ★ Interactive meet of Karnataka Pomegranate Growers and Technical Experts
- ★ Plant Varieties Protection and Farmers Right Act (PPV&FRA) Awareness Programme
- ★ Rabi Awareness Programme
- ★ Scientific Advisory Committee Meetings
- ★ Awareness Programme on Nutritional Gardening
- ★ One Day Interactive Meeting
- ★ ICAR-IARI Outreach Programme Launched at ICAR-IIHR

#### Human Resources Development

#### Transfer of Technology

#### Distinguished Visitors

#### Awards and Recognitions

#### Personalia

### Hearty Welcome to

## Dr. Trilochan Mohapatra,

Secretary, Department of Agricultural Research and Education (DARE), GoI and Director General, ICAR

Dr. Trilochan Mohapatra took over charge as Secretary, DARE and Director General, ICAR on Feb 22, 2016 from Dr. S. Ayyappan. Dr. Mohapatra was born on Apr. 20, 1962 at Kharibil village, Cuttack District, Odisha. He completed his B.Sc. (Agriculture) from OUAT, Bhubaneswar in 1985, M.Sc. and Ph.D. in Genetics from Indian Agricultural Research Institute, New Delhi in 1987 and 1992 respectively.

As a post graduate teacher and research scientist working in the area of plant molecular genetics and genomics at the National Research Centre on Plant Biotechnology, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India for over 20 years, he made several notable contributions before taking over as the Director of ICAR-National Rice Research Institute (Formerly CRRI), Cuttack, Odisha. Later, he served as the Director, ICAR-Indian Agricultural Research Institute, New Delhi from 2015.

Dr. Mohapatra has published more than 150 research papers in highly reputed national and international journals. During his long and fruitful career in the Council, he has made significant research contributions including the development of the first high yielding bacterial leaf blight resistant Basmati rice variety, mapping and genome sequencing of rice and tomato. Dr. Mohapatra has the rare distinction of being a Fellow of three science academies of India including the Indian National Science Academy, New

Allahabad and the National Academy of Agricultural Sciences, New Delhi. In



recognition of his outstanding contributions, Dr. Mohapatra has received several honours and prestigious awards viz., INSA Young Scientist Award, Prof. LSS Kumar Memorial Award, NAAS-Tata Award, IARI BP Pal Award, DBT Bio-science Award and NASI-Reliance Industries Platinum Jubilee Award. He is also the recipient of the National Academy of Agricultural Sciences award for the biennium 2013-14 for his outstanding contributions in plant improvement and Lifetime Achievement Award of the Indian Genetics Congress in recognition of his brilliant contributions in the field of plant genetics.

The Director and Staff of ICAR-IIHR wish Dr. Trilochan Mohapatra the very best in his present assignment and look forward to receiving his valuable support, guidance and leadership in all the activities of the institute.





### Dr. M. R. Dinesh takes over charge as Director, ICAR-IIHR, Bengaluru

Dr. Makki Ramachandra Dinesh, has assumed charge as Director, ICAR- Indian Institute of Horticultural Research, Bengaluru on Feb 10, 2016. Dr. M.R. Dinesh was born on May 5, 1959 in Kodagu district of Karnataka, India. After completing his doctorate in horticulture from the University of Agricultural Sciences, Bengaluru, he joined the Agricultural Research Service of ICAR in 1986 as Scientist S1 in the Division of Fruit Crops at ICAR-IIHR, Bengaluru. Before assuming the charge as Director, Dr. Dinesh served as the Head, Division of fruit crops at ICAR-IIHR, Bengaluru. In his long and illustrious career at ICAR-IIHR for nearly three decades, Dr. Dinesh developed and released two gynodioecious varieties of papaya viz., 'Arka Surya' and 'Arka Prabhat', and the pink pulp, dual-purpose guava variety, 'Arka Kiran' which have become highly popular throughout the country. He was also closely associated with the development of the guava variety 'Arka Mridula' and the mango variety 'Arka Udaya'. Dr. Dinesh has handled several externally aided projects during his career and has published more than 50 research papers on fruit breeding in highly reputed national and international journals. He has authored five catalogues, two books and several chapters on fruit breeding.



The staff of ICAR-IIHR wish him all success in his new assignment.



## IN FOCUS

### Conservation and Management of Horticultural Plant Genetic Resources

In recent years, there has been an increasing global concern over loss of genetic resources of crop plants. In this context, a great deal of effort has gone on in the last two decades to conserve the depleting genetic resources in the country. The work on conservation of genetic resources was initiated at ICAR-IIHR in the early eighties following which the Division of Plant Genetic Resources at ICAR-IIHR, Bengaluru has been designated as the Nodal Centre for Horticultural Genetic Resources in the country by the Council.

The institute holds a germplasm wealth of over 23,000 accessions of various fruit, vegetable, ornamental, medicinal and aromatic plant species which have been introduced through exploration missions across the country including the Andaman and Nicobar islands. Protocols have been optimized for short, medium and long term conservation of vegetable and ornamental seed materials. Long term cryogenic preservation of several horticultural crops has been accomplished and a pollen cryobank was established for the first time in India, which was featured in the Limca book of Records. Today the Institute holds the single largest collection of Nuclear Genetic Diversity in the form of pollen maintained in cryopreserved state for more than three decades.

