

KALPA

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ICAR-CENTRAL PLANTATION CROPS RESEARCH INSTITUTE
Kasaragod - 671 124, Kerala





From The Director's Desk

Snacking-up of Farm Product

ICAR-CPCRI has been giving thrust to value addition of coconut products during the past two decades, mainly to stabilize price fluctuations in the commodity market. Value added products from ICAR-CPCRI include coconut chips, snowball tendernut, virgin coconut oil (VCO), and coconut water based products such as beverages, vinegar and honey. Latest feathers on the cap are Kalpa Bar Chocolate and Kalpa Krunch.

In India, we have a "tea with snacks" culture, which ranges from dry fruits to highly processed and packaged cookies. In the Indian snacks market, a large number of unorganised as well as rural self-help groups are the producers. Moreover, snacks are very specific to each region, and hence, many small companies cater to that market. Major ingredients used in preparation of snack food include, mixed grains, potato extrudate, corn extrudate, rice extrudate and other food items. When we discuss the snacks, it is inevitable to mention the packaging as well. Metalized polypropylene, paper box, polylactic acid (PLA), cellulose films and high density polyethylene packs are the common packaging adopted. We must not forget bio-degradable aspect into consideration or at least recyclable packaging material. Presently, our

country is facing large amount of non-biodegradable plastic menace in urban and rural areas due to junk food packages.

Recently, ICAR-CPCRI has developed a value added "Kalpa Krunch" product, which is a healthy, natural and crispy and fluffy extrudate from aco-product of VCO processing. Kalpa Krunch is enriched, ready to eat snack, prepared from grain flour and coconut milk residue with natural and healthy flavours. The snack is rich in dietary fiber, protein, fat and carbohydrate with antioxidant principles. With a modest capital investment of Rs. 45 lakhs, one can produce 150 kg of Kalpa Krunch daily with total annual turnover of Rs. 100 lakhs yielding at least 20% profit.

Besides price stabilization, providing income to rural women, promoting traditional food habits, providing ready to eat delicacies to keep up with the times, eco-friendly packaging to protect environment, are the main concerns.

As per the recent analysis, extruded snacks in India are projected to grow at a compound annual growth rate (CAGR) of more than 11% during 2016-2021. Growth in the market can be mainly attributed to increasing population, rising per capita income, introduction of regional flavours and aggressive marketing strategies adopted by the leading players.

Per capita income in India increased from Rs. 75,000 in 2012 to reach around rupees one lakh in 2017, and the same trend is anticipated to continue. The extruded snacks market is also expected to be positively influenced by increasing per capita income in the coming years.

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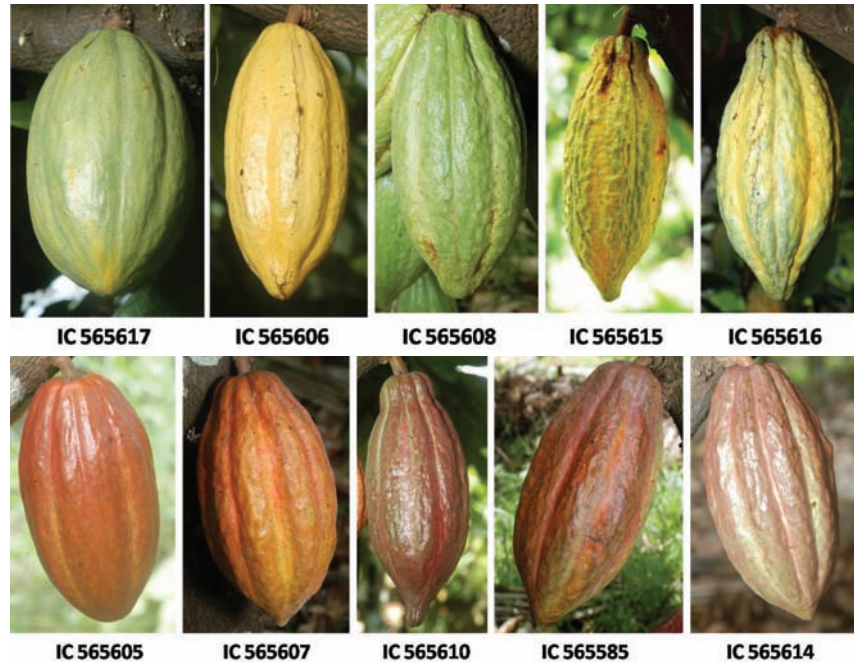
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Distinct phenological characteristics of cocoa

Morphological characterization of 20 year old trees of 19 local cocoa clones showed distinct pod shapes from their length and width ratio and could be categorized into oblong, ovate, obovate, elliptic and circular shapes and also fit into Cundeamor, Amelonado and Angoleta types combined from surface rugosity, apex form and bottle neck or basal constriction. These will be utilized as reference varieties for development of DUS guidelines for cocoa.

Elain Apshara, S.



Green and red pods of cocoa clones at ICAR-CPCRI, RS, Vittal

Naturally occurring giant mushroom

A giant size mushroom was spotted by a farmer Mr. Jagadish from Vaninagar, Padre, Kasaragod.



Farmer holding the giant gilled mushroom

The mushroom weighed several kilos and was found growing in coconut plantation on naturally decomposing mixtures of arecanut wood mulch, grasses, etc. during the month of July, 2017. After its initial spotting by this farmer, at least two other farmer groups from different parts of Kasaragod and also in ICAR-CPCRI experimental plot.

The mushroom was found to be an agaricomycete and was tentatively placed in the family Tricholomataceae with its possible identification as *Macrocybe gigantea*. It appeared to be a wild edible mushroom growing in tropical climate during monsoon



Mushroom cap tissue cloned in petriplates

season (June - Oct). The mushroom had a thick, leathery trunk of a stem and a massive cap more than a foot across. After its emergence above ground, it lasted for many days in the field before its decay because of frequent rains during that period. Efforts are on for its artificial cultivation outside its natural habitat.

Commercial cultivation of extremely large mushroom has several advantages. We can expect much higher yield per unit

substrate used. Its perishability index is quite low as the soft interiors of cap and stem are protected by tough cap cuticle

and stem rind. Since a single mushroom can weigh several kilos, it holds great promise for our nutritional security.

