



# SPICES NEWS



**Indian Institute of Spices Research**  
Marikunnu (P.O.), Kozhikode (Calicut), Kerala, India.

**Vol. 24 Issue 3 Quarterly**  
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## *From the Director's Desk*

The Institute just added another dimension to its growing portfolio with the launch of the ambitious Business Planning and Development (BPD) Unit, re-emphasising the confidence ICAR and NAIP have on our Institute. It was a historic occasion in the annals of the Institute's history when the BPD unit was inaugurated by Dr. A N Safeena, IAS, Development Commissioner, Cochin Special Economic Zone in the presence of Dr. P S Pandey, National Coordinator (NAIP). This is not much ado about nothing but lends credence to the fact that our technologies could be a major draw as far as commercialization is concerned. Though we have the Institute Technology Management Unit (ITMU) to commercialize our technologies, the BPD unit will give us the platform and the necessary impetus to realize our dreams of facilitating the farmers, co-



**Dr A N Safeena inaugurating BPD workshop**

operatives, existing small and mid-sized spice companies to don new roles as successful entrepreneurs. This would mean making a not so lucrative enterprise into a profit making venture through business development, policy support, providing physical facilities etc. The BPD unit will help in seamlessly integrating the two words that have always been poles apart i.e. "farmer" and "entrepreneur." In the years to come a successful BPD unit will culminate in the farmer taking on new avatars as entrepreneur, business magnate, business honcho and the likes. From being mere farmers to becoming farmer-entrepreneurs, is the biggest transformation one would witness in the near future, thanks to this noble venture by NAIP-ICAR. This means we are in for a paradigm shift with the BPD acting catalytically to ensure that the farmers and the small players evolve into big players with the 'Middleman' concept being ruthlessly avoided.

The launch of the BPD unit at IISR apparently means that the ball has been set rolling. While it is not going to be a walk in the park to realize the objectives envisaged, it is my strong belief and conviction that we are a team with lot of self confidence, self respect, pride and character, a team that would strive hard to make this venture a very successful and exciting unit that fosters, mentors and help the intended clientele in realizing his/her dreams. We have been successful in the past with all our ventures and I promise that we will succeed with BPD as well. Of course, we will take lot of confidence from our past successes to translate this venture from a 'work in progress' to a successful model that could later be improvised and fine tuned for larger successes ahead. While the BPD unit will help us in creating new realms with aspiring entrepreneurs, IISR will continue to harbour and foster linkages with esteemed organizations like Spices Board, Cochin, Cochin Special Economic Zone and the Directorate of Arecanut and Spices Development, Kozhikode.

(M Anandaraj)

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## Research Update

### Germplasm enrichment

Eight accessions of black pepper were collected from Idukki & Wayanad Districts and added to the black pepper germplasm. National active germplasm site of cardamom was enriched with 30 new accessions from ICRI, Sakleshpur.

Five collections of nutmeg (grafts of three released varieties *viz.* Konkan Swad, Konkan Sugandha and Konkan Shrimanti, one high yielding accession and one accession with yellow mace) were added to the repository. Rooted cuttings of two cinnamon varieties and one cinnamon accession with a very strong taste (collected from Mr. Uday Sri Krishna Joshi's plot in Khelshi Tehsil, Dapoli) were also added to germplasm.

### Monsoon rampage in spices

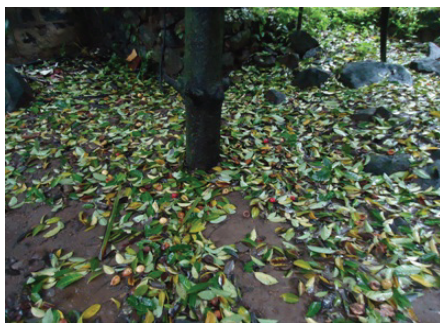
June, July and August months witnessed heavy rainfall this year and on an average, around 30-40 % excess rainfall was received during the period. Total rainfall received during June - September was 4198 mm in IISR Experimental Farm, Peruvannamuzhi (96 rainy days out of 122 days) and 3270 mm (114 rainy days out of 122 days) in Cardamom Research Centre, Appangala, Madikeri.

Leaf fall and fruit fall of nutmeg was observed as a serious problem during the period due to severe and incessant rainfall during monsoon. The plants became susceptible to plant pathogens like *Cylindrocladiella*, *Colletotrichum* and *Phytophthora* species in Anakkampoyil, Angamali and Kalady areas. Twig drying in nutmeg due to thread blight infection was noticed in Neriymangalam area.

Allspice trees were also found showing defoliation due to *Cylindrocladium* species.