The institute has well established field gene banks for most of the perennial horticultural crops especially fruits crops viz., mango (675 accessions), pomegranate (178), guava (60), papaya and potential underutilized fruits such as jackfruit, jamun etc. With the support of NATP, field gene banks of 5300 accessions of diverse plant species from the Western Ghats is also established. The institute also carries a huge germplasm collection of vegetables (over 5500 accessions) and ornamental crops (over 1000 accessions) in the form of seeds. While evaluation and

characterization of genetic resources was carried out in collaboration with the breeders of commodity based divisions, major thrust has been focused on ex situ conservation of seed and pollen.



#### Future thrust

Considering the fact that horticultural biodiversity is essentially needed for utilization in crop improvement by researchers and adaptation and sustainability needs of farming community, its conservation has been given top priority and the germplasm wealth has been enriched through regular collection and exploration missions. In order to put the genetic wealth to effective use, identification of germplasm with specific traits and their incorporation into cultivated crop plants needs attention especially in the context of changing climate scenario. In case of perennial horticultural crops, in situ conservation is being emphasised rather than relying upon field gene banks only. There is also a need to optimise protocols for in vitro conservation as a complement to other conservation strategies.







### Research Highlights

#### Development of advanced breeding lines

- Four advanced breeding lines of tomato viz., ToLCVR4-F3-188-1-1, TV-55, ToLCVR4-F3-38-1-1 and ToLCVR4-F3-206-2-1, developed at ICAR-IIHR, Bengaluru were found resistant to ToLCNDV when evaluated at ICAR-IIVR, Varanasi.
- Two tomato plant selections viz., BC1F1 17-143-7-2 with high lycopene content (13.5 mg/100g FW) and BC1F1 25-206-82-2 with high  $\beta$ -carotene content (15.64 mg/100g FW) have been developed through interspecific hybridization between 15 SB SB x *Solanum habrochaites* LA-1777



Tomato breeding line with high lycopene content

- Two elite lines of *Centella asiatica*, IIHR-CA-1 and IIHR-CA-13 were identified for high biomass yield and higher levels of active ingredients respectively.
- Three pure lines of China aster viz., IIHR CC 5-1, IIHR J 3, IIHR G 13 have been developed for cut flower purpose and stabilized.



IIHR CC 5-1



IIHR J 3



IIHR G 13

- Sixteen interspecific F4 lines (*S. macrocarpon* X *S. melongena*), have been identified for resistance to Brinjal Shoot and Fruit Borer (BFSB) and yield parameters.

#### New product developed

A liquid and talc based formulation of *Bacillus subtilis* (IIHR BS-2, NAIMCC – B-01211) has been developed. It is highly effective against eggs and juveniles of root knot nematodes (*Meloidogyne incognita*) infecting horticultural crops with a killing efficiency of up to 90.2%. It also recorded a yield increase of 26.5% in okra, 19.2% in tomato and 22% in banana. This formulation has a shelf life 10-11 months. The necessary toxicology data for this product has been generated.



Liquid and talc based formulation of *Bacillus subtilis*

#### Extension of storage life of colour capsicum by shrink wrapping of CFB boxes



Shrink wrapping of corrugated fiber board boxes

Capsicum tends to lose water very rapidly and the produce becomes unmarketable within 2 to 3 days. To reduce the moisture loss and maintain harvest freshness, colour capsicum can be packed in corrugated fiber board boxes and overwrapped by shrink wrapping technology using semi permeable films. Yellow and red colour capsicum packed in this manner could be stored for 11 and 8 days, respectively at ambient temperature (26-32°C) with a weight loss of 5-6%, compared to 14-20% weight loss in non-wrapped capsicum during the same period. The storage life could be further extended to 5 weeks by storing the shrink wrapped boxes at 8°C with a weight loss of < 5% in both cultivars. □





Box shrink wrapped yellow and red coloured capsicum at ambient temperature



Box shrink wrapped yellow and red coloured capsicum stored for 5 weeks at 8°C

### Soilless Cultivation of Tomato Hybrid Arka Rakshak on Arka Fermented Cocopeat

The production technology for soilless cultivation of tomato hybrid Arka Rakshak on Arka Fermented Cocopeat under protected conditions has been standardized. Growth, yield

and quality parameters of tomato hybrid, Arka Rakshak as influenced by different concentrations of N, P and K nutrient solution supplied along with uniform quantity of secondary and micronutrients during critical stages of crop growth and substrates were recorded. Among the nutrient levels,