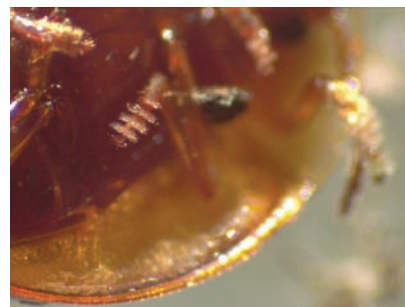
Alka Gupta and Murali Gopal

Bionomics and adaptive leg features of the scavenger beetle, *Leiochrinus nilgirianus*

A Leiochrini beetle, *Leiochrinus nilgirianus* Kaszab (Tenebrionidae : Coleoptera) associated with scavenging action on the sooty mould deposits on coconut palm that are developed on the honey dew excrements from invasive rugose spiralling whitefly, *Aleurodicus rugioperculatus* Martin was observed. The eggs



Strong claws to move on fungal mat



Bristle like tarsomeres to scoop out sooty mould fungus



Egg of *Leiochrinus nilgirianus*



Immature stages of *L. nilgirianus*



Leiochrini beetle, *Leiochrinus nilgirianus*

of *L. nilgirianus* are oval, smooth, shiny and bright pinkish to purplish and are laid in clusters on the undersurface of the palm leaflets. Upon eclosion after 2-3 days, a thin white membranous film is found covering the emerging grub, which is shed within 3-5 hrs. The larvae are oniscoid and could roll into a sphere during locomotion and could also be stretched like a cone. Pupation takes place on the undersurface of the palm leaflets and the pupae are

exarate and creamy yellow with black patches. Adult beetles are characterized by: strongly convex and hemispherical body, head fully concealed under pronotum, 11-segmented antenna, pronotum anteriorly rounded, penultimate tarsomeres dilated, lobed beneath, and distinctly broader than apical tarsomere. Bristle-like hairs on the undersurface of tarsomeres could probably aid in scooping / brushing the sooty mould deposition and well developed tarsal claws would assist

swift movement on fungus-laden leaflets. On an average one adult beetle could clear 1-2 mm² sooty mould laden area in a period of one minute. *In situ* habitat conservation of *L. nilgirianus* appears to have the potential to save several crores of rupees in the agricultural sector by avoiding chemical pest management options.

*Josephraj Kumar, A.,
Chandrika Mohan,
Merin Babu and Poorani, J.*



IMPORTANT EVENTS

KVK-Alappuzha receives ICAR Award

ICAR-KVK-Alappuzha has been awarded the Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protsahan Puraskar 2016-17 for Zone XI. The award consisting of a certificate and prize money of Rs. 2.25 lakhs was received by Dr. P. Chowdappa, Director, ICAR-CPCRI and Dr. P. Muralidharan, Principal Scientist & Head, ICAR-KVK-Alappuzha at the 89th ICAR Foundation day and Award Ceremony held at National Agricultural Science Complex on 16th July, 2017. The KVK has been functioning since 2004 as the knowledge and resource centre in the field of Agriculture and allied sciences.



Shri Radha Mohan Singh, Hon'ble Minister for Agriculture and Farmers' Welfare handing over the Best KVK Award to Dr. P. Chowdappa, Director, ICAR-CPCRI and Dr. P. Muralidharan, Head, KVK Alappuzha

Annual Group Meeting of ICAR-AICRP on Palms

XXVI Annual Group Meeting of ICAR-AICRP on Palms was inaugurated on 26th July, 2017 by Dr. A. K. Singh, DDG (Horticultural Science) at UHS Bagalkot. The meeting was presided over by Dr. D. L. Maheswar, Vice Chancellor, UHS, Bagalkot. Dr. V. Nachegowda, Director of Research, UHS, Bagalkot welcomed the gathering. Dr. H. P. Maheswarappa, PC (Palms) briefed about the research achievements made during 2016-17 and technologies to be released during the meeting. Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod and Dr. R. K. Mathur, Director, ICAR-IOPR, Pedavegi graced the



Dr. A.K. Singh, Deputy Director General (Hort. Sci.) releasing a publication during the Annual Group Meeting of AICRP on Palms. Dr. P. Chowdappa, Director, ICAR-CPCRI, Dr. D. L. Maheswar, Vice Chancellor, UHS, Bagalkot, Dr. V. Nachegowda, Director of Research, UHS, Bagalkot, Dr. H. P. Maheswarappa, PC (Palms) and Dr. R. K. Mathur, Director, ICAR-IOPR, Pedavegi are also seen

occasion. In the group meeting, about 100 scientists from 13 State Agricultural/ Horticultural Universities, two Central Agricultural Universities and four ICAR institute participated. During the meeting, palm jaggery prepared from fresh inflorescence sap of palmyrah developed by Pandirimamidi Centre was released. A success story on 'Community based approach for biological control of coconut black headed caterpillar outbreak in East Godavari district of Andhra Pradesh' was released along with three other technical bulletins and 15 extension folders in local languages from different AICRP Centres. AICRP centres Pattukkottai centre was judged as the Best Centre based on performance. The group meeting deliberated on work done during 2016-17 on different thematic programmes of AICRP and formulated technical programme

for 2017-18. The plenary session was held on 28th July 2017 under the chairmanship of Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod. Dr. P. Chowdappa, presented the Best Presentation award to Er. P. C. Vengaiah, Scientist (Food Science and Technology), HRS, Pandirimamidi, Andhra Pradesh. Following technologies were recommended for release during the meeting:

1. Improved variety, Kalpa Shatabdi recommended for cultivation in Tamil Nadu for its higher copra content and copra yield.
2. Intercropping banana, elephant foot yam and pineapple is remunerative during juvenile phase of oil palm cultivation in Konkan region of Maharashtra with additional income of Rs. 80,000/ha/year.
3. Intercropping cucurbits (ridge gourd, bottle gourd, cucumber and bitter gourd) is remunerative during juvenile phase of oil palm cultivation in West Godavari region of Andhra Pradesh with additional income of Rs. 65,000/ha/year.
4. Soil application of talc based formulation of 125g each of *Trichoderma reesei* and *Pseudomonas fluorescens* + 5 kg of neem cake per palm per year for the management of basal stem rot disease in coconut.
5. Palmyrah jaggery prepared from inflorescence sap collected by adopting ICAR-CPCRI method having a shelf life of six months under room temperature, was recommended for commercial release.

World Coconut Day Celebrations

Various programmes were organized at ICAR-CPCRI, Kasaragod in connection with the World Coconut Day celebrations. Competitions were held for the students on essay writing, painting and elocution.