### Cross-platform genome sequencing of *Phytophthora capsici* infecting black pepper in India

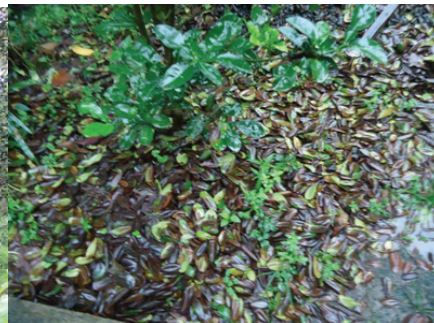
*Phytophthora capsici*, an oomycete, is the most destructive pathogen of black pepper and vegetables. The whole genome of *P. capsici* isolate (05-06) infecting black pepper in India was completely sequenced by a combination of two next-generation sequencing (NGS) technologies (Illumina and Roche/454 sequencing). The *de novo* hybrid assembly yielded a genome of 63.8 Mb size with 32,044 contigs (comprising of 4,72,80,344 bases) and their lengths ranging from 200- 42,775 bases with an N50 contig length of 4,724 kb. The complete genome of *Phytophthora* isolate has been structurally and functionally annotated and compared to previously available genome of *P. capsici*. Structural annotation using *ab-initio* gene prediction methods yielded 22,358 coding sequences, 54,485 exons and 1,344 simple sequence repeats (SSRs). Blast homology based functional annotation revealed the presence of various proteins important for the survival of *Phytophthora* sp. in host plants and virulence associated proteins crucial for its infection. Conserved domain search was also conducted to make the functional annotation data accurate. A reference assembly was also conducted to compare *P. capsici* genome of Joint Genome Institute (JGI) and percentage reads aligned were 100% with an average read depth of 50.79. Whole genome alignment and comparison with reference genome revealed 12,98,146 SNP sites, 12,322 genes common with the reference genome and 4,034 genes unique to *P. capsici* isolate of IISR. The genomic variants such as SNPs were integrated into the whole genome sequence data, thus providing a high resolution mapping and better accuracy of variant detection that underlines the



Leaf and fruit fall in nutmeg



White thread blight in nutmeg



Leaf fall in allspice

necessity of combining multiple NGS and genome-assembly techniques.

The raw paired-end sequence data were deposited in the National Centre for Biotechnology Information's (NCBI) Short Read Archive (SRA) database under the accession number ACC = SRA075485 subid = 142068 & SAMN02142556. The assembled genome is available at <http://220.227.138.212/genomedb/>.

### **Outreach Programme on Diagnosis and management of leaf spot diseases in field and horticultural crops**

Validation of Integrated Disease Management (IDM) strategies to manage leaf blight and anthracnose diseases of cardamom and black pepper under field conditions is in progress. The possible role of perithecial phase in the perpetuation of *Colletotrichum gloeosporioides* is being studied.

### **Investigations on the endophytic and rhizospheric microflora associated with cardamom and allied genera**

*Isolations made during the monsoon phase:* Thirty five fungal and a bacterial endophyte were isolated from leaves, petioles, pseudostem, roots and rhizomes of *Amomum* sp., *Alpinia galanga*, *Hedychium coronarium* and *Zingiber zerumbet*.

### **Diversity of rhizome- root rot pathogens and their antagonists in cardamom**

*In vitro* study to identify the sequential events in the colonization and proliferation of rhizome and root pathogens viz., *Pythium vexans*, *Rhizoctonia solani* and *Fusarium oxysporum* revealed that the pathogens differed significantly with respect to the sequential events involved in the infection process, colonization and proliferation.

Evaluation of newer molecules against rhizome and root pathogens viz., *P. vexans*, *R. solani* and *F. oxysporum* was studied under *in vitro* conditions. Pot culture experiment to identify primary causal organism of rhizome and root rot diseases is under progress.

### **Barcoding of spices**

A two-locus barcode (*rbcL* + *psbA-trnH*) proved to be better than *rpoC1* + *psbA-trnH* or any one-

locus barcode in distinguishing *Piper nigrum* from *P. attenuatum* and *P. galeatum*, two related species of cultivated black pepper used for adulterating traded black pepper. Fifteen barcodes of *rbcL*, *rpoC1* and *PsbA-trnH* from three *Piper* species viz., *P. nigrum*, *P. attenuatum* and *P. galeatum* were deposited in the NCBI database.

PCR conditions were optimized for the barcoding loci *matK*, *rbcL*, *psbA-trnH* for chilli with respect to detection of adulteration. However, initial studies on five market samples did not show the presence of any adulterants with respect to the loci.

### **Effect of heavy monsoon rains on black pepper spike production**

Due to low pre-monsoon showers and relentless rainfall during June to August, 2013, black pepper spike production was delayed up to September 2013. Availability of light was also low in general during this period which led to delay in production of new shoots, reduced male flowers, low spike production and poor spike-setting in black pepper. Anthracnose and spike shedding was noticed in many plantations.