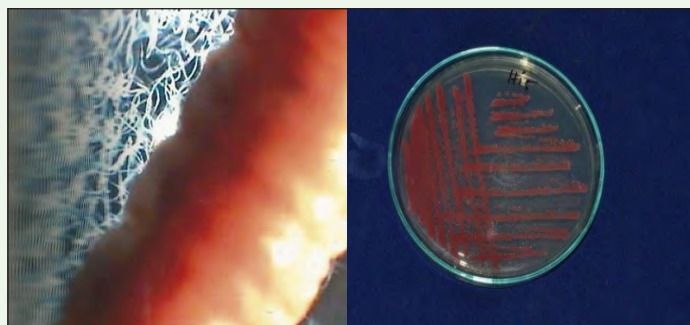


View of tomato hybrid Arka Rakshak raised on Arka Fermented Cocopeat

application of 15:35:15% recommended NPK (180:120:180 kg NPK/ha) during establishment to early flowering, 12.5:12.5:12.5% recommended NPK during fruit development and 72.5:52.5:72.5% recommended NPK during harvesting stage recorded the highest number of flowers (118.62), number of fruits (80.14) and yield (4.23kg/plant and 93.9t/ha). Amongst different substrates, Arka Fermented Cocopeat registered the maximum plant height (174.25cm), largest stem diameter (12.44mm), highest number of branches (27.58), highest number of flowers (111.04), number of fruits (72.93) and yield (3.94 kg/plant and 87.6t/ha) compared to commercial cocopeat (3.45 kg/plant and 76.7t/ha) and soil (2.62 kg/plant and 58.2 t/ha).

### Isolation of Entomopathogenic Nematode from Mango *Heterorhabditis indica*

Two native strains of the entomopathogenic nematode (EPN) *Heterorhabditis indica* were isolated from mango



Larva infected with *H. indica* and the bacterial symbiont associated with *H. indica*

orchards and cucumber polyhouses. The bacterial symbiont associated with *H. indica* was identified as *Photorhabdus*

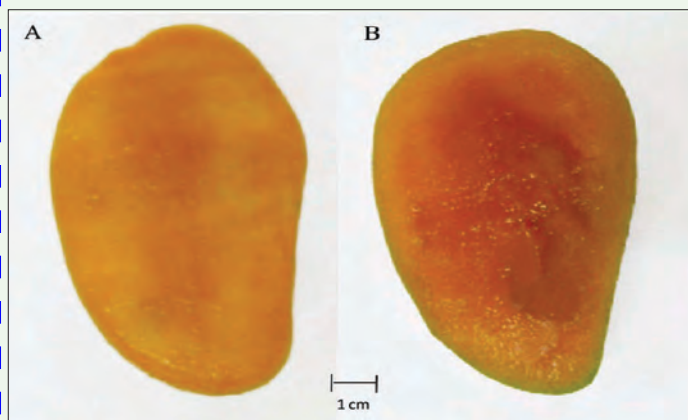




*luminescens* sub sp. *laumondii*. Under *in vitro* conditions, they caused 100% mortality of *Helicoverpa armigera* within 48 hrs. The LC50 dose was 4.83 and 6.17 infective juveniles (IJs)/ larva respectively. These strains were also effective against *Spodoptera litura* where the LC50 dosage was 4.36 and 5.34 IJs/larva.

### Cause of Jelly seed disorder in Amrapali mango discovered

Biochemical studies have shown, for the first time, that the jelly seed disorder in 'Amrapali' mango is caused by the reduced synthesis of very-long-chain fatty acids (VLCFAs), in the seeds of the developing fruit. Lower levels of VLCFAs are known to promote the production of cytokinins, leading to the onset of premature germination-associated events in the seed. Consequently, a large increase in the activities of



Healthy (A) and jelly seed disorder-affected (B) mature ripe pulp of 'Amrapali' mango (*Mangifera indica* L.). Scale bar = 1.0 cm.

pectinolytic enzymes in pulp led to the rapid degradation of pectin and excessive softening of the pulp resulting in the development of jelly seed disorder.

### News and events

#### Group Discussion of ICAR-AICRP on Fruits

The third group discussion of the ICAR-AICRP on Fruits was organized at Punjab Agricultural University, Ludhiana from Mar 3-6, 2016. Delegates from 28 SAUs, 13 ICAR institutes, 1 CAU and 1 private center, participated in the four-day event. Dr. N.K. Krishna Kumar, Deputy Director General (HS), ICAR, inaugurated the meet. The research achievements during 2014-15 in crop improvement, crop production and crop protection were reviewed and research programmes for 2016-17 were finalized. Five technologies suitable for different regions of the country were recommended. Four publications viz., Insect and Mite Pests of Citrus in India, Integrated Pest Management of Banana and

Plantain (in 5 regional languages), "Neembu Vargeeya Falon Ke Vibhinn Keet Evam Unka Prabandhan and Kinnow Panchang were released and 18 progressive farmers were honoured on the occasion.

### First South Horticulture ZTMC Annual Review Meeting "HortIP-2016"

ICAR-IIHR organized the first south horticulture ZTMC



Inaugural Session of the ZTMC Annual Review Meeting

annual review meeting on Feb 8, 2016, at Bengaluru, in which 28 participants from 11 member institutes and the host institute participated. Dr. Anandaraj, Director, ICAR-IIHR presided and Dr. R. Kalpana Sastry, Joint Director, ICAR-NAARM was the Guest of honour.

