



# CPCRI News



Views and News on Advances in Coconut, Arecanut and Cocoa



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## MESSAGE



I shall be relinquishing as Director, Central Plantation Crops Research Institute, Kasaragod on attaining superannuation from ICAR service on 31<sup>st</sup> August 2014. I considered it as a privilege to serve this prestigious Institute as Director for the last eight and a half years during my service of 36 years in plantation crops research at this Institute in various capacities. I remember with gratitude, the guidance, encouragement and support provided by my superiors and wellwishers who were associated with me particularly while discharging my duties as Director of this Institute. I owe a lot to Dr. S. Ayyappan, Secretary, DARE, DG, ICAR, and Dr. N. K. Krishnakumar, Deputy Director General (Hort. Sci.) for the guidance, support and inspiration. Thanks are also due to Dr. Mangala Rai, former DG, ICAR and Dr. H. P. Singh and Dr. G. Kalloo, former DDGs of Horticulture Division of ICAR. The guidance given by QRTs chaired by Dr. S.N. Rai and Dr. S.P. Ghosh and RACs chaired by Dr. H.K. Jain, Dr. P. Rethinam, Dr. P. L. Gautam and Dr. S. Edison and IMCs needs special mention. The support extended by ICAR HQ and Coconut Development Board, Departments of Agriculture/ Horticulture of different states, sister ICAR institutes, DASD, DCCD and SAUs deserve to be mentioned at this point of time. I also got the opportunity to serve coconut community as Chairman of International Coconut Genetic Resources Network of Bioversity International during 2012-2014.

The kind of progress and achievements could not have been made but for the whole hearted cooperation and support extended by each and every officer and staff member of the Institute. I extend my heartfelt gratitude to each and every one who has helped me in my endeavour to work for the well being of the farming community. Although it is an undisputed fact that we have made significant achievements in the research front, there are still challenges which are to be addressed in the perspective of long-term prosperity of our mandate crops. Meeting these challenges requires a renewed commitment to research, innovation, and technology development. I wish all the researchers the very best in transforming the research efforts into practical outcomes to benefit our farming community. I wish the Institute continued growth and success in future.

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## Agri-incubation Centre inaugurated

An agri-incubation centre was inaugurated by Dr. N.K. Krishna Kumar, Deputy Director General (Hort. Sci.), Indian Council of Agricultural Research, New Delhi on 17<sup>th</sup> August 2014 at CPCRI, Kasaragod. He felt that concerted efforts are to be made to commercialize the technologies developed by the Institute in order to harness the benefits of the technologies at the grassroot level. In his presence, MoAs were signed on technologies, "Virgin coconut oil (VCO) production by hot process" and "Production of desiccated coconut powder" with Shri Balakrishnan, Manya, Kasaragod, and Mr. M.A. Harris, Mulleria, Kasaragod, respectively. During the programme three other technologies were also transferred to progressive entrepreneurs in agri-business. These include "Collection of fresh and hygienic neera and production of natural coconut sugar" to Mr. Sunny George, Thejaswini Coconut Farmers Producer Company Ltd., Kannur, Kerala, "Transfer of know-how on coconut zygotic embryo culture" to Mr. M. Murali, DeeJay Consultancy Services, Bangalore and "Tissue culture protocol for the



*Dr. N.K. Krishna Kumar, DDG (H.S.) handing over MoA on 'arecanut tissue culture' to Shri T.S. Chellaiah, Sunglow Biotech*



*Dr. N.K. Krishna Kumar, Hon'ble DDG (H.S.) Inaugurating the Agri-incubation Centre at CPCRI Kasaragod*



*Dr. N.K. Krishna Kumar, Hon'ble DDG (H.S.) Laying the foundation stone for the Centenary Building of CPCRI Kasaragod*

multiplication of arecanut" to Mr. T.S. Chellaiah, M/s Sunglow Biotech, Coimbatore, Tamil Nadu. Dr. George V. Thomas, Director, CPCRI while addressing the gathering, remarked that the facilities would graduate good number of entrepreneurs to promote agri-business. Dr. P.L. Saroj, Director, Directorate of Cashew Research Puttur felicitated the programme and mentioned that the allocation to agricultural research is very low as compared to the growth in agricultural GDP in the country.

During the day DDG (H.S.) had also laid foundation stone to a new building wing for Kendriya Vidyalaya No. 1, CPCRI, Kasaragod and a Centenary Building for CPCRI, Kasaragod.

## Governor of Kerala visits CPCRI

Her Excellency Smt. Sheila Dikshit, Governor of Kerala visited Central



*Dr. N.K. Krishna Kumar, Hon'ble DDG (H.S.) Laying the foundation stone for the East Block of Kendriya Vidyalaya No. 1 CPCRI, Kasaragod*

Plantation Crops Research Institute, Kasaragod on 18-07-2014. She visited the field and laboratories of Institute and was briefed on the latest achievements and innovations made in the Institute. She was impressed by the ongoing activities and appreciated the technologies developed by CPCRI especially, neera collection protocol, snow ball tendernut, coconut chips, virgin coconut oil, varieties and hybrids developed, production technologies, vermicomposting and tissue culture. Dr. George V. Thomas, Director made a presentation on the history, organization, technological advancements of the institute so far.

The Governor remarked that 'this is an outstanding institute of innovation, very impressive with a



*Smt. Sheila Dikshit, Her Excellency Hon'ble Governor of Kerala is being explained by Dr. George V. Thomas, Director on hygienic neera collection*



team of dedicated scientists. The nation is proud of such dedication and the fruits thereof. We need to spread this more vigorously to really turn a 'dream into reality'. To commemorate the occasion Her Excellency planted a seedling of newly released 'Kalpa Jyothi' variety of coconut.

### **Seminar on 'Sustainability of Coconut, Arecanut and Cocoa farming -Technological advances and way forward' held**

A National Seminar on 'Sustainability of Coconut, Arecanut and Cocoa farming - Technological Advances and way forward' was held during 22-23 August 2014 at CPCRI, Kasaragod. Mr. T.K Jose IAS, Chairman of Coconut Development Board, Kochi, in his inaugural address appreciated the former Directors of CPCRI for playing pivotal role in shaping agricultural scenario in the sector. He opined that sustainability of agricultural crops depends on a large extent on technological advances and the new talent pool entering into agricultural research system. Dr. K. V. Ahmed Bavappa, formerly Director, CPCRI in his presidential address highlighted the importance of transition to organic farming and expressed his concern on fluctuation in prices of coconut and arecanut. Guests of Honour Dr. K.V. Peter, formerly Vice Chancellor of Kerala Agricultural University, Dr. P. Rethinam, formerly Executive Director of APCC, Jakarta, Dr. K.U.K. Nampoothiri, formerly Director, CPCRI also felicitated. The programme



*Shri T.K. Jose, IAS, Chairman, CDB inaugurating the conference*

witnessed release of nine publications from the Institute. A Biofertilizer formulation 'KerAM' enriched with arbuscular mycorrhizae was also released during the occasion. This was followed by a key note address by Dr. N. M. Nayar, formerly Director, CPCRI wherein he focused on the technological advancements in mandate crops. Dr. George V. Thomas, Director, CPCRI delivered a special lecture and was felicitated by the scientists in view of his superannuation from ICAR service on 31-08-2014. There were six technical sessions during the conference *viz.*, Plant genetic resources and biotechnological approaches, Production system management, Climate resilience, Plant health management, Value addition, product diversification and mechanisation and Technology dissemination, development and marketing. During each session there were plenary lectures by experts followed by panel discussion. During the two day seminar, more than 40 research papers were presented by scientists from ICAR institutes and Agricultural/ Horticultural Universities on various topics. On 23<sup>rd</sup> August, the plenary session was held in which awards for best posters were distributed.