### **Growth and yield potential of nutmeg progenies**

Mr. B. Krishnamoorthy, Dr. K. Nirmal Babu and Dr. J. Rema visited Dapoli centre of AICRP on Spices (Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth) during 5-8 August 2013 and observed the growth and yield potential of A9/4, A4/12, A9/20, A4/22, A11/70, A9/12 and A9/79 seedling progenies of nutmeg planted in 1997. Among the progenies almost 50% were males and rest females, with a very few monoecious plants. The fruit shape and leaf shape segregated within the seedlings of individual mother trees.

## **Personalia**

### **Deputation abroad**

#### **Jayashree E**

Michigan State University, East Lansing, Michigan, USA to attend NAIP sponsored short term training on Nutraceuticals, 11 August-10 November 2013.

### **Awards/ Honours/ Recognitions**

#### **Suseela Bhai R**

Resource Person, Winter School organized at IIHR, Bengaluru, 16 September 2013.

Member, Doctoral Committee for Applied Botany, Mangalore University.

Conducted Decentralized Nursery Certification for Departmental Nurseries of Kozhikode.

### **Participation in Symposia/ Seminars/ Workshops/ Conferences/ Meetings**

#### **All Scientists & Technical staff**

Foundation Day, IISR, Kozhikode, 1 July 2013.

Workshop on Information Literacy in the Digital Era, 12 August 2013, IISR, Kozhikode.

Launch Workshop of Business Planning and Development Unit, 21 September 2013, IISR, Kozhikode

#### **Anandaraj M**

KAU Executive Committee meeting, Trichur, 4 July 2013.

International Conference on tropical roots and tubers for sustainable livelihood under changing agro-climate, Thiruvananthapuram, 9-11 July 2013.

Directors' Meeting, ICAR Foundation Day celebrations and National Horticulture Conference, New Delhi, 15-18 July 2013.

Seminar on Microbes and Human Welfare. Chaired a Session on Microbiology, Bharathidasan University, Trichi, 19-21 July 2013.

Annual Group Meeting of AICRP on Palms, Raipur. Chaired a Technical Session and visited NBAII, Bengaluru, 22-26 July 2013.

Reviewed the work on Phytophthora and Ralstonia under PhytoFuRa, IARI, New Delhi, 2 August 2013.

Executive Committee meeting of IPS, New Delhi, 3 August 2013.

The National Citrus Meet, Nagpur, 12-13 August 2013.

Chaired Standing Committee Meeting of PLACROSYM-XXI, Kozhikode, 23 August 2013.

Chaired XV Scientific Advisory Committee Meeting of KVK, Kozhikode, 23 August 2013.

II R&D Committee Meeting of IPC and International Seminar on Spice, Medicinal & Aromatic Plants, Jakarta, Indonesia 28-30 August 2013.

Winter School, IIHR, Bengaluru, 10 September 2013.

Viva voce of a Ph.D. student, Mangalore, 13 September 2013.

Visited CRC Appangala & CHES Chettalli to review the work, monitor black pepper DUS plot planted at IIHR, Chettalli and also to review the preparations for SYMSAC-VII, Madikeri, 18-19 September 2013.

Chaired Working Committee Meeting of PLACROSYM-XXI, IISR, Kozhikode, 27 September 2013.

Management trial for black pepper and demonstration in farmers plots (with the help of Scientists of ICARRC-Goa), Goa, 30 September 2013.

#### **Ankegowda S J**

Training programme on Application of remote sensing and GIS in natural resource management, organized by National Bureau of Soil survey and Land Use Planning (ICAR), Regional Centre, Hebbal, Bengaluru, 4-24 July 2013.

General body meeting and technical seminar of Kodagu Planter's Association, Hotel Coorg International, Madikeri, 3 August 2013.

#### **Ankegowda S J**

#### **Kandiannan K**

#### **Senthil Kumar R**

#### **Krishnamurthy K S**

Interface programme on Suitable farming system for utilization of paddy fallow land of Kodagu District, KVK, Gonikoppal, 25 September 2013.

#### **Biju C N**

#### **Jacob T K**

#### **Suseela Bhai R**

Workshop on pesticide related issues in rubber and other crops, RRII, Kottayam, 29-30 August 2013.

#### **Devasahayam S**

Standing Committee Meeting of PLACROSYM-XXI, Kozhikode, 23 August 2013.

XV Scientific Advisory Committee Meeting of KVK, Kozhikode, 23 August 2013.

#### **Devasahayam S**

#### **John Zachariah T**

#### **Santhosh J Eapen**

Working Committee Meeting of PLACROSYM-XXI, IISR, Kozhikode, 27 September 2013.

**Ishwara Bhat A**  
**Suseela Bhai R**

Doctoral Committee meeting of Applied Botany, Mangalore University, 8 August 2013.

**Jacob T K**  
**John Zachariah T**

NAIP Sub-Project -Mobilizing Mass Media Support for Sharing Agro-Information- review workshop, CHES, Chettalli, 26-27 July 2013.

**John Zachariah T**

Project Leaders meeting of Consortia Platforms, NAS Complex, New Delhi, 29 August 2013.