### Interactive meet of Karnataka Pomegranate Growers and Technical Experts

To address various pomegranate production issues, a one-day interactive meet of pomegranate growers with technical experts was organized on Saturday, Mar 19, 2016 at Chitradurga by the Division of Fruit Crops, ICAR-IIHR, Bengaluru. About 500 farmers from different parts of Karnataka, staff of ICAR-KVKs at Hirehalli and Babbur and staff of NGOs from Chitradurga and neighboring districts participated in the meet. Technical resource persons were drawn from ICAR-IIHR, Bengaluru, ICAR-NRC on Pomegranate, Solapur, University of Horticultural Sciences, Bagalkot, University of Agricultural Sciences, Dharwad, University of Agriculture and Horticulture Sciences, Shivamogga, Jain Irrigation Systems Limited, Mysuru, Netafim Irrigation India Pvt. Limited, Benagloru and Reliance Retail Ltd, Bengaluru. Dr. M.R. Dinesh, Director, ICAR-IIHR presided over the meet and Mr. C.S. Patil, State Marketing Manager, IFFCO, Bengaluru was the chief guest. Various topics including selection of site with suitable agro climatic conditions, varietal selection, establishment of new orchards, training-pruning, canopy management, irrigation,



fertilization, abiotic and biotic stress management including bacterial blight / wilt management strategies and grading / marketing of fruits were covered. A technical bulletin on pomegranate cultivation and a mobile app developed by ICAR-IIHR were released during the meet for exchange of information among various stakeholders.

### **Plant Varieties Protection and Farmers Right Act (PPV&FRA) Awareness Programme**

An awareness-cum-training programme on PPV& FRA was organized at Cherambane village, Madikeri Taluk on Mar 11, 2016, by ICAR-KVK, Gonikoppal in association with Division of Extension & Training, ICAR-IIHR, Bengaluru. The programme was inaugurated by Mr. Rajeev, a progressive farmer and attended by 120 farmers. Participants were sensitized on DUS testing guidelines in cardamom, black pepper, turmeric, ginger, and the importance of the PPV&FR Act. A compendium on PPV&FRA in Kannada was released on the occasion.

### **Rabi Awareness Programme**

The Rabi Sammelan was conducted at ICAR-KVK, Gonikoppal in partnership with Agriculture and Horticulture departments of Kodagu District on Jan 20, 2016. Around 250 farmers, farm women and youth attended. Mr. Cheppudira Subhash Muthanna, progressive planter from Kodagu was the chief guest and Dr. A. N. Ganeshamurthy, Principal Scientist, ICAR-IIHR, Bengaluru presided over the function. Technical experts interacted with participants on soil health management and importance of microorganisms in soil and plant health management, prospects of vegetable cultivation in Kodagu and improved technologies and management practices for pepper. A technical bulletin on the calendar of operations for coffee, arecanut, and black pepper was released. An exhibition of promising ICAR-IIHR technologies was also arranged on the occasion.

ICAR-KVK, Hirehalli in association with CHES, Hirehalli organized the Rabi Awareness Programme on Jan 23, 2016. More than 500 farmers and 60 officials from different organizations participated. Dr. B.R. Mamatha, CEO, Zilla Panchayat, Tumakuru inaugurated the event. Ten publications on aspects such as, micronutrient formulations for banana, mango, citrus, mango fruit fly traps, sealer cum healer, bunch feeding of banana, drought tolerant finger millet variety ML-365, and fermented cocopeat production were released on the occasion.

### **Scientific Advisory Committee Meetings**

ICAR-KVK, Gonikoppal organized the Scientific Advisory Committee meeting on Jan 28, 2016 which was attended by the department officials and scientists of ICAR-IIHR and ICAR-IISR, who reviewed the progress and offered valuable suggestions for the ensuing season. The 6th Scientific Advisory Committee meeting of ICAR-KVK, Hirehalli was organized on Feb 2, 2016. Invitees from state departments, NGOs and farmers representatives shared ideas.

### **Awareness Programme on Nutritional Gardening**

An awareness cum training programme on 'Nutritional Gardening' was organized on Mar 4, 2016 at Siddaganga Mutt exhibition hall in collaboration with Department of Agriculture and Women and Child Development, Tumakuru to address nutritional security through nutritional gardening. About 200 women participated in the programme.

### **One Day Interactive Meeting**

The Division of Entomology & Nematology, ICAR-IIHR, conducted a brain storming on "Higher vertebrates in cultivated ecosystems: policy issues" jointly with CAZRI, Jodhpur on Jan 22, 2016.



*Technical session on harmonizing plant protection practices for Southern States*

The Division of Entomology & Nematology, ICAR-IIHR, conducted a one day interactive meeting on Jan 29, 2016. Dr. Raghavendra Gadagkar, Chairman, Centre for Contemporary Studies, Indian Institute of Science, Bengaluru delivered a talk on "How to do Experiments on Insect Behaviour".

The Division of Entomology & Nematology conducted a technical session on "Harmonizing recommended plant protection package of practices of horticultural crops for the Southern states" from Feb 4-5, 2016. Plant protection





scientists from six state agricultural universities of South India and the scientists of the institute participated and offered their inputs.