### **Group meeting of AICRP on Palms**

23<sup>rd</sup> Annual group meeting of All India Coordinated Research Project (AICRP) on Palms held at Directorate of Oil Seeds Research, Hyderabad from 25 to 28 July 2014. Dr. N. K. Krishna Kumar, Deputy Director General (Hort. Sci.), ICAR inaugurated the Group Meeting and stressed upon exploitation of value added products in palms especially in the context of increase in demand of tender coconut water. The importance of production of quality planting materials of plantation crops particularly in coconut, areca nut and oil palm has to be taken up on large scale was also highlighted. Dr. B M C Reddy, Vice Chancellor, Dr. YSR Horticultural University, Andhra Pradesh, also stressed on popularizing value added products of coconut and palmyrah, and providing technology for introducing cocoa as intercrop in coconut and oil palm.

Dr. H. P. Maheshwarappa, Project Coordinator (Palms) presented the research achievements of the project for 2013-14 and thrust areas of the project. Dr. P. Rethinam, Former Executive Director, APCC, Jakarta emphasized the need of developing short statured oil palm



*Dr. N.K. Krishna Kumar, DDG (H.S.) inaugurating the AICRP (Palms) workshop at DOR, Hyderabad*

varieties for easy harvesting and mechanization of harvesting process. Dr. T. Janakiram, Assistant Director General, (Hort. Sci.-I), ICAR, Dr. K. U. K. Nampoothiri, Director, Dr. MSSRF, Odisha and Dr. K. S. Varaprasad, Project Director, DOR, Hyderabad also spoke on the occasion. During the meeting, programmes undertaken by the coordinating centres were reviewed.

### Brainstorming session on somatic embryogenesis and use of bioreactors

A brainstorming on the "Somatic embryogenesis and use of bioreactors" was organized at CPCRI, Kasaragod on 02-08-2014. Dr. T. Janakiram, ADG (Hort.Sci.-I), in his inaugural address lauded the efforts made by the Institute for developing coconut embryo culture technique, which has received international acclaim from Bioversity International. In his presidential address, Dr. George V. Thomas, Director, CPCRI, stressed the role of biotechnology as a solution to tackle the limitations of conventional methods. Shri Sugatha Ghosh, CCDO, CDB, in his felicitations, emphasized that the current multiplication rate of 1:1



Dr. Anitha Karun, HoD, Crop Improvement, Dr. George V. Thomas, Director, Dr. Janakiram, ADG (H.S. I), Shri Sugata Ghose, CCDO, CDB during the brainstorming meeting

ratio (one seed to one palm) in coconut should be enhanced to at least 1:20 using rapid multiplication protocols without compromising on the quality, to meet the demand of 10 million quality planting materials of coconut per year, of which only 3-3.5 million could be met by conventional techniques. There were presentations by biotechnologists from renowned institutions in the sector. Dr. Anitha Karun, CPCRI, briefed the current status of plumule culture in coconut. The following important recommendations were emerged during the Brainstorming:

- An idea of a network project, in collaboration with various Institutes working with in vitro recalcitrant species, was mooted.
- Tissue culture protocol to be developed for a single variety in coconut initially and the results could be extrapolated for other cultivars.
- Efforts need to be made in obtaining financial assistance from government agencies apart from ICAR and CDB.

### Review of research programmes at RS, Kayamkulam

Dr. S. Edison, RAC chairman, visited CPCRI, RS, Kayamkulam during 3-4 June, 2014 and reviewed the research advancements in root (wilt) disease of coconut. He was impressed by the root (wilt) disease resistant/ tolerant coconut varieties viz., Kalparaksha, Kalpasree and Kalpasankara developed at the Station as well as the integrated package evolved for the management of the disease.



Dr. S. Edison conducting the review meeting

Indirect DAC ELISA as diagnostic techniques for the detection of RWD using leaf bits was appreciated by him. He complimented the scientists for the IPM technologies developed and farmer-participatory area-wide suppression of key pests of coconut. Dr. George V. Thomas, Director, CPCRI was present during the review meeting.



Dr. George V. Thomas, Director briefing breeding programme to Dr. S. Edison in the Kalparaksha experimental plot

### Brainstorming session on fine tuning of management package for root (wilt) disease of coconut for plant health and productivity

Brainstorming on "Fine tuning of management package for root (wilt) disease of coconut for plant health and productivity" was conducted at CPCRI, RS, Kayamkulam on 05-08-2014. In his inaugural address, Dr. George V. Thomas, Director, CPCRI and Chairman highlighted the need to





*Dr. George V. Thomas, Director, CPCRI addressing the gathering*

motivate farmers to adopt management strategies for combating root (wilt) disease for improving productivity. He emphasized the need to relook the integrated management of root (wilt) disease taking into account the advancements made in research front and the feedback and suggestions from the extension agencies. He presented an overview of the research highlights made by the Institute in root (wilt) disease management. Scientists from CPCRI, Kerala Agricultural University, Officials from State Department of Agriculture and Agricultural Technology Management Agency participated in the programme. A total of 30 participants attended the brainstorming session.

Deliberations were held on the present package of practices recommended by CPCRI and Kerala Agricultural University for the management of root (wilt) disease. Newer technologies developed for the production of healthy coconut seedlings, management of the leaf rot disease as well as other pests and diseases were discussed and it was decided to incorporate such technologies for recommendation.

### Online public access library catalogue

CPCRI libraries, at Kasaragod, Vittal and Kayamkulam have got a collection of rare and important publications on coconut, arecanut and cocoa. To increase the visibility of library holdings and to provide better information retrieval/resource sharing an online union catalogue of library publications, providing web online public access catalogue (OPAC) using KOHA under NAIP scheme. This helps readers to locate the availability of publication by accessing the OPAC online from their desktop either from the library catalogue at institute website ([www.cpcri.gov.in/library](http://www.cpcri.gov.in/library)) or eGranth website (<http://egranth.ac.in/>). The catalogue data accessible in library OPAC is as per the details given below.

Titles	Kasaragod	Vittal	Kayamkulam
Books	9835	5051	2296
Back vol.	12938	5775	6259
Reprints	1618	1078	650
Others	260	77	-
Total	24651	11981	9205



*Library OPAC webpage preview*

### Nursery Accreditation committee visits

The team constituted by the National Horticultural Board

(NHB) visited the coconut nurseries at CPCRI, Kasaragod and Regional Station, Kayamkulam respectively on 27-8-2014 and 30-08-2014 to assess and grade the nursery under the scheme on accreditation of horticultural nurseries.

The team visit to RS, Kayamkulam was headed by Dr. B.K. Karkara, Retired Professor, Y.S. Parmar University of Horticulture & Forestry, Solan, Himachal Pradesh. The team visited the station and inspected the nursery beds, infrastructure facilities and mother palms for the production of quality planting materials in coconut for the root (wilt) endemic areas.

### Mechanical climbing of palms

Demonstration of arecanut palm climbing devices was organized at CPCRI, RS, Vittal on 10-04-2014 in collaboration with CAMPCO and ARDF, Mangalore. Four hundred farmers had participated in the demonstration. Climbing devices for arecanut and coconut were demonstrated by various firms including CAMPCO, Mangalore. Shri Konkodi Padmanabha, President, CAMPCO and other entrepreneurs had participated and interacted with the farmers. Shri N. M. Adyanthaya, Former MLA, Shri Manchi



*Shri Konkodi Padmanabha, President, CAMPCO and Dr. K.S. Ananda, Head CPCRI, RS, Vittal with scientists and entrepreneurs at Vittal*



*Demonstration of arecanut climbing device*

Srinivas Achar, President, All India Arecanut Growers Association, Puttur and Shri Shankar Bhat, Badanaje, Trustee, ARDF, Mangalore were the guests of honour.

### **International Conference on Horticulture**

An International Conference on "Horticulture for nutritional, livelihood and environment security in hills: Opportunity and challenges" was co-organized by CPCRI, RC, Mohitnagar with UBKV from 22-24 May, 2014 at UBKV (Hill Campus), Kalimpong, Darjeeling, West Bengal.