A total of 124 nos. of students representing eight schools participated in the programme. Quiz competition for farmers with the focal theme on 'Coconut for prosperity' was held by involving farmers from four localities of Kasaragod district where 'Keragramam' scheme is being implemented. A competition on coconut recipe preparation was held for the women. Training programme on 'Effective utilization of technologies for higher productivity in coconut' was conducted as part of the celebrations. Valedictory function of World coconut day celebrations



Dr. P. Chowdappa, Director, ICAR-CPCRI addressing the gathering



Dr. P. Chowdappa, Director, ICAR-CPCRI giving away the prizes to student winner

was held on 22nd September, 2017 in which Shri Bimal Ghosh, Deputy Director of Agriculture, Kasaragod was the guest of honour. Dr. P. Chowdappa, Director, ICAR-CPCRI presided over the function.

Interface on Science, Innovations and Entrepreneurship

An Interface programme on Science, Innovations and Entrepreneurship was organized at ICAR-CPCRI, Kasaragod on 15th September, 2017, as a curtain raiser to the 3rd India International Science Festival (IISF) to be held at 2017 at Chennai during 13-16 October, 2017. Shri N. A. Nellikunnu, Hon'ble MLA Kasaragod, while inaugurating the interface programme urged the participating students to carry forward the dream of the nation to become a world leader by 2030. He encouraged them to engage themselves with rigorous scientific experiments and keen observations. While remembering former President of the Nation Late

A.P.J. Abdul Kalam, he also called upon the students to develop passion for life. He pointed out that many scientists from the soil of Kasaragod, possess the caliber of Sir C.V. Raman and Shri A.P.J. Abdul Kalam in the future.

Dr. Ravi Bhat, Principal Scientist & Head of the Division, ICAR-CPCRI presided over the function and mentioned about the relevance of this programme to instill scientific temper among students and public as envisaged by IISF-2017. The IISF series has relevance to India's long term vision for developing and widening the spectrum of scientific temper in the continent, being organized by the



Students interacting with scientists on field experiments at ICAR-CPCRI, Kasaragod

Vijanan Bharathi in collaboration with the Ministry of Earth Sciences, New Delhi. The Festival focuses on showcasing India's contribution in the field of Science and Technology over the years. Dr. K.A. Navas, Head, Government College of Engineering, Kannur delivered the keynote address and motivated the students to become innovators and entrepreneurs. Shri B. Shivakrishna Bhat, IMC Member, ICAR-CPCRI and Dr. Anitha Karun, Principal Scientist and Head of the Division & Vice President, Sakti (Vijnana Bharati) offered felicitations. Well known innovators interacted with the students during the programme. More than 400 students from different schools of Kasaragod district actively participated in the interface programme.



Innovators addressing students at ICAR-CPCRI, Kasaragod

Visit of Sri Lankan Officials

The familiarization visit programme on 'Crop management practices and value addition in coconut' for 28 Field Extension Officers, Coconut Cultivation Board, Sri Lanka was organized at ICAR-CPCRI, Kasaragod on 21st July 2017 in collaboration with Indian Institute of Plantation Management (IIPM), Bangalore.



Field Extension Officers, Coconut Cultivation Board, Sri Lanka on familiarization visit to ICAR-CPCRI, Kasaragod



PUBLICATIONS

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- Ramesh, S.V., Sahu, P.P., Prasad, M., Praveen, S. and Pappu, H.R. 2017. Geminiviruses and plant hosts: A closer examination of the molecular arms race. *Viruses* **9**(9): 256 DOI 10.3390/v9090256.
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- Thube, S.H., Pandian, R.T.P., Bhavishya, Saneera, E.K., Mohan, C. and Nagaraja, N.R. 2017. Major storage insect pests of Arecanut *Areca catechu* L. - A Survey. *Journal of Entomology and Zoology Studies*. **5**(4): 1471-1475.
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- Jissy George and Muralidharan, P. 2017. Thermal processing of tender and unripe ready to cook Jackfruit for shelf life enhancement. In: Abstracts of the "International Seminar on Production, Value Addition and Marketing of Jack Fruit", 9th-12th August, RARS, Ambalavayal, Wynad, Kerala. pp 10-11.
- Nagaraja, N. R. Elain Apshara, S. and Vinaya Rao 2017. Study of compatibility mechanism in cocoa (*Theobroma cacao* L.) trees. Abstracts of "International Symposium on Horticulture: Priorities and Emerging Trends", 5th to 8th September, 2017, Bengaluru, India. pp. 309-310.
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Research
Articles

Presented
Papers

Popular
Articles

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HUMAN RESOURCES DEVELOPMENT

Deputation Abroad

Dr. P. Chowdappa, Director, ICAR-CPCRI participated in a Seminar Series of Coconut, Rubber and Tea at Trade Fair and presented a paper on "Value addition in coconut" at Colombo during 11th-13th August, 2017. He has also attended the Asian Conference on Plant Pathology at Jeju, South Korea during 13th-16th September, 2017 and presented the country report on "Plant Pathology Education and Research in India: Present Scenario and Future Challenges".



Dr. P. Chowdappa, Director, ICAR-CPCRI Kasaragod addressing delegates at Jeju, South Korea



Dr. P. Chowdappa, Director, ICAR-CPCRI Kasaragod addressing delegates at Colombo, Sri Lanka

Training attended

Dr. M.R. Manikantan, Sr. Scientist (APE) has undergone a training on "Storage stability

of sugarcane juice in high-density polyethylene based nanocomposite packaging

films" at ICAR - Sugarcane Breeding Institute, Coimbatore, during 18th – 21st September, 2017.

PG Studies

Shri Saran Kumar Rizal, Chief Technical Officer, ICAR-CPCRI, RC, Kahikuchi was awarded Ph.D. degree in Agricultural Extension by Visva-Bharati

University, Shantiniketan, West Bengal, for his thesis entitled Impact Assessment of Records and Extension Activities of Government Agencies: A study in

Jalpaiguri District of West Bengal under the guidance of Prof. Sarthak Choudhuri, Department of Agricultural Extension, Visva-Bharati University.



DISTINGUISHED VISITORS

Shri E. Chandrasekharan, Hon'ble Revenue Minister, Government of Kerala and Shri N.A. Nellikkunnu, MLA, Kasaragod interacted with scientists and local government officials on 26th August, 2017 at ICAR-CPCRI, Kasaragod

Shri G. Sudhakaran, Hon'ble Minister for Public Works and Registration, Government of Kerala visited the Regional Station, Kayamkulam on 5th August, 2017 and interacted with the Scientists on the research programmes of the Institute.