### ICAR-IARI Outreach Programme Launched at

#### ICAR-IIHR

Dr. M.R. Dinesh, Director/Professor, ICAR-IIHR, addressed students pursuing their Ph.D. (Horticulture) and Ph.D. (Post-Harvest Technology-Horticulture), at the institute, under the



*Director and Professor, ICAR-IIHR addressing Ph.D students*

ICAR-IARI outreach program, on Mar 1, 2016. During his maiden address, he called upon the students to undertake cutting-edge research in key areas of horticultural crops.

### Human Resource Development

- Dr. K. Bhanuprakash mentored Mr. Nakul Gupta, ARS probationer from ICAR-IIHR, Varanasi, for a period of three months from. Nov 23, 2015 to Feb 22, 2016 on various aspects of seed quality.



*ARS probationers of the 103rd FOCARS of ICAR-NAARM, Hyderabad at Kolihalli, Tumakuru District*

- The Division of Social Science and Training, ICAR-IIHR and ICAR-KVK, Hirehalli, facilitated the Field

Experience Training of a batch of ARS probationers of the 103rd FOCARS programme of ICAR-NAARM, Hyderabad. The participants were placed in the Kolihalli village of Tumakuru District and necessary technical guidance and logistic support were provided to them.

### MOU signed for facilitating Students Training/ Postgraduate Research

The institute has signed MoU with the following universities for a period of three years

- University of Agricultural Sciences, Bengaluru
- Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad
- Tamil Nadu Agricultural University, Coimbatore and
- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur

### New Initiative

Initiated a new collaborative project on “Hyper-spectral response of horticultural plantations for crop discrimination, monitoring and determination of nutrients”, with National Remote Sensing Centre, ISRO Regional Centre, Bengaluru

### Transfer of Technology

#### Assessment and Refinement of ICAR-IIHR Technologies through farmers' participatory demonstrations

Demonstrations of vegetable and flower crops of the institute were undertaken at twelve places in Tumakuru and Kodagu districts of Karnataka in association with ICAR-KVK, Hirehalli and ICAR-KVK, Gonikoppal. All ICAR-IIHR

Crop	Variety	Yield ( t/ha)	% Increase over check
Dolichos beans	Arka Amogh	15.2	25.0
Marigold	Arka Bangara	10.6	30.1
Tomato	Arka Rakshak	73.0	41.0
French Bean	Arka Suvidha	9.8	30.6
Chilli	Arka Kvathi	29.3	22.7
Coriander	Arka Isha	12.0	58.3

varieties recorded improved yields compared to the existing or local varieties.

Parents of the triple disease resistant tomato F1 hybrid Arka Rakshak were licensed to M/s Ashoka Farm Aids during February 2016 for an upfront fee of Rs. 4 lakhs.

**Training Programmes**

Title	Dates	No. of Participants
<b>At ICAR-IIHR, Bengaluru</b>		
Post-harvest management and value addition in horticultural crops	Jan 4-9	3
Training-cum-exposure programme on hi-tech horticulture for district development managers of NABARD, Karnataka	Jan 11-12	35
Pollen cryopreservation in vegetable crops	Jan 16-23	
Advances in production technology of horticultural crops	Jan 19-22	19
Hi-tech cultivation on horticultural crops	Jan 23-25	23
Advances in production technology of horticultural crops	Jan 27-30	20
Protected cultivation of high value vegetable and ornamental crops	Feb 1-6	24
Tropical mushroom production technology	Feb 8-12	15
Precision farming practices (micro irrigation, mulching, fertigation IPM etc.) in fruit, vegetable and flower crops	Feb 15-20	23
Post-harvest management and value addition of horticultural crops	Feb 22-27	24
<b>At ICAR-KVK, Gonikoppal</b>		
Vocational training programme for farm women (in collaboration with Coffee Board)	Jan 5 & 22 Feb 4 & 10	77
Mushroom cultivation	Feb 16	20
Bakery training programme for members of Rotary International	Mar 8	18
Scientific goat farming	Mar 23	41



**Off Campus Trainings**

Title	Dates	No. of Participants
<b>At ICAR-IIHR, Bengaluru</b>		
Crop management in mango for farmers of Aralakuppe village, Magadi Taluk, Ramnagara Dist.	Jan 12	51
Management of vegetable crops for farmers of Sankalagere village, Channapattana Taluk, Ramnagara Dist.	Feb 19	50
NICRA - Climate Resilient Technology Day cum Training Programme at Kadur, Chikamagalur Dist.	Feb 28-29	260
<b>At ICAR-KVK, Gonikoppal</b>		
Preparation and preservation of fruit squash and jams for rural youth, Thithimathi, Kodagu Dist.	Jan 2	70
Soil testing campaign, Kottur, Cherambane, Kodagu Dist.	Jan 2	31
Black pepper production technology, V. Badaga, Kodagu Dist.	Jan 5	29
Importance of soil testing and recommendation of fertilizer application to different crops, Kottur, Cherambane, Kodagu Dist.	Jan 12	26
Scientific dairy farming, Athur, Sinkona, Kodagu Dist.	Jan 13, Mar 2	23, 39
Foot rot disease management in black pepper, Halligattu, Kodagu Dist.	Feb 10	26
Scientific goat farming, Heggala, Kodagu Dist.	Mar 5	27