**John Zachariah T**  
**Krishnamoorthy B**

XV Scientific Advisory Committee meeting of KVK, 23 August 2013, IISR, Kozhikode.

**John Zachariah T**  
**Srinivasan V**

Visited CRC Appangala & CHES Chettalli to review the preparations for SYMSAC-VII, Madikeri, 18-19 September 2013

**Krishnamoorthy B**  
**Sudhakaran A**

Visited KVK, Kannur to observe the Farmers' Science Museum named after Dar. M. Joseph, who invented coconut climber, 16 July 2013.

**Pradeep B**

National training on Recent advances in aquaculture for popularization through KVK's, CMFRI, Cochin, 15-20 July 2013.

DBT Task force meeting under Biotechnology based programme for women, NII, New Delhi, 12 September 2013.

**Rajeev P**

International Conference on Tropical Roots and Tubers for sustainable livelihood under changing Agro-climate, Thiruvananthapuram, 9-12 July 2013.

Launch workshop organized by the Kerala State Planning Board at Kalpetta, Wayanad, 25 August 2013.

**Santhosh J Eapen**

National Workshop on Web-scale Discovery Services, Jawaharlal Nehru University, New Delhi, 9 September 2013.

**Sasikumar B**

Management Development Programme on Leadership Development (Pre-RMP cadre), NAARM, Hyderabad, 26 August-6 September 2013.

V National Workshop on Research and development in food processing sector, FICCI & MoFPI, Mumbai, 24 September 2013.

**Senthil Kumar R**

ICAR sponsored short course on Rootstocks in Resilient Horticulture Production System, IIHR, Bengaluru, 19-28 August 2013.

**Suseela Bhai R**

Meeting with planning Board on AWIPM, Secretariat, Thiruvananthapuram, 15 July 2013.

Meeting on pesticide label claim, IISR, Kozhikode, 16 August 2013.

**Sushama Devi C K**

National workshop on Strategies for Strengthening NARS Libraries under e-Granth, IARI, New Delhi, 5-6 July 2013.

**Thankamani C K**

VII annual review meeting of ICAR Mega seed project -Seed production in Agricultural crops at NBPGR Auditorium, New Delhi, 26- 27 August 2013

**Utpala Parthasarathy**

Visited NRC for Orchids, Pakyong, Sikkim and provided technical help to map the distribution of *Cymbidium* in Sikkim using GIS, 21-25 September 2013

## News & Events

### Workshop on 'Information Literacy in the Digital Era'

The Indian Institute of Spices Research (IISR), Kozhikode organized a one day workshop 'Information Literacy in the Digital Era' on 12 August 2013 to commemorate the National Library Day. The workshop was sponsored by National Agricultural Innovation Project under its e-Granth project 'Strengthening of Digital Library and Information Management under NARS'. Shri. P. Jayarajan, Vice Chairman of Delhi Library Board, inaugurated the workshop,

Dr. S. Devasahayam, Director-in-charge, presided over the function and Dr. Santhosh J. Eapen welcomed the gathering. Eighty participants including librarians and experts in the field of information science, scientists and research students of Indian Institute of Spices Research attended the workshop.

In the next session Dr. K. Veeranjanyulu, University Librarian, ANGRAU, Hyderabad delivered a special lecture on 'Navigating Agricultural Information Resources in the Digital Era'. This was followed by a group discussion on various aspects of e-Granth project and consortia of e-resources and databases. In the afternoon session, Shri D.T. Edwin from EBSCO Information Services India Pvt. Ltd., Bangalore made a presentation on 'EBSCO Discovery Service & the remote access tool - *My Athens*'. Later, Dr Santhosh J. Eapen gave a brief account of e-library facilities of IISR. The workshop came to an end at 3.30 pm with vote of thanks by Dr. C. K. Sushama Devi. A book exhibition was also arranged in connection with the workshop.



**Workshop on Information Literacy in progress**

### **Launch Workshop of Business Planning and Development Unit**

Launch workshop of BPD unit was organized at Indian Institute of Spices Research (IISR), Kozhikode on 21 September 2013. The unit is set up through World Bank funded National Agricultural Innovation Project (NAIP) of Indian Council of Agricultural Research (ICAR). The BPD unit intends to encourage R&D in spices leading to productivity enhancement and value addition to spice produce processing for product and process development. In the welcome speech, Dr. M Anandaraj, Director, IISR emphasized that IISR-BPD unit is a part of Institute's attempt to make our technologies visible.