Shri K.M.M. Alimaligothi, IES, Advisor, Commission for Agriculture Costs



& Prices, Ministry of Agriculture & Farmers Welfare, Govt. of India visited the experimental fields of the

Regional Station, Kayamkulam and interacted with the scientists on the problems in coconut price sector.

Institute Joint Staff Council

IJSC of the Institute has been reconstituted for three years from 21st September, 2017 having following members:

Dr. P. Chowdappa, Director, ICAR-CPCRI, the Chairman of IJSC, Dr. Ravi Bhat, Head, Division of Crop

Production, Dr. Vinayaka Hegde, Head, Division of Crop Protection, Dr. K. Samsudeen, Principal Scientist, Chief Administrative Officer, Senior Finance and Accounts Officer, all members and Assistant Administrative Officer (Establishment-I.) is the Member

Secretary (Official Side). The staff side members are Shri C. Ramesh Babu, P.A., Shri M.V. Sreedharan, Sr. Tech. Asst., Shri N. Dinesh Kumar, Sr. Technician, Shri B. Chandrasa, SSS, Smt. K. Saseendra, SSS, Shri Kartick Chandra Biswas, SSS, Shri M. Ravindran, Asst. Admin. Officer.



TRANSFER OF TECHNOLOGY

On-Campus Programmes

A training programme on coconut production technologies for farmers from Vadakara Block, Kozhikode district was organized at ICAR-CPCRI, Kasaragod on 28th July, 2017 in collaboration with ATMA Kozhikode.



Participants of training programme on "Coconut production technologies" at ICAR-CPCRI, Kasaragod

A training programme on coconut Production Technologies for selected farmers from Theni district was organized at ICAR-CPCRI, Kasaragod on 21st September, 2017 in collaboration with ATMA Theni, Tamil Nadu.



Participants of "Effective utilization of technologies for higher productivity in coconut" conducted at ICAR-CPCRI, Kasaragod

Orientation training on 'Integrated Pest Management' was conducted for the benefit of 45 farmers from Attingal Block at ICAR-CPCRI, RS, Kayamkulam on 12th July, 2017. A meeting on assessment of impact of coconut varieties and training on seedling management was organized involving 20 farmers from Oachira, Karunagappally, Muthukulam and Chengannur at ICAR-CPCRI, RS, Kayamkulam on 24th August, 2017.

Three days training programme on cocoa cultivation and processing techniques, funded by DCCD, Cochin, Kerala was conducted at ICAR-CPCRI, RC, Kahikuchi from 12th to 14th September, 2017. Fifty farmers from Baksha, Kokrajhar, Chirang, Goalpara, Udalguri and Kamrup districts of Assam participated in the training.

A training programme on high density multi-species cropping system, was held at ICAR-CPCRI, RC, Kahikuchi on 18th August, 2017. Thirty four farmers from various parts of Kamrup (R) district of Assam participated the training programme.

A training programme on crop diversification in plantation garden with black pepper, was conducted at ICAR-CPCRI, RC, Mohitnagar on 28th July, 2017. A total of 40 trainees attended the training programme.

Off Campus Programmes

Training on scientific cultivation of *Dioscorea* and community participation, was conducted at Pathiyoor on 12th July, 2017,

in which, 19 people have participated. 'My Coconut My Legacy' meeting with People's Representatives and School

Representatives was convened at Pathiyoor Panchayath, Alappuzha district on 31st July, 2017 in which 40 stakeholders participated.



Farmers First Programme at Pathiyoor Panchayat, Kerala

Inauguration of 'Farmers first project - Animal husbandry programmes/ interventions' was organized on 4th August, 2017, in which 212 participants attended. Harvest festival of Sreyas and Navara of paddy was conducted on 16th September, 2017. Training

on 'scientific cultivation of *Azolla* and its multifarious uses, was also conducted at Pathiyoor on 19th September, 2017 in which, over 60 participants attended.

Off campus training programmes on 'scientific cultivation practices for coconut'

was conducted in three tribal colonies in Wayanad district viz., Mathamangalam and Karyambadi on 30th August, 2017 and Thrissileri on 31st August, 2017. A total of 176 tribal farmers attended these training programmes.

Scientist – Farmer Interface Programmes

Scientist – Farmer Interface Programme on 'Performance of hybrid coconut varieties in farmers field' were conducted at Pallikkara Krishi Bhavan of Kasaragod district, Mararikulam Block Panchayat of Alappuzha district and Mukkannoor of Ernakulam district, during 5th August, 14th August and 16th August, 2017, respectively as well as ICAR-CTCRI, Trivandrum district and Kinassery - Kollangodu, Palakkad district on 16th September 2017. A total of 105 farmers participated in the interface programmes.

An awareness campaign was conducted on the management of rugose spiraling whitefly to 20 farmers at Purakkad panchayath, Alappuzha Dist. A training programme on seedling management of coconut and distribution of bio-primed coconut seedlings was conducted under Keragramam programme in Cherthala South on 27th July, 2017. A special lecture on sustainability in coconut production was delivered as part of Farmers' day programme on 1st day of Chingam month at Krishi Bhavan, Krishnapuram on 17th August, 2017, which was attended by more than 100 farmers. The farmer's day seminar was convened on Advanced Production Technologies of



Interface meeting at Mararikulam, Alappuzha District



Interface meeting at Mukkannoor, Ernakulam District

coconut at Krishi Bhavan, Kallara on 17th August, 2017 in which 125 farmers participated and awards were distributed to the innovative farmers in various categories. A farmer scientist interface was held at Krishi Bhavan Chirakkara, Kollam on 17th August, 2017 wherein soil health management was thread bare discussed with the participation of about 100 farmers.

Three technical sessions were conducted at the Season Long Training Programme on Coconut organized by CIPMC, Trichy at the coconut hub of



Interface meeting at Pallikkara, Kasaragod District



Interface meeting at Kollangodu, Palakkad District

Pollachi viz., Integrated nutrient management in coconut eco system and role of nutrients in plant protection, Advances in coconut pest management with emphasis on ecological engineering and disease diagnosis and management strategies in coconut on 26th August, 2017, 30th August, 2017 and 05th September, 2017, respectively. Four technical sessions on 'Health management in coconut' were conducted for about 50 selected farmers representing different Coconut Producers' Societies/Federations of Malappuram, Kottayam,

Alappuzha Districts at Kera Bhavan, Kochi during 25-28 September, 2017.

Demonstration on 'Cocoa pruning' sponsored by Punacha Primary Agricultural Service Co-operative Society was organized at Punacha, Bantwal Tk., Dakshina Kannada Dt., Karnataka on 1st August, 2017.