### **Student programme for excellence in experimental design (SPEED)**

The SPEED programme, sponsored by KSCSTE, Thiruvananthapuram was organized at CPCRI, RS, Kayamkulam during May 12-16, 2014 for the 10+1 and +2 students



*Participating students with Dr. Vineeth C. Nair and scientists of CPCRI, RS, Kayamkulam*



*Dr. P.J. Cherian, Director, Kerala Council for Historical Research (KCHR) releasing the training manual of SPEED programme during valedictory function*

representing various districts of Kerala who had secured A+ Grade in State Science Fair competitions. The programme was organized in tune with the theme 'Student Ready' programme of ICAR, which envisages HRD on technologies in farm science. Dr. Vineet C. Nair, Scientist, VSSC, Trivandrum inaugurated the programme followed by session on space science research. The students were exposed to various laboratories and fields experiments and hands on experiences in agriculture followed by field visits and science quiz. Dr. P.J. Cherian, Director, State Council for Historic Research was the chief guest in valedictory function.

### **Executive Committee meeting of Sub-DIC**

A meeting of the reconstituted Executive Committee (EC) of Distributed Information Sub-Centre (Sub-DIC) CPCRI,



*Executive Committee meeting of Sub-DIC*

Kasaragod was held at 10AM on 8<sup>th</sup> August 2014 at CPCRI Kasaragod. Dr. George V Thomas, Director, CPCRI chaired the meeting and following members attended.

1. Dr. T. Madhan Mohan, Advisor, DBT, New Delhi
2. Shri Shreeshan Raghavan, Jt. Secretary, DBT, New Delhi.
3. Dr. Rajesh M.K., Sr. Scientist, CPCRI, Kasaragod.
4. Dr. Santhosh Eapen, Sr. Scientist, IISR, Kozhikode.
5. M.P. Ramesh Kumar, CTO, CPCRI, Kasaragod.

### **ICAR Foundation day**

The 86<sup>th</sup> Foundation Day of ICAR was celebrated in a befitting manner at CPCRI, Kasaragod, Regional Station, Kayamkulam and Regional Station, Vittal on 16th July 2014. At CPCRI, Kasaragod, Shri Subhash Babu K., Zonal Manager, Kerafed & General Manager in-charge, Kerala State Coconut Development Corporation, Kozhikode was the chief guest, who delivered the ICAR foundation Day speech. Dr. K.B. Hebbar, Director In-charge presided over the function. Shri Thirumaleshwara Bhat, Principal Agricultural Officer Kasaragod offered felicitations. Various programmes such as quiz competition for the farmers and



*Shri K. Subhash Babu delivering ICAR Foundation Day lecture at CPCRI, Kasaragod*



students as well as a scientist-farmer interface on soil and water conservation techniques for coconut garden were organized as part of the foundation day programme. Chief guest distributed prizes to the winners of various competitions. In the inaugural session at RS, Kayamkulam, Dr. V. Krishnakumar, Head and Dr. P. Anithakumari, Principal Scientist, delivered lectures to high school students. Students participated in quiz and essay competitions. Dr. C. Bhaskaran, Retd. Professor, KAU, was the Chief Guest during the valedictory function. He stressed that more youth should take up

farming as a career option to meet the increasing demand for food.

### **Biosafety Committee meeting**

A meeting of the reconstituted Institute Biosafety Committee (IBSC) of the Institute was held on 21-06-2014 at CPCRI, Kasaragod under the chairmanship of Dr. George V. Thomas, Director, CPCRI and Chairman, IBSC.

The following members were present:

1. Dr. Indrani Karunasagar, Professor and Head, Department of Microbiology and Director, UNESCO Centre for Marine Biotechnology, College of Fisheries, KVAFSU, Mangalore (External member)

2. Dr. George Thomas, Scientist E-II, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram (DBT Nominee)
3. Dr. Rekha Rai, Professor (Microbiology), K. S. Hedge Medical Academy, Mangalore (Medical Officer)
4. Dr. Vinayaka Hegde, Head, Division of Crop Protection, CPCRI, Kasaragod (Member)
5. Dr. Murali Gopal, Principal Scientist, CPCRI, Kasaragod (Member)
6. Dr. M.K. Rajesh, Senior Scientist, CPCRI, Kasaragod (Member Secretary).

## **HUMAN RESOURCE DEVELOPMENT**

### **Deputation Abroad**

Dr. George V. Thomas was a resource speaker in the 46<sup>th</sup> APCC Cocoteh meeting and coconut festival and Conference on "Policies, programs and technologies towards a resilient and sustainable coconut sector" during 14-07-2014 to 16-07-2014 at Colombo, Sri Lanka.

Dr. Chandrika Mohan, Principal Scientist (Agril. Entomology) was deputed as Focal point expert from India in the Regional Expert consultation workshop on mite management of coconut in SAARC member countries held at Dhaka, Bangladesh during 10-11 August 2014. The workshop was organized by SAARC Agriculture Centre (SAC), Bangladesh.

Dr. S. Elain Apshara, Senior Scientist (Hort.) was deputed to United Kingdom during 16<sup>th</sup> to 18<sup>th</sup>



*Asia - Pacific Cocoa Breeding Group - Dr. Elain Apshara representing India along with participants from Indonesia, Malaysia, Philippines, Papua New Guinea and Vietnam*



*Shri S. Jayasekhar receiving certificate of honour from Dr. Ann Shriver, Executive Director, IIFET, USA*

June, 2014 to attend the meeting of 'Asia-Pacific Cocoa Breeders Working Group', held at University of Reading, UK.

Jayasekhar, S., Scientist (Sr. Scale) deputed to participate in the 17<sup>th</sup> the International Institute of Fisheries Economics and trade (IIFET) 2014 conference held at Brisbane, Australia during 07-11 July 2014. He received the Best Research Paper award for his paper "Restructuring the value chain governance: The impact of food safety regime on fishery sector of Kerala, India" during the conference.

Dr. Regi J. Thomas, Sr. Scientist and Dr. K. Nihad, Scientist have attended the 29<sup>th</sup> International Horticultural Congress 2014 during 17-22 August 2014 in Brisbane, Australia and presented research papers entitled "Studies

on improvement of West Coast Tall variety of coconut for yield and resistance to root (wilt) disease through recurrent selection", "Light use efficiency and flower quality of *Heliconia stricta* in coconut based cropping system" and "Relationship between insufficient nutrients, water stress and flowering in *Heliconia stricta*", respectively.

Dr. G. C. Acharya, Sr. Scientist (Hort.) was deputed on a DST sponsored exposure visit to China as a part of training programme under "National programme for training of scientists and technologists working in Govt. sector" during 18-22 August 2014.

#### Training within India

Smt. Lekha, G., ACTO, KVK, Alleppey, attended a training on "Production protocol for bioagents and biopesticides" at NIPHM, Hyderabad during 23<sup>rd</sup> May 2<sup>nd</sup> June, 2014.

#### P.G. Diploma awarded

Dr. S. Elain Apshara, Senior Scientist (Hort.) and Dr. M.K. Rajesh, Senior Scientist (Biotech.) were awarded Post Graduate Diploma in Technology Management in Agriculture (PGDTMA) on 15-07-2014, jointly

offered by NAARM & University of Hyderabad.

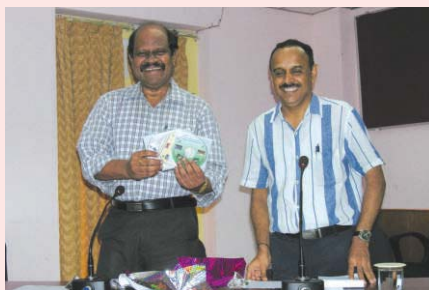
#### International HRD collaboration

Under International HRD collaboration on "Research training fellowship for developing country scientists", Mr. M'bo

Kacou Antoine Alban, a post graduate student from Côte d'Ivoire is undergoing training at CPCRI, RS, Vittal under the guidance of Dr. K. S. Ananda for a period of six months from 31-03-2014 to 30-09-2014.