Dr. A.N. Safeena, IAS, Development Commissioner, Cochin Special Economic Zone (CSEZ) inaugurated the launch workshop. She indicated that BPD Unit will help the Institute to transfer technologies to farmers. Dr. P.S. Pandey, National Coordinator of National Agricultural Innovation Project in his presidential address highlighted the objectives of newly sanctioned BPD Unit at IISR. He said, "Agricultural sector, especially spices, has now opened a space for business opportunity. The launch of Business Planning and Development (BPD) Unit at IISR will strengthen public-private partnership in agricultural sector and it will also empower the farmers to take up entrepreneurship". He explained that the idea of business incubation is to create a feasible environment to grow farmer's or agri-entrepreneur's business ideas into a feasible business venture by providing extensive support in all stages from business ideation to product development to commercialization to marketing. Besides the Scientists from IISR, Mr. S. Suresh (Assistant Director, Marketing, Spices Board, Cochin) and Dr. A.A. Zynudheen (Co-Principal Investigator, ZTMU-BPD, CIFT, Cochin) also spoke on the occasion. The workshop was attended by around 100 farmers and entrepreneurs.

### **Other Meetings**

Institute Management Committee Meeting: Held on 6-7-2013

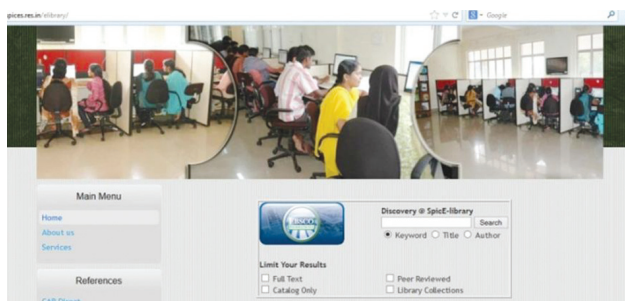
### **News from Library**

- A workshop entitled 'Information Literacy in the Digital Era' was organised on 12 August, 2013 at IISR, Kozhikode.
- Three issues of the electronic version of 'AGRI titbits' were published.
- Thirty seven CeRA requests were catered online.
- Twenty external users and 760 internal users made use of the library facilities.

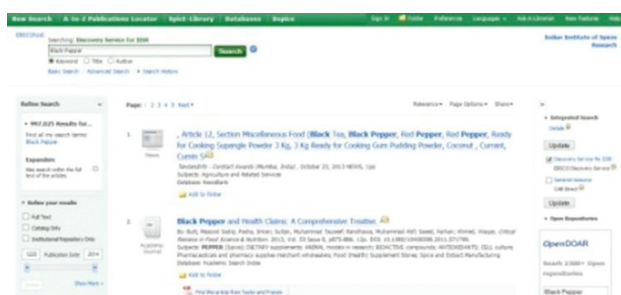
### **Discovery services enabled in IISR Library:**

IISR Library has enabled web-scale discovery services (WDS) for its end users by implementing EBSCO Discovery Service (EDS). Web-scale discovery is a pre-harvested central index coupled with a richly featured discovery layer providing a single search across a library's local, open access, and subscription collections. It is for the first time an ICAR Institute is venturing into such a state of art library service, a privilege of premier institutions like IITs and IIMs. Some of the

common features of this service are: single search across the central index; fast response time; relevancy-ranked results list; facets, sort, and other tools for refining and using the results; connections to full text via direct links and OpenURL; end-user accounts and features. Implementation of EDS has tremendously improved the usage of online and offline contents available in IISR Library.



**Discovery services - main page**



**Discovery services – search page**

### HRD activity

The HRD committee met 6 times during the period. The committee recommended 4 scientists to attend short term trainings / short term workshops.

### Additional infrastructure facilities created

Hi tech polyhouse (320 m<sup>2</sup>, 2 Numbers)

Naturally ventilated polyhouse (320 m<sup>2</sup>, 1 Number)



**A view of Hi tech polyhouse**

### News from SARANI

- Sarani arranged a farewell party on 29 July 2013 to Shri V. Mohanan who has been transferred from IISR Calicut to CMFRI, Kochi. During August, the General Body Meeting was held to elect new office bearers for the year 2013-14. Dr. M. Anandaraj will continue as President. Dr. B. Sasikumar has been elected as Vice President, Shri K.G. Jegadeesan as Secretary and Dr. S. Hamza as Joint Secretary.
- Sarani celebrated the Onam festival and Annual Club Day on 12 September 2013 in a grand manner. A beautiful Pookkalam was laid in the corridor of the main building. Onam sadhya was arranged by the club for the lunch. Dr. Homey Cherian, Director, DASS, Kozhikode was the Chief Guest on the occasion. He distributed the IISR Merit Award-2013 to the wards of the staff members who secured highest marks in 10<sup>th</sup> Std examination conducted by CBSE and SSLC during 2013. Ms. Y. K. Bini was awarded “Dr. Alwar Memorial Prize” for the best Research Fellow during the year 2013. Apart from sports and fun games, on stage variety entertainment programmes were also held to celebrate the occasion.



**A scene from Sarani entertainment programme**

### Distinguished visitors

Dr. A.N. Safeena IAS, Development Commissioner, Kochi Special Economic Zone, 21 September 2013.