A training programme on crop diversification in plantation garden with black pepper, was conducted at Dalsinghpara, Kalchini Block, Alipurduar district, West Bengal on 4th July, 2017. A total of 54 trainees attended the training programme. Another training programme on "Scientific coconut cultivation" was conducted at Banesarwar,

Coochbehar district, West Bengal on 27th July, 2017. A total of 43 trainees attended the training programme. A training programme on "Crop diversification in plantation garden with black pepper" was conducted at Pana Forest Basti, Kalchini Block, Alipurduar, West Bengal on 30th August, 2017. A total of 56 trainees attended the programme.

Field Day on EPN in Arecanut

A field day on management of root grub in arecanut using entomopathogenic nematodes (EPNs) and training programme on 'Integrated management of pest and diseases in arecanut' was conducted at Bare village in Udma Panchyath of Kasaragod, Kerala on 22nd June 2017 to motivate the farmers to adopt scientific technologies for effective management of root grubs as well as other pests and diseases in arecanut. The programme was inaugurated by Dr. Ravi Bhat, Principal Scientist & Head of the Division, ICAR - CPCRI, Kasaragod and presided over by Shri K. A. Mohammadali, President, Udma Grama Panchyath, Kasaragod. The effectiveness of the EPN technology was demonstrated.



Participants of training programme on 'Integrated management of pest and diseases in arecanut' at Udma, Kasaragod

An exhibition was also organized in connection with the programme. The programme was attended by more than 150 farmers from the nearby villages.

An exposure visit of 27 farmers from Barpeta KVK, AAU visited the

Research Centre, Kahikuchi on 17th July, 2017. Eighteen progressive farmers from Kalchini block of Jalpaiguri district, West Bengal visited the Research Centre, Kahikuchi on 18th September, 2017.

Radio Talks/TV Programmes

Dr. P. Anithkumari, Principal Scientist delivered a radio talk on "How to improve productivity of coconut in small and marginal coconut holdings" on 13th September, 2017.

Dr. Chandrika Mohan, Principal Scientist participated in

Krishidarshan Live- phone -in programme of Doordarshan Kendra, Thiruvananthapuram on 4th August, 2017 and discussed on the 'Biological methods in coconut pest management'.

Radio report on "Sankalp Se Sidhi" programme organized by KVK-

Alappuzha was broadcasted by AIR, Thiruvananthapuram on 01st September, 2017. Dr.T.Sivakumar delivered a talk on "Indigenous practices of coconut cultivation and plant protection" which was broadcasted on 27th September, 2017 in "Nattarivu" programme

of AIR, Thiruvananthapuram. “Achievements of KVK-Alappuzha on the backdrop of the National Award” was broadcasted on 30th September, 2017 in “Vayalum veedum” programme of AIR, Thiruvananthapuram.

Participation in Exhibitions

ICAR- CPCRI participated in the exhibition organized by Malayala Manorama pvt Ltd at Palakkad during 30 August to 3 September 2017.

KVK, Kasaragod

On Farm Testing

Evaluation of a high yielding paddy variety *Shreyas* released by the KAU was compared with the existing varieties *Uma* and *Revathy*. The ICAR-CPCRI technology for ecofriendly management of rhinoceros beetles in coconut is being carried out in Mogral, Kasaragod district. The observations on the growth parameters of tendernut varieties released by ICAR-CPCRI viz., Kalpasree, Kalpa Surya, Kalparaksha and Kalpa Jyothi in three farmers fields in Parappa, Kasaragod district was also recorded. The assessment of yard long bean varieties Vellayani Jyothika, Geetika and Arka Mangala was initiated in three farmers plots in Kasaragod.

Frontline demonstrations

The frontline demonstrations (FLD) on management of blast disease in paddy was carried out in 10 farmers fields in Panayal village, Kasaragod district with a crop management package comprising lime application for soil acidity management to restore plant health and application of *Pseudomonas fluorescens* for the blast disease management. The crop has reached the harvesting stage and the disease occurrence

was found to be less in comparison to the control fields. The upland rice variety Vaisakh was demonstrated in 10 fields. A demonstration of ecological engineering measures for rice pest management was carried out in Vorkady and Muliya panchayats. Vetiver was used as trap crop for the management of stem borers. Sesame and Marigold were grown to enhance the buildup of natural enemies of paddy pests thereby ensuring them the availability of nectar and pollen. The observations recorded so far showed that the pest incidence is very low and below the economic threshold level. High yielding varieties of black pepper

in coconut gardens is being demonstrated in Ballal and Uduma panchayats.

Training

KVK Kasaragod has conducted various on campus and Off campus training programmes as below.

Training on preservation of jackfruit

A skill development training was organised for the preservation of jackfruit from 17 to 20th July 2017. The beneficiaries were also taken for an exposure visit to attend the International Jackfruit Festival at RARS, Ambalavayal in Wayanad district conducted from 9-13 August 2017.

Training	No. of Programmes	Participants		
		Men	Women	Total
On campus	12	217	62	279
Off campus	9	305	298	603
Total	21	522	360	882



Dr. P. Chowdappa inaugurating the training programme on honeybee rearing at ICAR-CPCRI, Kasaragod

Training programme on vanilla cultivation

A training programme on vanilla cultivation was organized jointly by KVK, Kasaragod and Kancor-Mane, Kochi on 14th September, 2017 for the benefit of 27 trainees belonging to Kasaragod District. The programme was organized to create confidence among farmers to initiate and promote vanilla cultivation which was wiped out from the district due to low price and resultant negligence leading to disease attack. Vanilla cuttings were distributed to willing farmers and a buy-back programme was also announced by the firm. The programme was inaugurated by



Training programme on vanilla cultivation at ICAR-CPCRI, Kasaragod

Dr. Ravi Bhat, Head of the Division, Crop Production. A field visit was also arranged in connection with the programme.

Development (DASD), Kozhikode. The training was followed by farmers - Scientist interaction and a thematic exhibition. Around 202 farmers were attended the training programme.