#### Refresher course cum training for surveillance squad of CPCRI.

A refresher course cum training programme on "Emerging pests and diseases in palms and cocoa" was organized on 22<sup>nd</sup> and 23<sup>rd</sup> May 2014 for surveillance squad members of CPCRI, Kasaragod, CPCRI, RS, Vittal and CPCRI, RC, Kidu at headquarters. Total 28 staff attended the training. Inaugurating the training, Director CPCRI, released three e-manuals of training viz., IDM and IPM in coconut", "IDM and IPM in arecanut" and "IDM and IPM in cocoa.



Dr. George V. Thomas, Director  
releasing e-manual



Surveillance squad members with Dr.  
George V. Thomas, Director

#### Low rainfall in June

At Kasaragod total rainfall recorded in June 2014 was 598.3 mm which was 41% less than the average rainfall of last 20 years in the same month (1015.7 mm). It is the second lowest in the past 20 years, after 2009 (589.6 mm).

### EXTERNALLY FUNDED PROJECTS SANCTIONED

Three new projects with external funding were sanctioned for the Institute during this period. A project on "Molecular docking and 3-D QSAR studies to evaluate the mechanism of antimicrobial action of fatty acids from virgin coconut oil and monolaurin" sanctioned to Dr. M.K. Rajesh, Sr. Scientist (Biotech.) with an outlay of Rs. 14.85 lakhs for two years from KSCSTE. A project on "Organic Farming in Kasaragod district An analysis of field level scenario and stakeholders' perspective" sanctioned to Dr. C. Thamban, Principal Scientist (Ag. Extension) with an outlay of Rs. 4.90 lakhs for two years from KSCSTE. Another project on "Development of forewarning model using regression and simulation approach for management of rice leaf folder, *Cnaphalocrosis medinalis* Guenee (Lepidoptera: Pyralidae)" sanctioned to Dr. M. Sujithra, Scientist (Ag. Entomology) with an outlay of Rs. 22.50 lakhs for three years from DST.



**Research paper**

- Acharya, G.C., Ranjana Chakrabarty, Himadri Rabha and Shil Sandip. 2014. Disease index for basal stem rot of arecanut in North East India. *J. Plantation Crops* **42**(2): 265-267.
- Jeena Mathew, Krishnakumar, V. and Namboothiri, C.G. N. 2014. Potential of native weed species as nutrient contributors of coconut garden in an Entisol. *J. Plantation Crops* **42**(2): 231-237.
- Kalavathi, S., Krishnakumar, V., Thomas, R.J., Thomas, G.V. and Anithakumari, P. 2013. Community based adoption of intercropping in coconut based farming systems of Kerala with special reference to tuber crops. *J. Root Crops* **39** (2): 201-206.
- Krishnakumar, V., Dhanapal, R. and George V. Thomas. 2013. Integrated nutrient management for elephant foot yam intercropped in coconut garden. *J. Root Crops* **39** (2): 263-264.
- Ranjana Chakrabarty, Acharya, G.C. and Sarma, T.C. 2014. Antifungal activity of some plant extracts against *Ganoderma lucidum* (Curtis Ex. FR.) Karst., causing basal stem rot disease of arecanut. *The Bioscan*, **9**(1): 277-281.
- Ranjana Chakrabarty, Acharya, G.C. and Sarma, T.C. 2014. Evaluation of substrates for multiplication of bioagent, *Trichoderma viride*. *African J. Agril. Res.*, **9** (25): 1938-1940.
- Ravi Bhat and Sujatha, S. 2014. Soil fertility status and disorders in arecanut (*Areca Catechu* L.) grown on clay and laterite soils of India. *Communications in Soil Science and Plant Analysis*, **45** (12): 1622-1635.

**Presentation in Conferences/ Symposia/ Seminars**

- Acharya, G.C. 2014. Current status of arecanut research in North East. In: National Seminar on Plant Protection and Intercropping in arecanut, UAHS, Shimoga, 8<sup>th</sup>-9<sup>th</sup> May 2014.
- Sit, A.K. 2014. Crop diversification in plantation garden with seasonal flower crops. In: International Conference on Horticulture for Nutritional, Livelihood and Environment Security in Hills: Opportunity and Challenges. UBKV (Hill Campus), Kalimpong, 24<sup>th</sup> May, 2014.

**Popular article**

- Acharya, G.C. and Singh, L.S. 2014. Arecanut based cropping system: Alternative pathway to achieve sustainability in North Eastern India. *Indian J. Arecanut, Spices & Medicinal Plants*, **16** (1): January-March, 23-26.
- Elain Apshara, S. 2014. Performance of elite cocoa clones under coconut in double hedge system of planting. *The Cashew and Cocoa J.* **3**(2): 13-16.
- Himadri Rabha, Ranjana Chakrabarty and Acharya, G.C. 2014. Insect pest and diseases of arecanut in Assam and their management. *Indian J. Arecanut, Spices & Medicinal Plants*, **16** (1): 31-43.
- Jayashree, M.P. 2014. Pongil ninnu kothiyurum vibhavangal. *Indian Naliker J.* **4** (5). pp 26.
- Jaysekhar, S., Chandran, K.P., Thamban, C. and Muralidharan, K. 2014. Price stabilization through stakeholder synergy The key to revitalize coconut sector. *Indian Coconut J.* **56** (11): 20-23.
- Jeena Mathew, Krishnakumar, V. 2014. Thengu - Nerarinju Poshanam Nirbandham. *Kerala Karshakan*. **59** (10): 30-32 (In Malayalam).

- Jissy George and Lekha, G. 2014. Turmeric as cosmetics and plant protection agent. *Karshakan* **22** (4): 17-19.
- Manojkumar, T.S., Jayashree, M.P. 2014. Shuddhajala muthu krishi. *Jalakarshakan*. May 2014, pp 46-48.
- Manojkumar, T.S., Leena, S. 2014. Vazhuthana varga vilakalile krishi reethikal. *Jalakarshakan*. May 2014, pp 52-54.
- Subramanian, P., Thamban, C. and Maheswarappa, H.P. 2014. Coconut based farming system for higher income and employment opportunities. *Indian Coconut J.* **57** (2) 24-28.
- Thamban, C., Chandran, K.P. and Jaysekhar, S. 2014. Coconut based farming system for higher income: Success story of a 'Kerakesari'. *Indian Coconut J.* **57** (3): 36-38.
- Thamban, C., Subramanian, P., Jaysekhar, S. and Muralidharan, K. 2014. Group approach for technology integration in coconut holdings. *Indian Coconut J.* **56** (11): 30-35.
- Extension folder**
- Josephraj Kumar, A., Chandrika Mohan and Shanavas, M. (2014) Science of Entomology, *Multi-colour poster*, CPCRI, Regional Station, Kayamkulam.
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- Training Manual**
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## RESEARCH HIGHLIGHTS

### Promising tendernut varieties

From the Indian Ocean Island collections in the International Coconut Genebank for South Asia, the accessions *viz.*, Coco Bleu Tall, Pemba Green Dwarf, Pemba Red Dwarf Mauritius and Comoros Tall, were found promising with TSS ranging from 6.0-6.7 °Brix. Comoros Tall and Pemba Red Dwarf Mauritius with good tender nut water quality and higher volume of tender nut water, 785 ml and 660 ml, respectively, has potential for selection as tender nut varieties. A superior genetic stock, was developed through selection from Coco Bleu Tall, showing earliness in flowering, green medium sized fruits, higher initial nut yield, tender nut water content of 419 ml with TSS of 6.5 °Brix, potassium content of 2682.14 ppm and sodium content of 34.62 ppm and the variety is named as Kidu Green Dwarf.