**Field Demonstrations**

Title	Location & Date	No. of Participants
Enrichment of organic matter with bio-pesticides for sustainable management of nematodes under protected cultivation of capsicum, European cucumber and other horticultural crops	Bashettihalli village, Shidlaghatta Taluk, Chikkaballapura Dist. on Jan 13	62
Awareness –cum- demonstration programme on rejuvenation of mango orchards and Nematode management in horticultural crops	Linganahalli, Hessarghatta Hobli, Bengaluru on Feb 3	15
Nematode management in horticultural crops	Linganahalli, Hessarghatta Hobli, Bengaluru on Feb 3	25
Demonstration on use of mango special	Aralakuppe, Magadi Taluk, Ramnagara Dist. on Feb 4	23
Nematode management in protected cultivation	Denkaniokottai, Tamil Nadu, Krishnagiri Dist. on Mar 17	30



*Training programme on nematode management in horticultural crops*

### On Farm Trials

Name of the Trial	Village	No. of trial
Assessment of planting system in Nendran Banana	Nalloor, Balele, Athur, Kodagu Dist.	5
Foot rot disease management practices in black pepper	Kumtoor, Balyamando or and Hudikeri, Kodagu Dist.	5
Assessment of alternative medical approach for treatment of bovine fibro papiloma/warts and induction of Para immunity in cows	Nalkeri, Hanchinadu, Badagarakeri, Kodagu Dist.	10

### Front Line Demonstrations - ICAR-KVK, Gonikoppal

Topic	Location	No. of FLDs
Integrated crop management practices in paddy var. Tunga	Nalloor, Mayamudi, Kiragoor	10
Use of PGPR for ginger soft rot disease management	Thorenoor, Hebbale, Chickaluvara	10
Foliar nutrition of black pepper	Ponnampet, Balele, Devarapura	10
Effective ecto-parasiticide for control of ticks and lice in milch cows	West Nemmale, Theralu, Badagarakeri, Chickaluvara	25
Integrated pest and disease management practices in paddy	Nalluru, Mythadi	10
Effective treatment for controlling milk fever in milch cows	Kottageri, Sinchona, Poojekallu, T.Shettigeri	25





### Television Programmes

Topic	Date	TV Channel
Field day on Arka Rakshak	Jan 6-7	DD Chandana
Nematode management in horticultural crops	Feb 17	DD Chandana
Live telecast on launch of “Prime Ministers Fasal Bheema Yojana” by Honorable Prime Minister of India	Feb 27	DD Chandana
Papaya cultivation	Mar 15	DD Chandana
Field demonstration of vegetable varieties/ F1 hybrids	Mar 31	DD Chandana

### Radio Programmes

Topic	Date	Station
Chrysanthemum cultivation	Jan 12	AIR, Bengaluru
Rose cultivation	Feb 17	DD Chandana
Protected cultivation of carnation	Mar 2	AIR, Bengaluru
Lime cultivation	Mar 13	DD Chandana
Pre and post pruning operations in the vineyard	Mar 17	DD Chandana

### Participation in Exhibition

Participated in the following exhibitions and displayed the technologies developed by the institute for the benefit of farmers

- ★ ICAR Pavilion during the Indian Science Congress-2016 at Mysore from Jan 3-7, 2016
- ★ Kissan Mela- cum- Exhibition at ICAR-CPCRI during the centenary celebrations of ICAR- CPCRI, Kasaragod from Mar 12, 2016
- ★ Krishi Unnati Mela-2016 at ICAR-IARI, New Delhi from Mar 19-21, 2016

### Sale of ICAR-IIHR products through ATIC

The ATIC realized a revenue of Rs. 8, 78,364/- through the sale of institute products.

### General Visitors

A total of 1804 farmers and students visited the Institute

### Distinguished visitors

#### ICAR- IIHR, Hesaraghatta, Bengaluru

- ★ Dr. K. Alagusundaram, Deputy Director General (Engg.), ICAR, New Delhi on Feb 8, 2016
- ★ Mr. Nazir Ramatuallah and Mr. Wafa Zabinullah, Assistant Professors, ANASTU, Afghanistan on Mar 9, 2016
- ★ Dr. Kheya Bhattacharya, IFS, Addl. Secretary, Ministry of Defence, Govt. of India, New Delhi with a delegation of 17 members on Mar 16, 2016

#### CHES, Chettalli

- ★ Dr. K.V. Peter, Former Director, ICAR-IISR and Former Vice-Chancellor, KAU on Mar 2, 2016
- ★ Dr. R. R. Hanchinal, Chairman, PPV& FRA, New Delhi on Mar 25, 2016



### CHES, Bhubaneswar

- ❖ Prof. P.L. Saroj, Director, Directorate of Cashew Research, Puttur, Karnataka on Jan 15, 2016
- ❖ Mr. Balabhadra Majhi, Member of Parliament (Lok Sabha), Nabarangpur, Odisha on Feb 3, 2016
- ❖ Dr. N. K. Krishna Kumar, DDG (Hort. Sciences), ICAR, New Delhi on Feb 10, 2016
- ❖ Prof. S. K. Mitra, Former Dean, BCKV, West Bengal on Feb 11, 2016