Training on crop health management in arecanut

Training programme on crop health management with special emphasis on root grub control using entomopathogenic nematodes (EPN) in arecanut has been conducted at Perla, Kasaragod on 31st July, 2017, sponsored by Directorate of Arecanut and Spices



Inauguration of farmers interface on crop health management at Perla, Kasaragod



Training programme on food processing at ICAR-CPCRI, Kasaragod

KVK, Alappuzha

Trainings/Meetings conducted

Training	No. of Programmes	Participants		
		Men	Women	Total
On campus	6	121	359	480
Off campus	16	37	95	132
Off campus	1	5	7	12
Total	23	163	461	624

Onattukkara Spices Farmer Producer Company inaugurated

The Onattukkara Spices Farmer Producer Company Limited (OSFPCL), promoted by ICAR-KVK-Alappuzha and funded by NABARD, was inaugurated by Shri

G. Sudhakaran, Minister of Public Works and Registration, Govt. of Kerala in an auspicious function conducted at Kattanam on 21st July, 2017. Hon. Minister also released the products of the company- turmeric powder and whole pepper – on the

occasion. Scientists, officials and other stakeholders were present in the programme. The OSFPCL aims to facilitate the farmers of Alappuzha district to increase the profitability of cultivation of major spice crops in the district viz., turmeric, ginger, pepper and *Garcinia*. A booklet on 'Cultivation and processing of ginger and turmeric' was released by the guests on the occasion. About 200 persons including majority of the shareholder farmers actively participated in the programme.

Awareness Programme on 'Protection of Plant Varieties and Farmers' Rights Act' conducted

ICAR-KVK-Alappuzha organized an awareness seminar on 'Protection of Plant Varieties and Farmers' Rights Act' at Kattanam on 21st July, 2017 for the benefit of the farmers of Onattukara region. The programme was inaugurated

by Dr. Jiju P. Alex, Director of Extension, KeralaAgrl. University in which about 200 farmers of the region attended. Dr. Regi Jacob Thomas, Principal Scientist, ICAR-CPCRI, Kayamkulam and Dr. Lijo Thomas, Scientist, ICAR-IISR, Calicut presented the topics in the seminar and lead the discussions followed. An exhibition on different

species of medicinal plants was also arranged in the venue.

Farmer Field School on "Integrated management of juvenile coconut palms"

A Farmer Field School (FFS) was conducted in Mararikulam South panchayath with the support of Korthusseril Coconut Producers Society, on 22nd July, 2017.



PARTICIPATION IN SEMINARS/SYMPOSIA/CONFERENCES/WORKSHOPS

Name and designation	Title	Place and date
Dr. Regi J. Thomas, Principal Scientist	Collaborative National Seminar on Eco-technological Perspectives for Sustainable Development	MG University, Kottayam on 29 th July, 2017
Dr. P. Chowdappa, Director, Dr. K.S. Ananda and Dr. V. Krishnakumar, Heads of the Station, Dr. Anitha Karun, Dr. Ravi Bhat, Dr. Vinayaka Hegde, Dr. K. B. Hebbar, Dr. C. Thamban, Heads of Division, Dr. V. Niral, Dr. P. Subramanian, Dr. Chandrika Mohan, Dr. A. Joseph Rajkumar, Principal Scientist, Dr. Rajkumar, Mrs. Jilu V. Sajan, Scientists	Annual General Meeting of AICRP on Palms	University of Horticultural Sciences, Bagalkot during 26-29 July, 2017
Smt. Jissy George, SMS (Home Science)	International Seminar on Production, Value Addition And Marketing Of Jack Fruit	RARS, Ambalavayal 9 th to 12 th August, 2017
Dr. Nagaraja, N. R. Scientist-Sr. Scale (Plant Breeding)	International Symposium on Horticulture: Priorities and Emerging Trends	J. N. Tata Auditorium, National Science Seminar Campus, Indian Institute of Science, Bengaluru during 4 th to 8 th September, 2017
Dr. Murali Gopal Principal Scientist	Workshop on Microbe based technologies for Soil Health and Plant Nutrition	NASC Complex, New Delhi 25 th August, 2017
Dr. Alpana Das, Principal Scientist & SIC, RC, Kahikuchi	National Seminar on Smart Farming for Exchange Input use Efficiency, Income and Environment Security	ICAR Research Complex for NEH Region, Umiam, Meghalaya 19-21 September, 2017



OTHER INFORMATION

Swachh Bharat Programme



Staff carrying out cleanliness programme in public places near the campus

At ICAR-CPCRI Headquarters, Regional Stations and Research Centres, one hour in every Friday has been earmarked for Swachh Bharat activities by the staff. Public places adjoining ICAR-CPCRI campus are kept clean through these activities. The mission on cleaning service through "Swachhata Hi Sewa" campaign was commenced with the pledge by all employees undertaking to carry forward Swachhata as service to the nation. Mukkada public bus stop premises near the Regional Station, Kayamkulam were de-weeded by the staff conveying the message very effectively. In addition, Sankar Cartoon Museum and a nearby LP school premises were cleaned by our staff as part of the programme putting across the message of cleanliness next to Godliness.

As part of this programme, a cleaning drive and planting of trees was organised from

Dr. P. Chowdappa, Director, ICAR-CPCRI handing over lock and key of the public toilet to the Panchayat President at Kumbla, Kasaragod

15th September, 2017 to 2nd October, 2017 at ICAR-CPCRI, Research Centre, Kahikuchi.

New India Manthan – *Sankalp se Siddhi* programme was organized by Krishi Vigyan Kendra, ICAR-CPCRI, Kasaragod at Vorkadi, Kasaragod on 19th August, 2017. ICAR - KVK - Alappuzha organised the '*Sankalp Se Sidhi*' programme on 29th August, 2017 at the auditorium of ICAR-CPCRI, Regional Station, Kayamkulam. These programmes were aimed to propagate the action plan in terms of the seven point programme to double the

farmer's income by 2022. An agricultural exhibition on various agricultural technologies was also arranged for the benefit of farmers. About 300 farmers and entrepreneurs actively participated in the programme.

Swachhta hi Sewa campaign was launched at ICAR-CPCRI, RC, Mohitnagar with Swachhta Shapath oath taking on 17th September, 2017. The activities were continued till 2nd October, 2017 which also included awareness programme among the local people and school children.