### Kalpa Sreshta - A new coconut hybrid

Among the hybrids under evaluation, the hybrid MYD x TPT showed superiority for higher nut yield, (167 nuts/palm/year), estimated high copra out turn (35.9 kg/palm/year or 6.28 t/ha copra),

vigorous growth habit, good tender nut water quality (TSS 5.89 °Brix), higher quantity of tender nut water (368 ml/ tender nut) and amino acid content of 1.34g/100ml. The identified hybrid gives 35.75% more nut yield and 30.29% more copra yield over Chandra Sankara. The variety bears green coloured, oval fruits and the dehusked fruits are round in shape. The average quantity of tender nut water is 368 ml. The tender nut water has Na content of about 33.3 ppm and K content of 2081 ppm. The proposed hybrid is found to be high yielding under irrigated conditions at CPCRI Kasaragod and AICRPP Centre, Arsikere. The hybrid was recommended for release at the XXIII AICRP group meeting at Hyderabad during July 2014 for cultivation in Kerala and Karnataka States.

### Two superior coconut hybrids identified

The COD x LCT (D x T) hybrid involving Chowghat Orange Dwarf and Laccadive Ordinary Tall are comparatively short-statured with compact spherical canopy,

have annual bunch production of about 11 bunches/palm, with average yield of 142 nuts/palm/annum, with an estimated annual copra yield of 27.12 kg/palm, under irrigated conditions. The average weight of the fresh fruits of COD x LCT is 1555 g with average copra content of 191 g. The weight of tender nut is 2252g with tender nut water content of 344 ml/nut and good tender nut quality (TSS 5.8 °Brix). The nutritive value of tender nut water is as follows: total sugars 5.44 g/100 ml; free amino acids - 3.05 mg/100 ml; potassium - 2322 ppm; sodium - 34.2 ppm. This hybrid is identified at CPCRI Kasaragod for further exploitation. The COD x WAT is a high yielding, (D x T) hybrid involving Chowghat Orange Dwarf and West African Tall with medium-sized and oval fruits, while the husked fruits are round in shape. The average annual



Coconut hybrid MYD x TPT recommended for release



Superior coconut hybrid COD x LCT



Superior coconut hybrid COD x WAT



bunch production is about 11 bunches/palm, with average yield of 154 nuts/palm/annum, with an estimated annual copra yield of 32.95 kg/palm, under irrigated conditions. The average weight of the fresh fruits of COD x WAT is 1396g and weight of husked fruit without water is around 457g. The average copra content in fruits of the COD x WAT hybrid is 214 g. The weight of tender nut is 2058g with 430 ml of tender nut water having good tender nut quality (TSS 5.8 °Brix). Considering the higher nut yield of the COD x WAT hybrid, it was recommended for copra and tender nut purpose.

#### Association of phytoplasma in the weed, *Brachiaria milliformis*

Random occurrence of white leaf in *Brachiaria milliformis* was observed in the weed commonly prevalent in coconut ecosystem of Onnattukara region of Kerala. Molecular detection of *B. milliformis* having characteristic white leaf symptoms, using universal primers P1/P6 nested with R16F2n/R16R2 revealed amplification for phytoplasma at 1250 bp level. Nucleotide sequence of the amplicon (Genbank accession number: KJ632690) showed 99% homology with *Brachiaria* grass white leaf phytoplasma and *Candidatus* phytoplasma *cynodontis*



*Brachiaria milliformis* healthy (A) and diseased (B)

white leaf. This is the first report of phytoplasma associated with *B. milliformis* from India.

#### Growth regulatory effect of lufenuron on red palm weevil

Evaluation of an insect growth regulator (chitin synthesis inhibitor), Cigna 0.01% (Lufenuron 5.4% W/W EC) against grubs of red palm weevil could result in 55-65% larval - pupal intermediates with retention of larval structures, blister formation on grubs, softening of cuticle and malformed adult weevil. Malformation in adult weevils includes fused antennae, twisted rostrum, malformed legs, and retained exuviae with hind wings extended beyond abdomen. This assumes significance on account of at least ten larval instars of red palm weevil grubs recoded before pupation. This is the first report of malformation induced by insect growth regulator (lufenuron) on red palm weevil.



Lufenuron induced malformation in red palm weevil

#### Biological potential of EPN for root grub management

As an alternative to chemical control, entomopathogenic nematode (EPN), *Steinernema carpocapsae* (CPCRI- SC1) was applied under natural field conditions to test its efficacy and

persistence. Infective juveniles (IJs) of nematodes were mixed in water and soil drenched around the palm basins which were infested by root grubs (*Luecopholis coneophora* and *L. burmesteri*) @ 500 ml nucleus cultures (approximately, 1.2 to 1.5 crore IJs) in coconut and arecanut gardens respectively. To further enhance the efficacy, EPN were applied with lower concentration of insecticide such as imidacloprid (confidor 17.8SL) @ 0.0004%, which reduces root grub population by 60-70% in arecanut garden. Recovery of EPN was accomplished from all plots inundated with EPN. Insecticide application at lower concentration causes debilitation in root grub larvae, which reduces feeding and reduction of larval movement, favoring quick EPN infestation. This enhances the percent mortality of grubs in the soil and overcoming resistance of the pests to insecticides. These nematodes persist and recycle in the host habitat bringing about sustained suppression of grubs.



Field application of EPN suspension



Infective juveniles (IJs) of EPN

Root grub larvae

### Research Extension Farmer Interface Programme

Research extension farmer interface programme on integrated management of diseases in coconut and arecanut with emphasis on bud rot disease of coconut and Mahali disease of arecanut was organized by CPCRI at Kasaragod and Kozhikode.

The interface programme at Kasaragod was conducted on 24-05-2014 which was inaugurated by Shri Thirumaleshwara Bhat, Principal Agricultural Officer, Kasaragod and was attended by 100 farmers and extension personnel. Dr. George V. Thomas, Director presided over the inaugural function.



*Shri Thirumaleshwara Bhat, PAO, Kasaragod addressing the participants*

The interface programme at Kozhikode was conducted on 26-05-2014 which was inaugurated by Dr. Anandaraj, Director, IISR, Kozhikode and was attended by 150 farmers and extension personnel. Mrs. M. Lekshmi Devi, Principal Agricultural Officer presided over the inaugural function.

### Awareness on bio-resources

The inaugural meeting cum-awareness programme on bio-resource management in coconut based farming systems under the



*Dr. M. Anandaraj, Director, IISR inaugurating the interface at Kozhikode*

NABARD funded project was held on 12-05-2014 at RS, Kayamkulam. A total number of 80 participants including farmer members from Kanjikuzhy Block Panchayat attended the programme. The programme was inaugurated by Adv. D. Priyesh Kumar, President, Block Panchayat Kanjikuzhy and Smt. T. Manikkutty, Vice President, Kanjikuzhy Block Panchayat presided over the function. Officials from the Dept. of Agriculture and NABARD also participated in the programme.



*Inauguration of project on Community Based Bioresource Management at Kanjikuzhy*

### On-campus trainings

Training on 'Integrated Diseases and Pests Management in Palms and Cocoa' was organized on 27<sup>th</sup> May, 2014 at CPCRI, RS, Vittal for 81 officials and farmers of Karnataka. Dr. George V. Thomas, Director, CPCRI, Kasaragod had

inaugurated the programme. Dr. K. S. Ananda, Head and scientists of the station had interacted with farmers. Lecture cum discussion on Integrated Diseases and Pests Management in coconut, arecanut and cocoa were held.



*Dr. George V. Thomas, Director inaugurating the training programme*

Training on 'Integrated Diseases and Pests Management in Palms and Cocoa' was organized on 3<sup>rd</sup> June, 2014 at CPCRI, RC, Kidu for 129 officials and farmers of Karnataka. Dr. K. Muralidharan, Director i/c, CPCRI, Kasaragod had inaugurated the programme. Lecture cum discussion on Integrated Diseases and Pests Management in coconut, arecanut and cocoa were covered.