### ICAR-KVK, Hirehalli

- ❖ Dr. Mamatha, CEO, Zilla Panchayat, Tumakuru District, on Jan 23, 2016
- ❖ Dr. Sreenath Dixit, Director, ICAR- ATARI, Bengaluru on Feb 2, 2016

## Awards and Recognitions

### Awards

- ❖ Dr. P.C. Tripathi and Dr. Kanupriya were awarded the “Young Scientist Award” by Mehta Foundation, Salem.
- ❖ ICAR-IIHR stall was awarded the first prize in the Krishi Mela held at University of Agricultural Sciences, Bengaluru from Nov 19-22, 2015.
- ❖ Dr. B.Narayanaswamy was conferred “The Best Extension Worker Award” by University of Agricultural Sciences, Bengaluru Alumni Association.



*Dr. B Narayanaswamy receiving the best stall award*

- ❖ Dr. A.T. Sadashiva was awarded the “Dr.Kalayya Krishnamurthy National Award” for Best Agricultural Research for the year 2014-15 during the golden jubilee celebrations of University of Agricultural Sciences, Bengaluru



*Dr. A.T. Sadashiva receiving the Dr. Kalayya Krishnamurthy National Award for Best Agricultural Research-2014-15 from Dr. A.S. Kiran Kumar, Chairman ISRO*

- ❖ Dr.R.Asokan was awarded the “XIX Sukumar Basu Memorial Award” of ICAR-IARI- New Delhi.



*Dr. R. Asokan receiving the XIX Sukumar Basu Memorial Award from the Honourable President of India*


- ❖ Dr. C. Aswath was conferred the Dr. B. P. Pal Best Scientist Award by National Academy of Biological Sciences, Chennai
- ❖ Dr. T. Manjunatha Rao was awarded Horticultural Society of India Gold Medal in Floriculture, 2015.
- ❖ Dr. M.S.Rao was conferred the Award of Excellence (Scientific Category) during the 49th Foundation Day of ICAR-IIHR
- ❖ ICAR-KVK, Gonikoppal, bagged the “Best Display Award of Avocado” during the Avocado Day organized at CHES, Chettali, May 27, 2015.
- ❖ Dr. A. Carolin Rathinakumari, was awarded the Gold Medal in the discipline of Agricultural Engineering by the National Design and Research Forum, The Institution of Engineers (India), Bengaluru, for the development of a watermelon seed extractor.
- ❖ Dr. Leela Sahijram was awarded the 'Reviewer Excellence Award' by the Indian Journal of Agricultural Science and Legume Research.

### Recognitions

- ❖ Dr. M. R. Dinesh, Dr. A.T. Sadashiva and Dr. Kanupriya were admitted as Fellows of Horticultural Society of India, New Delhi.
- ❖ Dr. P.C. Tripathi and Dr. Kanupriya were admitted as Fellow of Confederation of Horticultural Associations of India (CHAI), New Delhi.
- ❖ Dr. M. Krishna Reddy and Dr. S. Sriram were admitted as Fellows of Indian Phytopathological Society, New Delhi.
- ❖ Dr. A.N. Ganeshamurthy was elected as Fellow of the Indian Society of Soil Science.
- ❖ Dr. P.E. Rajasekharan was admitted as Fellow of Indian Association for Angiosperm Taxonomy (FIAT)
- ❖ Dr. M. Krishna Reddy has been elected as President, Association of Pest Management in Horticultural Ecosystems, Bengaluru.





- ❖ Dr. P.E.Rajasekharan was elected as the Councilor (South India). Indian Society for Plant Genetic Resources, New Delhi.
- ❖ Dr.V.Sankar has been nominated as the Executive Councilor of Indian Society for Alliums , ICAR-DOGR, Rajgurunagar, Pune, Maharashtra.
- ❖ Dr.G. Karunakaran was appointed as Member of the National advisory committee for XV AZRA International Conference on Recent Advances in Applied Zoological Research, Ethiraj College for Women, Chennai. 

### Personalia

#### Promotions

Name and designation	Promoted To	Effective from
<b>ICAR-IIHR, Bengaluru</b>		
Dr. H.P. Sumangala, Scientist (Hort.)	Recommended to Next Higher Grade (Rs.15600-39100+RGP8000/- Scientist	Apr 20, 2014
Dr. P. Nandeesh, Scientist (Biotech)	Recommended to Next Higher Grade (Rs.15600-39100+RGP7000/- Scientist	Feb 7, 2014
Dr. T. Usha Bharathi, Scientist (Hort-Flori)	Recommended to Next Higher Grade (Rs.15600-39100+RGP 7000/- Scientist	Jan 8, 2014
Dr. T.M, Reddy, Scientist (Ag. Extn.)	Recommended to Next Higher Grade (Rs.15600-39100+RGP 8000/- Scientist	Jun 11, 2014
Mrs. Reena Rosy Thomas, Scientist, (Computer Applications)	Recommended to Next Higher Grade (Rs.15600-39100+RGP8000/- Scientist	Dec 27, 2013
Dr. Carolina Rathinakumari Scientist (FM&P)	Recommended to Next Higher Grade (Rs.37400-6700+RGP 9000/-) Sr. Scientist w.e.f. 22.03.2012	Mar 22, 2012
Dr. L.K. Bharathi, Sr. Scientist	Recommended to Next Higher Grade (Rs. 37400-67000+RGP 9000/-) Sr. Scientist	Nov 26, 2013
Mrs. S. Bhuvaneshwari, Scientist	Recommended to Next Higher Grade (Rs.37400-67000+RGP 9000/-) Sr. Scientist	Nov 19, 2014