Dr. P. Chowdappa, Director, ICAR-CPCRI reading out "Sankalp se Siddhi" Pledge to the staff at ICAR-CPCRI, Kasaragod





PERSONALIA

Promotion

Name	From (Designation)	To (Designation)	w.e.f.
Dr. H. Moosa	Asst. Chief Technical Officer, ICAR-CPCRI, RS, Vittal	Chief Technical Officer, ICAR-CPCRI, RS, Vittal	01-07-2015
Dr. Nilofar Illias Kutty	Asst. Chief Technical Officer, ICAR-KVK, Kasaragod	Chief Technical Officer, ICAR-KVK, Kasaragod	01-06-2016
Smt. M.P. Jayashree	Sr. Technical Officer, ICAR-KVK, Kasaragod	Asst. Chief Technical Officer, ICAR-KVK, Kasaragod	08-01-2015
Shri N. Ramakrishnan	Sr. Technical Officer, ICAR-CPCRI, Kasaragod	Asst. Chief Technical Officer, ICAR-CPCRI, Kasaragod	06-03-2015
Dr. C.G. Narayanan Namboothiri	Sr. Technical Officer, ICAR-CPCRI, RS, Kayamkulam	Asst. Chief Technical Officer, ICAR-CPCRI, Kayamkulam	27-03-2016
Smt. K. Shobha	Asst. Chief Technical Officer, ICAR-CPCRI, Kasaragod	Chief Technical Officer, ICAR-CPCRI, Kasaragod	01-01-2016
Smt. K. Sreelatha	Sr. Technical Officer, ICAR-CPCRI, Kasaragod	Asst. Chief Technical Officer, ICAR-CPCRI, Kasaragod	29-06-2016
Dr. C. Kesavan Nampoothiri	Asst. Chief Technical Officer, ICAR-CPCRI, Kayamkulam	Chief Technical Officer, ICAR-CPCRI, Kayamkulam	01-07-2016
Shri P.K. Krishnan Kutty	Sr. Technician, ICAR-CPCRI, Kasaragod	Jr. Technical Asst., ICAR-CPCRI, Kasaragod	27-12-2004

Transfers

Name of the staff	From (Place)	To (Place)	Date
Dr. Bhanuprakash	Principal Scientist (Plant Physiology), ICAR-IIHR, Bangalore	Principal Scientist (Plant Physiology), ICAR-CPCRI, Kasaragod	10-07-2017
Shri K. Shyama Prasad	Asst. Chief Technical Officer, ICAR-KVK, Kasaragod	Asst. Chief Technical Officer, ICAR-CPCRI, Kasaragod	31-08-2017
Shri S.K.C. Bose	Sr. Finance & Accounts Officer, ICAR-CPCRI, Kasaragod	Chief Finance & Accounts Officer, ICAR-IIHR, Bengaluru	31-07-2017
Shri Subhas Paul	Assistant, CPCRI RC, Kahikuchi	CPCRI RC, Mohitnagar	13.07.2017

Retirements

Name	Designation	Place	Date
Smt. S. Mohini	SSS	ICAR-CPCRI, Kasaragod	07-07-2017
Dr. V.K. Chaturvedi	Senior Scientist (Pl. Biochemistry)	ICAR-CPCRI, RS, Kayamkulam	30-09-2017



TECHNOLOGY COMMERCIALIZATION

During the period from July to September, 2017, seven technologies were commercialised by the Institute to nine entrepreneurs through MoA as per the details given below, an amount of ₹ 5.36 lakhs have been collected as technology transfer fees.



Dr. P. Chowdappa, Director, ICAR-CPCRI handing over Kalparasa technology to President of Coconut Producers Federation at Kasaragod in the presence of Shri H. Ekantaiah, Former Minister, Karnataka

Name of Technology Commercialized	Date of Signing MOU	Value (In INR)	Licensee
Collection of fresh and hygienic Kalparasa and production of natural coconut sugar	25-09-2017	15,000	K.S. Somashekar Reddy, Chairman, Vedhavathi Coconut Producers Federation, Challakere, Chitradurga District, Karnataka
	15-09-2017	15,000	ICAR- Taralabalu Krishi Vigyan Kendra, Davanagere, Karnataka
Coconut de-shelling machine	20-09-2017	1,000	M/s Deepika Agro Products, Suramangalam, Salem, Tamil Nadu
Coconut chips	14-09-2017	15,000	Mr. Haridasan Potty, Karanenmeni Illam, Thiruvalla, Pathanamthitta , Kerala
Frozen coconut delicacy	08-09-2017	60,000	M/s Hangyo Ice Cream Private Limited, Brahmavar, Karnataka
Preservation of carbonated tender coconut water	26-09-2017	25,000	Sachin U., S S Nivas, Vidyanagar, Kerala
	22-08-2017	25,000	Sreevidya Shaju, Panangadan House, Thrissur, Kerala
Technical knowhow of production of virgin coconut oil (VCO)	19-07-2017	40,000	C. Nandihally Coconut Producer's Federation, Gubbi Taluk, Tumkur, Karnataka
	19-07-2017	40,000	Kalpatheertha Coconut Producer Company Ltd, Tumkur, Karnataka
Nanomatrix for delivery of pheromone for the management of red palm weevil and rhinoceros beetle (Jointly developed technology of ICAR-CPCRI & JNCASR)	10-07-2017	3,00,000	M/s Agro Phero Solutionz, Hyderabad, Andhra Pradesh
Total		5,36,000	

New projects approved

During the period, ICAR-CPCRI could get external funding for the different research projects from different national agencies, totaling to a tune of Rs. 4.54 crores as per the details given below:

Project title	Principal investigator	Duration	Fund (Rs.) in lakhs	Funding agency
Detection system for red palm weevil infesting coconut	A. Joseph Rajkumar	Two years	45.60	CDB, Kochi
Production and distribution of dwarf/semi tall varieties of quality planting materials	V. Niral	Two years	91.20	Dept. Agri., Govt. of Kerala
Technology support for coconut hybridization/production of semi tall varieties	K. Samsudeen/ Regi Jacob Thomas	Two years	119.93	Dept. Agri., Govt. of Kerala
Design, development and field demonstration of an airblast sprayer for coconut	A.C. Mathew	One year	9.00	CDB, Kochi
Standardization of protocol for the preparation of frozen coconut delicacy	P.P. Shameena Begum	Two years	40.60	CDB, Kochi
Development of ready to eat extruded snacks from co-products of coconut processing	M.R. Manikantan	Two years	37.70	CDB, Kochi
Technology support for plant protection campaign against pest and diseases of coconut	Chandrika Mohan	Two years	92.38	Dept. Agri., Govt. of Kerala
Geo-spatial variability in Kerala - an analysis of extent and determinants	C. Thamban	Two years	17.83	Dept. Agri., Govt. of Kerala



CELEBRATION

Independence Day



The Institute has celebrated 71st Independence Day of our nation. Dr. P. Chowdappa, Director hoisted the National Flag and delivered Independence Day address at Kasaragod on 15th August, 2017. Independence Day was also celebrated in the Regional Stations at Kayamkulam and Vittal and Research Centres at Kahikuchi, Kidu and Mohitnagar.