## Externally aided projects

Title of project	Investigators	Funding agency	Period	Outlay (Rs. Lakh)
Strengthening of digital library and information management under NARS (e-Granth)	Santhosh J Eapen Sushamadevi C K	NAIP	2013-14	14.33

## हिन्दी अनुभाग

संस्थान में दिनांक 23 सितम्बर 2013 को हिन्दी पखवाड़े का उद्घाटन समारोह डा. एम. आनन्दराज, निदेशक की अध्यक्षता में संपन्न हुआ। डा. राशिद परवेज़ ने समारोह का संचालन एवं हिन्दी पखवाड़े की रूपरेखा प्रस्तुत की तथा सुश्री. एन. प्रसन्नकुमारी ने धन्यवाद ज्ञापित किया। इस अवसर पर विभिन्न प्रतियोगितायें जैसे, हिन्दी प्रश्नोत्तरी, लेखन, अनुशीर्षक लेखन, कविता रचना, पठन एवं लेखन तथा स्मरण शक्ति आदि का आयोजन किया गया।



Inaugural function of Hindi fortnight celebration in progress

दिनांक 25 सितम्बर 2013 को हिन्दी कार्यशाला आयोजित की गयी जिसमें श्री एम. अरविन्दाक्षन, हिन्दी अधिकारी, सामान्य भविष्य निधि कार्यालय, कोषिककोड ने हिन्दी टिप्पणी एवं मसौदा लेखन पर व्याख्यान दिया। प्रस्तुत कार्यशाला में संस्थान के कुल 27 अधिकारियों एवं कर्मचारियों ने भाग लिया।

प्रस्तुत तिमाही में अदरक, हल्दी एवं काली मिर्च पत्रिकाओं, अनुसंधान के मुख्य अंश (2012-13) एवं मसाला समाचार (अंक 24 खंड 2) को प्रकाशित किया। सुश्री. एन. प्रसन्नकुमारी ने दिनांक 17 जुलाई 2013 को नगर राजभाषा कार्यान्वयन समिति की उपसमिति की बैठक में भाग लिया।

## Transfer of Technology

Turmeric variety IISR Prathibha is spreading across the country very fast. Success stories of IISR Prathibha, one of two first open pollinated progeny varieties of turmeric, is regularly pouring in from different regions of the country. One latest addition is of Mr. Sasikant Jadhao of Chandrapur, Maharashtra. This year he planted this variety in about 3 acres.



Mr. Sasikant Jadhao in his Prathibha plot



Mr. Ramesh Reddy's plot, Nuziveedu



## Technology inputs and advisory services from ATIC

Two hundred and ninety four farmers availed advisory services by direct visits. Two hundred and ten farmers from Kozhikode district, 77 from other districts of Kerala and 17 from other states visited the centre. Students (83 no.) from various institutions visited the centre on study tour.

## Extension activities

- Institute participated in one national level exhibition held in connection with International conference on tuber crops for sustainable livelihood organized at CTCRI, Thiruvananthapuram 9-12 July 2013.
- Under Pepper Rehabilitation Scheme (Sugandhi project) an awareness seminar on scientific cultivation of black pepper was organized at Meppadi in Wayanad on 27 July 2013.
- Institute participated in the launch workshop of Hill Area Development Authority (HADA) organized by the Kerala state Planning Board at Kalpetta, Wayanad on 25 August 2013.
- The Monthly Technology Advisory meetings (MTA) under ATMA, Calicut were held on 30 July, 25 August and 27 September 2013, in which Scientists extension interface were organized.

## Krishnamoorthy B

### Rema J

Visited the nutmeg plot of Mr. Mathew Sebastian at Karivarakkundu, Malappuram on 23 July 2013. He has planted A9/69 as well as IISR Viswashree grafts. Ten year old A9/69 grafts yield 2000 fruits and IISR Viswashree grafts 800 fruits on an average per tree per year. He has followed IISR technique of training the side grafts to a support with a slight modification (iron ankle instead of concrete post).

### Santhosh J Eapen

'Black pepper: Pests and diseases', Farmers' Day organized by Community Development Centre, MSSRF, Kalpetta, 17 August 2013.

'Issues in pesticide usage', Meeting of monthly Farm Technology Advisories, ATMA, IISR, Kozhikode, 25 September 2013.

### Suseela Bhai R

Under Nursery Certification Programme, visited

departmental nurseries in Koorachundu, Koduvally, Koothali, Kavilumpara and Kunneimmel panchayats, 2-11 July 2013.

Visited nutmeg plantations in Anakkampoyil, 19 July 2013 and Angamali, 27 August 2013.

Conducted farmers training programme at Meppadi panchayat on 27 July 2013 and Nenmeni panchayat on 11 September 2013.

Training offered to Mr. Vijesh from TBGRI, Thiruvananthapuram on Isolation and screening of plant pathogens, IISR, Kozhikode, 12-17 August 2013.

As part of the disease monitoring survey, visited Thirunelli Panchayat on 17 August 2013 and Meppadi Panchayat on 26 August 2013.