*Dr. K. Muralidharan, Director i/c, CPCRI, inaugurating training programme on IPDM of palms and cocoa*

Training programme on Coconut based integrated farming was organized at CPCRI, Kasaragod in



collaboration with ATMA Malappuram on 20-05-2014, in which 25 farmers and six extension personnel from Malappuram district participated.



*Scientists interacting with the farmers during the training programme at Kasaragod*

Training on 'Arecanut and cocoa production technology' was organized on 21-05-2014 at Vittal for 27 trainees of Malappuram district under ATMA inter-state institutional visit.

CPCRI, RS, Kayamkulam conducted training programme on soil health management and mass multiplication of bioagents for farmers, was conducted at on 12-05-2014. Agricultural Officers and Horticultural Assistants from Kanjikuzhy Block Panchayt participated. Friends of coconut programme was conducted on 27-06-2014 for 21 trainees on coconut climbing from Pazhakulam Service Society.

Training cum exposure visit on 'Arecanut and cocoa production technology' was organized on 19-06-14 at Vittal for 54 trainees of Belthangady taluk, Dakshina Kannada district under SKDRDP. Training cum exposure visit on 'Arecanut and cocoa production technology' was organized on 26-06-14 at Vittal for 85 trainees from District Agricultural Training Centre, Belthangady taluk,

Dakshina Kannada district. Lecture cum discussion on crop improvement, production, protection and processing technologies of arecanut and cocoa were highlighted. Training cum exposure visit on 'Arecanut and cocoa production technology' was organized on 27-06-2014 at Vittal for 100 trainees from Sagar, Shimoga district under Watershed Development programme.

A training programme of one month duration from 01-05-2014 to 31-05-2014 on soil and water conservation techniques for west

farmers' field.

Rural Horticultural Work Experience (RHWE) programme for 13 B.Sc. (Horti.) students of College of Horticulture, Mudigere, Chickmagalur (Dt.) was organized during 09-06-2014 to 28-06-2014 at CPCRI, RS, Vittal. Students were trained on improvement, production, protection and processing technologies of coconut, arecanut and cocoa.

At CPCRI, RC, Kahikuchi, three on-campus training programmes were organized for 76 farmers/ farm women of Assam.



*Trainees on 'Arecanut and cocoa production technology' at CPCRI, RS, Vittal*

coast region was organized at CPCRI, Kasaragod for a team of seven final year B. Tech. (Agrl. Engg.) students from Kelappaji College of Agricultural Engineering and Technology, Tavanur. The training programme was coordinated by Dr. C. Thamban and Dr. A.C. Mathew, Principal Scientists, which covered watershed delineation tools, agronomic and engineering methods of soil and water conservation, preparation of estimates for *in situ* water conservation measures and low cost water harvesting structures and assessing impact of soil and water conservation measures in



*On-campus training organized at RC, Kahikuchi*

Training on 'Arecanut and cocoa production technology' was organized at RS, Vittal on 18-07-14 for 25 officials of Excise Department, Dakshina Kannada district.

CPCRI, RC, Kahikuchi organized an on-campus training on 19-08-2014 for 33 farmers/ farm women of Assam. Two off-campus were organized on

24-07-2014 and 06-08-2014 for 136 farmers/ farm women of Assam.

### Off-campus trainings

A training programme on production technologies of coconut was conducted on 06-05-2014 in collaboration with Farmers Information Exchange Club (FIEC), Erivesi of Kannur district in which 40 farmers attended.

Training on practical aspects of plant protection of coconut as participatory programme (28 farmers) for elder farmers was conducted (05-04-2014), four training programmes on coconut climbing machine and coconut plant protection for coconut plant protection and surveillance groups of Bharanikkavu grama panchayath was organized on 02-05-2014, 21-05-2014, 23-06-2014 and 28-06-2014 at various wards.

Training on “Rural marketing strategies and diversification of agricultural products” was organized for extension officials of rural development department from Trivandrum, Kollam, Kottayam and Alappuzha districts at State Institute of Rural Development, Kottarakkara on 29-04-2014.

Training cum exposure visit on 'Arecanut and cocoa production technology' was organized on 29-04-2014 at Vittal for 40 trainees of Enmakaje panchayat, Kasaragod district. Lecture cum discussion on crop improvement, production, protection and processing technologies of arecanut and cocoa were highlighted.

Three off-campus were organized by CPCRI, RC, Kahikuchi for 141 farmers/ farm women of Assam.



*Off-campus trainings organized by RC, Kahikuchi for farmers and women*



### Distribution of seedlings

A total of 14,500 coconut seedlings of dwarf varieties, 15,000 hybrids and around 5,000 tall seedlings were distributed from the Institute during June 2014. Around 50 areca dwarfs, 50 grafts of cocoa, 3,500 seed pods and 6,000 seedlings of cocoa were also distributed.



*Seedlings distribution at CPCRI, RS, Kayamkulam*

### Radio talk/ TV programme

Dr. P. Anithakumari, Principal Scientist (Agrl. Extension) participated in a radio programme on “Community approach for management of rhinoceros beetle of coconut”, which was broadcast on 24-06-2014 from AIR, Thiruvananthapuram.

Dr. C. Thamban, Principal Scientist (Agrl. Extension) delivered a radio talk on 'Integrated management practices against bud rot disease of coconut' which was broadcast by AIR, Kannur on 26-06-2014.

Dr. A.K. Sit participated a programme on “Scientific

cultivation of arecanut” broadcast by AIR, Siliguri on 05-05-2014. He participated in a live TV programme on black pepper cultivation as mixed crop in arecanut plantation” broadcast on 02-05-2014 in Kisan Channel of Doordarsan Kendra, Jalpaiguri. He also participated in three live programmes on Horticulture during the period in “Uttarbangla Channel, Siliguri.

Dr. P. Muralidharan, Programme Coordinator, attended the Live phone-in programme on “Soil nutrients for crop growth” in Krishidarshan, Doordarshan Thiruvananthapuram on 6<sup>th</sup> June, 2014. He had also attended an interview on 'Activities of KVK alappuzha', in Kisan Vani, AIR Kochi FM broadcast on 19<sup>th</sup> May, 2014. Smt. Jissy George, ACTO, attended the Live phone-in programme on “Value addition of coconut and jackfruit” in Krishidarshan, Doordarshan Thiruvananthapuram on 18<sup>th</sup> April, 2014.

Scientific management practices for improving production and productivity of coconut was broadcaste from AIR, Thiruvananthapuram on 09-07-2014.



## Krishi Vigyan Kendra, Kasaragod

### Former trainees' team of KVK wins award

Former trainees of KVK, Kasaragod participated in a State level Jack Fruit Mela from 28<sup>th</sup> to 29<sup>th</sup> June, 2014 at Karkala taluk of Udupi district organized by KVK, Brahmapur in collaboration with Shree Kshethra Dharmasthala Rural Development Project (SKDRDP). They displayed around 25 varieties of food products from jack fruit. The team won first prize in the competition.



*Trained entrepreneurs of KVK with their products and award*

### Vacational food processing

In collaboration with District Industries Centre, KVK organized a vocational training programme from 20<sup>th</sup> of May to 15<sup>th</sup> of June, 2014 covering wide range of topics *viz.* processing of jack fruit, kokum, mango, pineapple, coconut,

mushroom, bakery products and masala powders. There were 18 participants for the programme.

### On farm trials

During the period, ongoing OFTs were continued and new programmes were initiated. Presently OFTs include, evaluation of salt tolerant rice varieties, effectiveness of organic method against chemical method in controlling black pod disease of cocoa, organic cultivation of ginger, performance evaluation of organic growth stimulants in yardlong bean, management of Sigatoka leaf disease in banana, management of *Fusarium* wilt and dry root disease of cow pea, assesment of PGPR in a m r a n t h u s c u l t i v a t i o n , management of basal stem rot (*Ganoderma* wilt) disease of coconut as well as soil acidity management for better productivity in vegetable crops.