Mrs. V. Radhika, Scientist, (Computer Applications)

Recommended to Next Higher Grade (Rs.37400-67000+RGP 9000/-) Scientist

Dec 6, 2014

Mr. M.K. Chandra Prakash, Scientist (Computer Applications)

Recommended to Next Higher Grade (Rs. 37400-6700+RGP 9000/-) Scientist

Apr 7, 2015

### CHES, Bhubaneswar

Dr. Deepa Samant, Scientist (Hort.)

Recommended to Next Higher Grade (Rs.15600-39100+RGP 7000/-) Scientist

Apr 20, 2014

Name and Designation	Promoted To	Effective from
<b>ICAR-IIHR, Bengaluru</b>		
Mr. K.S. Sanna Manjunath, Senior Technical Assistant	Technical Officer	Oct 1, 2014
Mr. D. Vamana Naik, Senior Technical Assistant	Technical Officer	Jan 1, 2015
Mr. V. Cheluvaraj, Senior Technical Assistant	Technical Officer	Jan 1, 2015
Mr. H.K. Idiya, Senior Technical Assistant	Technical Officer	Jan 18, 2015
Mr. M. Muniraju, Senior Technical Assistant	Technical Officer	Jul 1, 2015
Mr. M. Pandurangaiah, Technician	Senior Technician	Dec 8, 2014
Mr. N. Muniraju, Technician	Senior Technician	May 11, 2015
Mr. Gundappa Manoji, Technician	Senior Technician	May 11, 2015
Mr. H.V. Puneeth, Technician	Senior Technician	May 12, 2015





Name and designation	Promoted To	Effective from
<b>ICAR-IIHR, Bengaluru</b>		
Mr. H.J. Vinod Kumar, Technician	Senior Technician	May 12, 2015
Mr. N. Naveen Kumar, Technician	Senior Technician	May 12, 2015
Mr. T.N. Nagaraju, Technician	Senior Technician	May 20, 2015
Mr. B. Avinash, Technician	Senior Technician	May 12, 2015
Mr. S S A Qazi, Technical Officer	Senior Technical Officer	Jan 1, 2015
Mr. M. Venkatesh, Technical Assistant	Senior Technical Assistant	May 20, 2015
Mr. N. Shivarudraiah, Technical Assistant	Senior Technical Assistant	May 22, 2015
Mr. B.N. Siddaraju, Technical Assistant	Senior Technical Assistant	May 24, 2015
Mr. D.V. Ramamurthy, Technical Assistant	Senior Technical Assistant	May 26, 2015
Mr. M.R. Nagaraja, Senior Technician	Technical Assistant	Aug 2, 2014.
Mrs. D. Vimala, Technician	Senior Technician	May 12, 2015
Mrs. S.V. Venkatalakshamma, Technician	Senior Technician	May 12, 2015
<b>CHES, Chettalli</b>		
Mr. G.M. Prashanth Kumar, Technical Assistant	Senior Technical Assistant	May 20, 2015
<b>ICAR-KVK, Gonikoppal</b>		
Mr. C.K. Vasantha Kumar, Technical Officer,	Senior Technical Officer	Jan 1, 2015.



### Transfers

Name and designation	From	To	Effective from
Dr. L.K. Bharathi, Sr. Scientist	CHES, Bhubaneswar	ICAR-IIHR, Bengaluru	Feb 3, 2016.
Mr. Lakshmipathi, Senior Technical Officer	ICAR-DCR, Puttur	ICAR-IIHR, Bengaluru	Feb 10, 2016
Dr. C. Chandrashekhar, Scientist	ICAR-VPKAS, Almora (Uttarakhand)	CHES, Chettalli	Feb 15, 2016
Dr. T. R. Rupa, Principal Scientist	ICAR-DCR, Puttur	ICAR-IIHR, Bengaluru	Feb 19, 2016
Mr. C.M. Anjanappa, SSS	ICAR-KVK, Hirehalli	ICAR-IIHR, Bengaluru	Mar 22, 2016
Mr. T. S. Siddarajaiah, SSS	CHES, Hirehalli	ICAR-KVK, Hirehalli	Mar 22, 2016
Mrs. Sharadamma, SSS	CHES, Hirehalli	ICAR-IIHR, Bengaluru	Mar 23, 2016

### Superannuation

Name and Designation	Effective from
Dr. M.R. Hegde, Principal Scientist, ICAR-IIHR, Bengaluru	Jan 31, 2016
Mr. Banshidhar Mohapatra, Assistant Finance & Accounts Officer, CHES, Bhubaneswar	Jan 31, 2016
Dr. Girija Ganeshan, Principal Scientist, ICAR-IIHR, Bengaluru	Feb 29, 2016

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