A group of Scientists comprising, Dr. R. Suseela Bhai, Dr. S.J. Eapen & Dr. T.K. Jacob visited the fields of Mr. Kuruvilla, Chirakkal, Paduvapuram, Edakunnu, Ernakulam; Mr. Zachariah, Pynadathu House, Paduvapuram, Edakunnu, Ernakulam; Mr. Sivasankaran Nair, Secretary, Nutmeg Growers Association, Edakunnu, Ernakulam and Mr. P.D. Yacob, Painadath, Karukutty, Ernakulam (Symptoms: Leaf and fruit fall and thread blight in all the plots), on 28 August 2013.

A team lead by Dr. K. Johnson George visited Coconut development farm, Neriya Mangalam, Ernakulam (Symptoms: Severe white thread blight) on 26 August 2013.

## Krishi Vigyan Kendra

### SAC meeting of KVK

The Fifteenth Scientific Advisory Committee (SAC) Meeting of Krishi Vigyan Kendra (IISR, Kozhikode), Peruvannamuzhi was held on 23.08.2013 in the Silver Jubilee Hall of IISR,



A view of SAC meeting

Kozhikode under the Chairmanship of Dr. M. Anandaraj, Director, IISR, Kozhikode. Dr. Jose Mathew, Associate Director (Extension), Kerala Agricultural University and Dr. B.T. Rayudu, Principal Scientist, Zonal Project Directorate, Zone VIII, Bangalore also attended the meeting. Twelve actions points emerged during the discussions.

### Front Line Demonstration

1. Fertility enhancement in anoestrus cows following CIDR treatment: CIDR anoestrus cows showed 100% estrus response but conception rate was 52%
2. FLD on use of reflective ribbons for repelling birds in upland paddy, conducted at Koorachundu and Chempanoda
3. Demonstration of upland rice cultivation using high yielding short duration variety, Vaisakh in 5 farmers field in Koorachundu, Chakkittapara and Thiruvallur panchayats

### On Farm Testing

The following OFT programmes were conducted during the period

1. Effect of bio-stimulation on estrus induction and conception rate in crossbred heifer: Oral feeding of mixture containing 100g Njerinjil (*Tribulus terrestris*), 100g of Panchari (unboiled raw rice) and 100 ml gingelly oil early morning before sun rise for three days in crossbred heifer showed estrus response of 72% and conception rate of 66.66% whereas in control group it was only 48 and 58.33% respectively.
2. Effect of bio stimulation on lactation in dairy cattle: Feeding coconut or boiled coconut flower (700g) along with jaggery (200g) increased milk yield by 16.5% in dairy cattle.
3. Performance evaluation of IISR Nutrient mix for yield and quality in ginger (10 farmers, in Chakkittapara and Koorachundu panchayats).
4. Performance evaluation of Panniyur-5 in shady homesteads (4 farmers).

### Training programme

A total of 31 training programmes were conducted for farmers, rural youth and extension functionaries in which 1186 persons attended.

## Publications

### Research papers

Bhat A I, Siljo A & Deeshma K P 2013 Rapid detection of Piper yellow mottle virus and Cucumber mosaic virus infecting black pepper (*Piper nigrum*) by loop-mediated isothermal amplification (LAMP). Journal of Virological Methods 193: 190–196.

Jayashree E, John Zachariah T, Evangelin P P & Suseela Bhai R 2012 Qualitative changes during storage of different ginger based spice sauces. Journal of Horticultural Sciences 7(2): 174–179.

Krishnamurthy K S, Diggs A & Porterfield D M 2013 Amperometric biosensor approaches for quantification of indole 3-acetic acid in plant stress responses. Communications in Soil Science and Plant Analysis 44 (11) : 1749-1763. (DOI:10.1080/00103624.2013.783920)

Kumar A, Prameela T P & Suseelabhai R 2013 A unique DNA repair and recombination gene (recN) sequence for identification and intraspecific molecular typing of bacterial wilt pathogen *Ralstonia solanacearum* and its comparative analysis with ribosomal DNA sequences. J. Biosci. 38 : 267-278.

Prasath D, Suraby E J, Karthika R, Rosana O B, Prameela T P & Anandaraj M 2013 Analysis of differentially expressed genes in *Curcuma amada* and *Zingiber officinale* upon infection with *Ralstonia solanacearum* by suppression subtractive hybridization. Acta Physiologiae Plantarum. DOI: 10.1007/s11738-013-1362-2.

Siju S, Dhanya K, Sheeja T E, Sasikumar B, Bhat A I & Parthasarathy V A 2013 Novel polymorphic microsatellite markers from turmeric, *Curcuma longa* L. Acta Bot. Croat. 72: 1–6.

Sruthi D, John Zachariah T, Leela N K & Jayarajan K 2013 Correlation between chemical profiles of black pepper (*Piper nigrum* L.) var. Panniyur-1 collected from different locations. Journal of Medicinal Plants Research 7(31): 2349–2357.