### Training programmes

Trainings were given on the following topics *viz.* inoculation of coin pearl nucleus if fresh water pearls, value added products from coconut and spices, mango preservation, EDP programme on



*Dr. George V. Thomas Director, CPCRI inaugurated the interface on meliponiculture at KVK, Kasaragod*

coconut biscuits and coconut chutney, eco-friendly management of banana pests, beekeeping, mushroom production technology, acidity management in vegetable cultivation, production technologies for marigold, vermicomposting and coconut based farming system with a participation 232 farmers.

### Other extension activities

Exhibition stall was arranged in the Kasaragod Fest organized by Dept. Agri. from 26<sup>th</sup> to 28<sup>th</sup> May, 2014. Dr. Nilofar Illiaskutty attended jack fruit fest organized by Jana Seva Samithi at Adoor on 7<sup>th</sup> June, 2014 as judge for the recipe competition and gave a class on value added products from jack fruit.

## Krishi Vigyan Kendra, Alleppey

### Launching of activities

Various activities of KVK Alleppey for 2014-15 were launched at Budhanoor panchayath of Alleppey district. The activities include On Farm Testing, Frontline Demonstrations, Training programmes, Farmer Field School and Extension activities. The launching of these activities was

done by Sri. P.C. Vishnunath, Hon. MLA in a public meeting conducted at Govt. U.P. School, Ennakkad on 23-05-2014. Critical inputs for OFT/ FLD *viz.*, turmeric seeds and seedlings of brinjal hybrid - Neelima were handed over to the partner farmers by the MLA. Smt. Rugmini teacher, Budhanoor panchayath president presided over the function in which Dr. V. Krishnakumar, Head, CPCRI (RS), Kayamkulam delivered the key

note address. About 100 progressive farmers including members of NABARD farmers club and Kudumbasree attended the meeting.

### Virgin coconut oil capsules

KVK-Alappuzha has initiated an entrepreneurship development programme on production and marketing of virgin coconut oil (VCO) during the year 2013-14 in collaboration with Karappuram

Coconut Producer Company, Kanjikkuzhy. In this programme KVK provided technical support and critical equipments/ inputs for the production, packing, labeling and marketing of VCO by the company, highlighting the nutraceutical effects of VCO. Each gelatin coated capsule containing 1g VCO, has got a shelf life of 2 years from the date of manufacturing. Besides VCO capsule, the group was also trained to produce virgin coconut oil in 100 ml and 500 ml pack, left over coconut kernel products like coconut laddu and chutney powder. Launching of the VCO capsule was done by Adv. U. Prathibha Hari, President Alappuzha District Panchayath at Kanjikkuzhy Block Panchayath Hall on 07-06-2014. The function was presided by Adv. Priyesh Kumar, President Kanjikkuzhy Block Panchayath and Chairman Karappuram Coconut Producer Company.

### **Integrated crop management in paddy**

Field days of FLDs on 'Mechanisation in Paddy cultivation' and 'Ecofriendly pest management practices in Paddy', were conducted on 30<sup>th</sup> April 2014 at Pallippuram padasekharam from *Punja* season crop. The field day was inaugurated by Smt. Ajitha, President, Venmony Grama Panchayath. It was observed during the FLD that seed rate could be reduced to 40 kg ha<sup>-1</sup> in transplanting. An increase in



*Paddy harvest festival held at Pallippuram*

vegetative growth, no. of tillers, size of grains and yield (5.75 t ha<sup>-1</sup>) were also observed in demonstrated plots. Use of pseudomonas, trichocards and fish amino acid as pest control measures were also demonstrated with the co-operation of about 25 farmers including partners of FLD.

### **Success story of duck rearing**

"Vigova super M" broiler duck were successfully reared at Vayalar of Venmony Panchayath in 10 selected coconut based integrated farming system (CBIFS) units partner farmers of the district. The ducks were fed with poultry feeds and brought up in low cost duck shed constructed using PVC pipes for Integrated duck-fish farming unit. The weight of duck was increased up to 2.75 kg in 50 days and the income realized was Rs. 450 per duck at the cost of Rs. 300/-. Partner farmers were satisfied with the technology demonstrated in CBIFS units for additional income generation.

### **RAWE programme**

KVK module of the RAWE programme was held at KVK

Alleppey for nine, final year B. Sc. (Agri.) students from College of Horticulture, Vellanikkara from 5<sup>th</sup> to 8<sup>th</sup> May, 2014. They were guided on the working pattern and various activities of KVK. Students were given a chance to associate with an on campus training on 'Scientific Mushroom Cultivation, at KVK. An interaction session with progressive farmers and successful entrepreneurs of the District were also arranged for the students. They were also acquainted with the working details of a custom hiring centre at Muttar.

### **Training programmes**

A total of 20 training programmes were organized (12 on campus and 8 off campus) benefitting a total number of 408 farmers/ rural youth during the period.

### **KVK-ATMA Linkage**

Trainings on 'fruit processing' for 19 selected farm women and on "Integrated farming system suitable for Alappuzha" for 16 farmers of Mavelikkara block were conducted for ATMA at KVK.

### **Evaluation of NICRA project**

Evaluation team under the NICRA project visited Muttar village and KVK, Alleppey on 12<sup>th</sup> and 13<sup>th</sup> June, 2014 for taking stock of the implementation of NICRA project (2011-14).



## PARTICIPATION IN MEETINGS/ SYMPOSIUM/ SEMINAR

Name & Designation	Title of the programme	Place & Duration
Dr. P. Anithakumari Principal Scientist	Workshop on Women empowerment against sexual harassment at workplaces	Kaloor, Kochi 23-04-2014
Dr. A.K. Sit Sr. Scientist	International Conference on Horticulture for Nutritional Livelihood and Environment Security in Hills: Opportunity and Challenges	UBKV, Kalimpong 22-05-2014 to 24-05-2014
Dr. K.P. Chandran Sr. Scientist	Workshop on priority setting, monitoring and evaluation in national agricultural research system: Status, experiences and way forward	NASC, New Delhi 27-5-2014
Dr. George V. Thomas, Director, Dr.K.S. Ananda and Dr.Ravi Bhat, Heads, Dr. G.C. Acharya, Sr. Scientist and Dr. D. Jaganathan, Scientist	National Seminar on 'Plant Protection and Intercropping in arecanut'	Shimoga 09-05-2014 to 10-05-2014
Dr. Chandrika Mohan Principal Scientist	23 <sup>rd</sup> Annual Group meeting of AICRP on Biological Control of Crop Pests	OUAT, Bhubaneswar 27-06-2014 to 28-06-2014
Dr. George V. Thomas Director, Dr. H.P. Mahe- swarappa, PC (Palms), Dr. K. Muralidharan, Dr. Anitha Karun, Dr. Ravi Bhat, Dr. V. Krishnakumar, Heads, Chandrika Mohan, Dr. V. Niral, Pr. Scientists Dr. Rajkumar, Dr. Merin Babu, Scientists	Group Meeting of AICRP on Palms	DOR, Hyderabad 25-07-2014 to 28-07-2014

## OTHER INFORMATION

### TOLIC meeting

26<sup>th</sup> half yearly meeting of Town Official Language Implementation Committee, Kasaragod was conducted on 07-08-2014 under the Chairmanship of Dr. George V. Thomas Director, CPCRI Kasaragod. Dr. Smt. Sunitha Devi Yadav, Deputy Director



(Implementation) Regional Implementation Office, Kochi was present in the meeting.

### Independence Day

The Institute has celebrated 68<sup>th</sup> Independence Day of our country with tradition and patriotism. Dr. George V. Thomas, Director hoisted the National Flag and delivered Independence Day speech at Kasaragod on 15-08-2014. Independence Day was also celebrated in the Regional Stations at Kayamkulam, Vittal and Research Centres at Kahikuchi, Kidu, Minicoy and Mohitnagar.