Dr. P. Chowdappa, Director, ICAR-CPCRI addressing staff and public at ICAR-CPCRI, Kasaragod

Sadbhavana Diwas



Dr. P. Chowdappa, Director, ICAR-CPCRI reading out Sadbhavana Pledge to the staff at ICAR-CPCRI, Kasaragod

In compliance of the ICAR circular, Sadbhavana Divas was observed at ICAR-CPCRI, Kasaragod on 18th August, 2017. Dr. P. Chowdappa, Director, ICAR-CPCRI administered

the pledge to the staff of the Institute in English, followed by Dr. Alka Gupta, Principal Scientist administering in Hindi. All the staff of the organization have taken the

Sadbhavana Pledge at 11:00 AM in Platinum Jubilee Hall, ICAR-CPCRI, Kasaragod. Sadbhavana Diwas was celebrated at ICAR-CPCRI, RC, Mohitnagar on 18th August, 2017.

Onam Celebration

Onam was celebrated at the Regional Station, Kayamkulam with traditional fervor and gaiety encompassing a galaxy

of cultural entertainment programmes by the recreation club members that commenced with flower carpet competition

for children and elders *Onapattu*, tug of war and concluded with *Onasadya* on 30th August, 2017.

Hindi Week Celebrations

Inaugural function of Hindi Chethanamas has been conducted on 20th September, 2017 under the chairmanship of Dr. P. Chowdappa, Director. He urged the staff to do maximum official work in Hindi. Dr. Smt. P. Supriya, Asst. Professor (Hindi and Comparative Literature), Central University of Kerala, Kasaragod was the chief guest of that day. She delivered a lecture on the

possession and position of Hindi Language.

ICAR-CPCRI, Regional Station, Kayamkulam celebrated 'Hindi

week' on the occasion of 'Hindi Diwas', 2017 from 14th to 20th September, 2017. During the week long celebrations, various

Inauguration of Hindi *Chetana Mas* at ICAR-CPCRI, Kasaragod



competitions like dictation, extempore speech, slogan writing, poem recitation etc. were organized among the employees to create an atmosphere of Hindi and for enhanced working linkage through Hindi. The valedictory function held on 22nd September, 2017 was chaired by Dr. V. Krishnakumar, Head. Shri Achutha Panicker (Retired Professor), the Chief Guest, emphasized on the inclusive usage of Hindi in routine life. Cash prizes were also

distributed to the winners of various competitions as well as to those employees who had promoted Hindi in their official execution of duty.

Hindi Week was celebrated at Research Centre, Kahikuchi from 14th September, 2017 to 22nd September, 2017. The occasion began with the opening function was chaired by Dr. Alpana Das, Scientist-in-charge. Competition on various aspects were conducted and

prizes were distributed. In the concluding ceremony, Dr. A.K. Tripathi, Director, ATARI was the chief guest of the programme.

Hindi Week Celebration was held at ICAR-CPCRI, RC, Mohitnagar from 14-20th September, 2017 was celebrated to promote the use of Hindi in Official purpose and its importance. Guest lecture was arranged. Teachers from Kendriya Vidyalaya, Raninagar, Jalpaiguri delivered their lectures on official Language.

World Honeybee Day

World Honeybee Day was celebrated with a "Bee Quiz" and a talk on Prospects of beekeeping, at MSM College, Kayamkulam on 21st August, 2017. More than 125 students attended the programme.



MEERA GAON MERA GAURAV

ICAR- CPCRI, Kasaragod and its regional stations and research centres are implementing the MGGM initiative in collaboration with other stakeholders viz., Department of Agriculture, Krishi Vigyan Kendra, grama panchayat, farmers, SHGs etc. Meetings/ Seminars were organized on various topics, like bio-priming of coconut seedlings, integrated nutrient management of root (wilt) affected palms, scientific management of coconut, pest and disease management, impact of coconut varieties, arecanut cultivation in waterlogged areas in Assam, etc. Mobile based advisory was given for the benefit of 807 farmers on various topics including

crop residue recycling, nematode management in vegetables, *Trichoderma* application for stem bleeding, availability of coconut seedlings, nursery management, seedling availability, pest/disease management and nutrient application. In addition, facilitation for varieties/technologies and linkages with other agencies were also carried out during the period benefitting more than thousand farmers. Literature support were also provided for 364 beneficiaries on topics including nutrient management in vegetables, whitefly management in coconut gardens, boron deficiency symptoms and management, latest varieties of arecanut and

Obituary



Gopal Thapa



K. Babu

Shri Gopal Thapa, Skill Supporting Staff (SSS), ICAR-CPCRI, Reserch Centre, Kahikuchi breathed his last on 7th June, 2017 and Shri K. Babu, SSS, ICAR-CPCRI, Kasaragod breathed his last on 3rd August, 2017. The Director and staff of ICAR-CPCRI pray the Almighty for the peace and tranquility to the departed souls.

cocoa, scientific management of coconut nursery.

Three dynamic functional MGGG groups at the Regional Station, Kayamkulam have demonstrated technologies with greater emphasis on rain-water

conservation, vegetable farming in rainy season, introduction of fingerlings in farm ponds and secondary agriculture linked value addition in coconut and jack. Six training programmes at Nahira and Bongara villages,

Kamrup (Rural) district on Nursery management in arecanut was conducted by ICAR-CPCRI, RC, Kahikuchi. Three field diagnostic visits were conducted by the ICAR-CPCRI, RC, Mohitnagar to the three adopted villages



Training on seedling management



Training on coconut waste vermicomposting



Agricultural quiz programme for school students



Training on pest and disease management on Farmers Day



Diagnostic field visit



Removal of red palm topped palm for pest control

(viz., Pradhanpara, South Matiali and Kudipara) across during this period and discussion was made on problems of agriculture, horticultural crops and animal resources and also, awareness campaigns for Swachha Bharat

have been organized in this quarter. Black pepper rooted cuttings were distributed among the farmers in these villages.

Frontline demonstration gardens on cocoa were established

at Bantwal and Belthangady taluks, Dakshina Kannada district, Karnataka with funding from DCCD, Kochi. A total of 500 cocoa grafts were supplied to farmer and planted in the interspaces of coconut palms.



Removal of red palm topped palm for pest control



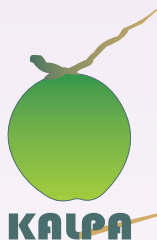
Diagnostic field visit



Cocoa FLD in Bantwal Taluk



Banana recovered from multiple nutrient deficiency



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