Vijesh Kumar I P, Reena N, Anandaraj M, Eapen S J, Johnson G K & Vinitha K B 2013 Amplification, cloning and *in silico* prediction of full length elicitor gene from *Phytophthora capsici*, the causal agent of foot rot disease of black pepper. J Plant Pathol Microb 4: 181 doi: 10.4172/2157-7471.1000181.

## Review article

Bhat A I, Devasahayam S & Anandaraj M 2013 Viral disease of black pepper: Current scenario. Focus on Pepper 4(2): 33–48.

## Popular articles

Anandaraj M & Pervez R 2013 Paramparik masaley: adhunik roop (Hindi). Kheti (July): 31–35.

Biju C N, Praveena R, Ankegowda S J & Senthil Kumar R 2013 Yellowing - The Trojan horse in the fort of 'King of Spices'. Spice India 26(7): 21–26.

Krishnamoorthy B, Rema J & Mathew P A 2013 IC 537218- A promising nutmeg selection from IISR, Kozhikode. Spice India 26(8): 18.

Manoj P S 2013 Idavilayayi vriksha sugandha vilakal (Malayalam), Tree spices as intercrops, Kerala Karshakan 59(1): 16–19.

Praveena R, Biju C N & Eapen S J 2013 Nematode pests affecting cardamom plants. Spice India 26(4): 9–11.

Sasikumar B 2013 A black pepper variety with very high dry recovery from Agali, Palakkad, Malayala Manorama, 12 August 2013.

Sasikumar B 2013 Tree spices history-remnants of colonial rule. Kerala Karshakan (Malayalam) 59: 2023.

Sasikumar B, Johnson George K, Saji K V, Rema J & Krishnamoorthy B 2013 Nutmeg is the star here. Spice India 26(9): 17–19.

## Extension pamphlet

Aiswariya K K 2013 A handbook for plant protection, p.19.

## Books

Inventory of Agriculture of Kozhikode district 2013, Compiled by: Manoj P S, Aiswariya K K, Pradeep B, Shanmugavel S, Prakash K M & Deepthi A (Eds.) Arumuganathan T, Jacob T K & Devasahayam S.

## New Appointment

Name	Post	Project	w.e.f.
Mr. K.V. Pillai	Administrative officer	-	2 August 2013
Mr. V.S. Akhilesh	SRF (Comp. Sci.)	e-Granth	17 August 2013
Mr. Batchu Navish Kumar	SRF (Bioinformatics)	PhytoFuRa	3 August 2013
Mr. S. Jithin	SRF (Comp. Sci.)	PhytoFuRa	29 July 2013

## Training manual

Suseela Bhai R 2013 Diagnosis and management of *Phytophthora* diseases in spice crops. For winter school IIHR, Bengaluru.

## Papers presented in symposia/ seminars/ workshops /conferences

Kandiannan K Climate trend, crop diversification and value addition in the 'Interface Programme on Utilization of Paddy Fallows in Kodagu', KVK, Gonikoppal, Kodagu, Karnataka, 25 September 2013

## Lectures delivered

### Anandaraj M

Management of *Phytophthora* in citrus, National Citrus Meet, Nagpur, 12-13 August 2013.

Taxonomy of *Phytophthora*, Winter School, IIHR, Bengaluru, 10 September 2013.

### Rajeev P

Scientific crop production practices in black pepper in Awareness Seminar under Pepper Rehabilitation Programme at Meppadi, Wayanad 27 July 2013.

Moderated the Scientists Extension Interface meetings under the Monthly Technology Advisory meetings (MTA) under the ATMA, Calicut, 30 July, 25 August and 27 September 2013

### Santhosh J Eapen

Discovery services at IISR, Calicut, National Workshop on Web-scale Discovery Services, Jawaharlal Nehru University, New Delhi, 9 September 2013.

## Radio Talk

### John Zachariah T

Medicinal properties of Turmeric and value addition in spices and scope of employment opportunities (Malayalam), AIR, Kozhikode, 2 September 2013.

### Pradeep B

Methods prevalent for aquaculture in coastal areas, Interview in Farm and Home Programme, AIR, 26 August 2013.

Guidelines for fish farming in coastal areas, Interview in Farm and Home Programme, AIR, 27 August 2013.

## Transfer

Name	Position held	Relieved on	Transferred To
Dr. T Arumuganathan	Project Co-ordinator (KVK)	19/7/2013	SBI, Coimbatore
Mr. V Mohanan	Administrative officer	29/7/2013	CMFRI, Kochi

## Resignation

Voluntary Retirement under Rule 48a of CCS (Pension) Rules 1972

Shri. B. M. Chenniappa, Skilled Support Staff (w.e.f. 1 August 2013)



हर कदम, हर डगर  
किसानों का हमसफर  
भारतीय कृषि अनुसंधान परिषद

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## SPICES NEWS

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