## COMMERCIALISATION OF TECHNOLOGY

During the period neera, virgin coconut oil and coconut chips were the main picks by the entrepreneurs. In addition, the technologies viz.. know-how on the “Mass multiplication of areca by tissue culture”, and know-how for the “coconut zygotic embryo

culture” were handed over to M/s Sunglow Biotech, Coimbatore and M/s DeeJay Farms, Bangalore respectively.

Details of technology commercialized during the period are listed here below:



*Director, CPCRI and President, Nemom Block Federation of Coconut Producers Societies exchanging MoA for Kalparasa production*

Sl. No.	Technology	Client	Amount (Rs.)
1	Collection of fresh and hygienic neera and production of natural coconut sugar	Shri M. Dhanabal, Pollachi, Tamil Nadu	10,000
2		Chairman, Palakkad Coconut Producers Company Limited (PCPCL), Palakkad, Kerala	10,000
3		President, Nemom Block Federation of Coconut Producers Societies, Thiruvananthapuram, Kerala	10,000
4		Shri Mohandas, Polali P.O., Bantwal, Dakshina Kannada, Karnataka	10,000
5		Thejaswini Coconut Farmers (P.O), Producer Company Ltd., Cherupuzha Kannur, Kerala	10,000
6	Virgin coconut oil (VCO) production by hot process	Smt. Shanthi Sivashanmugam, Sulur Taluk, Tamil Nadu	25,000
7		The President, Meenja Berika Nalikera Utpadaka Sangham, Kasaragod district, Kerala State	25,000
8	Technology transfer for the production of Desiccated Coconut Powder	Mr. M.A. Harris, Mulleria, Mulleria, Kasaragod, Kerala	2000
9	Transfer of technology for the mass multiplication of areca by tissue culture	M/s Sunglow Biotech, Perur Coimbatore, Tamil Nadu	1,00,000
10	Know how for the coconut zygotic embryo culture	DeeJay Consultancy Services, Bangalore, Karnataka	70,000
11	Technology transfer for the production of	M/s Malik Deenar exports, Kasargod	10,000
<b>Total</b>			<b>2,82,000</b>

### Pamdew - Neera retail sale inaugurated

Kalparasa (Neera) is the fresh hygienic and unfermented sap extracted from inflorescence of coconut palms. It is a natural non-alcoholic beverage, high in nutritional value and is an instant thirst quencher. In Kerala, first

fresh neera sale is launched in the brand name of Pamdew by Palakkad Coconut Producers Company Limited (PCPCL) at Vyttila Mobility Hub, Ernakulam recently. PCPCL has obtained Kalparasa collection technology, especially the cocosap chiller technology developed by CPCRI.



*'Pamdew' stall inaugurated at Vyttila, Ernakulam*



## DISTINGUISHED VISITORS



*Dr. N.K. Krishna Kumar, DDG (Hort. Sci.), ICAR, visited RC Kahikuchi on 06-04-2014*



*Dr. S.K. Malhotra, ADG (Hort) ICAR, & Commissioner (Hort), DAC visited RC Kahiluchi on 15-06-2014*



*Dr. Janakiram, ADG (Hort. Sci. I), ICAR, visited field experiments at Kasaragod*



*Dr. Renu Swarup, Director, BIRAC visited laboratory at CPCRI, Kasaragod*



*IMC meeting of CPCRI held at Kasaragod on 03-07-2014*

## SUCCESS STORY

### **Vegetables and fruits at Minicoy Island**

Coconut is the only crop grown extensively in high density in Lakshadweep group of islands. The islanders mainly depend on mainland for their requirements of fruits and vegetable as the cultivation of these crops is very much limited. Intensified efforts taken up by CPCRI has yielded fruits in identifying the most suitable varieties of fruits and vegetables crops for the ecosystem

prevailing under island conditions of Minicoy. Large scale production of vegetables and fruits has become one of the main thrusts of the CPCRI Centre at Minicoy Island to cater to the needs of island community. The Institute has successfully demonstrated organic fruits and vegetable production at the Centre with optimum utilization of available resources through organic methods under coconut gardens. A demonstration unit for protected cultivation of vegetables is also functioning at the

Centre. A total of 146 and 63 kg of leafy vegetables (amaranth and curry leaf) and 1,131 and 1,447 kg of other vegetables such as brinjal, drumstick, pumpkin, chilli, tomato, bhindi, gourds such as bitter gourd, ridge/ sponge gourd, and snake gourd: cool season vegetables such as cabbage and cauliflower were produced during Jan.-Mar. 2014 and Apr.-Jun. 2014, respectively and made available to the Islanders to meet the food and nutritional security.



*Cultivation of cucurbitaceous and solanaceous vegetables at Minicoy*



*Protected cultivation of chilli at Minicoy*

## PERSONALIA

### APPOINTMENT

Name of the official	Designation	Location	w.e.f.
Dr. L.S. Singh	Scientist	CPCRI, Kasaragod	08-04-2014
Dr. Neema Mohamed	Scientist	CPCRI, Kasaragod	09-04-2014
Ms. Sumitha S.	Scientist	CPCRI, Kasaragod	09-04-2014
Dr. Ganesh Navanth Khadke	Scientist	CPCRI, Kasaragod	09-04-2014
Mr. Anok Uchoi	Scientist	CPCRI, Kasaragod	09-04-2014

### TRANSFER

Name of the staff / Designation	From (Place)	To (Place)	w.e.f.
Mr. B. Sathish, Admn. Officer	CIBA, Chennai	CPCRI, Kasaragod	07-04-2014
Shri. Sivadas O.G., Skilled Support Staff	CPCRI, Kasaragod	IISR Calicut	20-05-2014
Dr. (Mrs.) M. Sujithra Scientist	IARI, New Delhi	CPCRI, Kasaragod	06-06-2014
Dr. K. Subaharan, Sr. Scientist	CPCRI, Kasaragod	NBAIL, Bangalore	13-06-2014
Dr. Alpana Das Sr. Scientis	ICAR Res. Complex for NEH, Umam, Meghalaya	CPCRI, RC, Kahikuchi	14-07-2014
Dr. G.C. Acharya Sr. Scientist	CPCRI, RC, Kahikuchi	IIHR, CHES, Bhubaneswar	30-08-2014

### RETIREMENT

Name	Designation	Place	Date
Shri B. Ishwara Naik	Skilled Support Staff	CPCRI, Kasaragod	30-04-2014
Shri K. Sheena Naik	AAO	CPCRI, RS, Vittal	31-05-2014
Smt. Veeramma	Private Secretary	CPCRI, RS, Vittal	31-05-2014
Shri A. Gangayya	UDC	CPCRI, RS, Vittal	31-05-2014
Shri N. Seethappa Gowda	Skilled Support Staff	CPCRI, RC, Kidu	31-05-2014
Shri V. Keshava	TO (Field/ Farm Tech.)	CPCRI, Rs, Vittal	30-06-2014
Shri K. Venkatesh	Private Secretary	CPCRI, RS, Vittal	30-06-2014
Smt. Chomu Nelligudde	Skilled Support Staff	CPCRI, RS, Vittal	30-06-2014
Shri Padmayya Naik	Skilled Support Staff	CPCRI, RC, Kidu	30-06-2014
Shri K. Anandan	Skilled Support Staff	CPCRI, Kasaragod	31-07-2014
Dr. George V. Thomas	Director	CPCRI, Kasaragod	31-08-2014

### OBITUARY

With sorrow and grief, Director and staff mourn on the sudden demise of Shri. M.B. Renukumar, Senior Technical Officer (Field/Farm) of CPCRI, RS, Kayamkulam on 10-05-2014. We pray to the Almighty that departed soul may rest in peace.



Shri M.B. Renukumar



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

*Agriculture with a human touch*

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