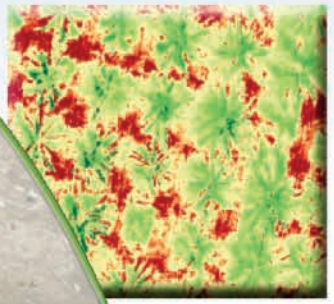
KALPA

CPCRI Newsletter

Volume 43 No. 3 July-September, 2024



ICAR-CENTRAL PLANTATION CROPS RESEARCH INSTITUTE
Kasaragod, Kerala - 671 124
An ISO 9001:2015 Certified Institute

DIRECTOR'S DESK

Digital Agricultural Mission and Hi-Tech Farming Relevance to Plantation Sector

Union Budget 2024–25 has earmarked 1940 crore rupees for the Digital Agricultural Mission to revolutionize Indian agricultural academics, farming sector investments in hi-tech agriculture and development of ICT based facilities. ICAR-CPCRI harnesses the potential of digital solutions to enhance productivity, optimize resource management, and foster sustainable practices in plantation sector.

CPCRI has initiated a collaborative project with RRSC-South, NRSC-ISRO, Bengaluru to utilise the geospatial technologies and advanced remote sensing satellites images developed by ISRO along with the advanced processing and analysis methodologies using AI/ML techniques for the following purposes. A pilot-scale study for area assessment of plantation crops using a sub-meter resolution (<1.0m) satellite images, detection and geographic spread of yellow leaf disease (YLD) in arecanut, soil suitability analysis for coconut cultivation and development of methodology for estimation of above-ground biomass (AGB) to analyze carbon sequestration potential of plantation crops.

As a decision support system CPCRI has already calibrated and validated ensemble models for identifying the climatically suitable area for coconut and arecanut cultivation under the current and future climate. Adaptability measures are suggested to moderate and low suitable areas. Currently work is in progress to adopt the same to understand the distribution and spread of pest and diseases.

Institute is developing mobile applications and ICT platforms to deliver timely and context-specific information to farmers. QR coded seedling supply to ensure quality and plant health care, user friendly digital pricing of the CPCRI products, pest and disease diagnostics are some of the examples. Efforts are on to detect the deficiency/disease damage very early, before the visible symptoms harm the productivity of crop plants.

Precision farming technologies are being installed at CPCRI to enhance the water and nutrient use efficiency. Efforts are on to integrate IoT devices and sensor networks to provide farmers with actionable insights for efficient irrigation, crop protection, resource management, value addition etc. Further, data is being collected using tools such as GPS, sensors and other gadgets to develop algorithms for UAV/satellite for large scale surveillance of the crop. Scientific assistance with AI and IoT as well as the step-by-step guidance and forewarning mechanisms are expected to make the plantation farming simpler than before and ultimately going to increase productivity and income.

K. Balachandra Hebbar
Director

CONTENTS

INSIDE...

SPOTLIGHT

Varieties presented and recommended in the 33rd Annual Group Meeting of AICRP on Palms

Coconut hybrid – Kalpa Nakshatra

It is a superior, high yielding D x T hybrid, involving Chowghat Orange Dwarf as female parent and West African Tall as male parent. The palms are semi-tall in habit with compact spherical canopy. The hybrid bears brown coloured, oval shaped fruits and the husked fruits are round in shape.'Kalpa Nakshatra' is high yielding, with high fruit yield (151 nuts palm^{-1} year^{-1}) and copra out turn (31.3 kg palm^{-1} year^{-1}). The tender nut water quality is good (TSS 5.9ºBrix), with higher tender nut water content (432.5 mL per tender nut). The variety also gives higher inflorescence sap yield (70 L/inflorescence). Considering the nut yield, tender nut water quality and sap yield potential, the variety is recommended as a multi-purpose variety, for cultivation in Kerala.

High yielding Kalpa Nakshatra coconut hybrid from ICAR-CPCRI, Kasaragod

Arecanut dwarf hybrid Terai Shankar

It is a T x D hybrid with Mohitnagar as female and Hirehalli Dwarf as male parent. The palms of this hybrid are dwarf in habit, with medium thick stem with super imposed nodes, intermediate crown shape. Fruits are medium in size, oval in shape and on ripening exhibit orange colour. The dry kernel weight is 6.75g and dry kernel yield/palm/year is 2.19 kg with a 21% kernel recovery. The variety is recommended for cultivation in homesteads in Sub Himalayan Terai region of West Bengal and lower Brahmaputra zone of Assam.

High yielding Terai Shankar hybrid from CPCRI, RC Mohitnagar

Varieties recommended by CVRC & dedicated to nation by Hon. PM during August 2024

Coconut varieties

Kalpa Suvarna

Dwarf, medium early in flowering, dual purpose (tender nut water and copra), with a yield of 108 nuts/palm/year and 20.1 kg copra/palm/year. Recommended for the states of Karnataka and Kerala.

Kalpa Shatabdi

Tall with large fruit size, dual purpose (tender nut water and copra) with a yield of 105 nuts/palm/year and 28.7 kg copra/p/year. Recommended for the states of Karnataka, Kerala and Tamil Nadu.

Cocoa varieties

VTLCH 1

Trees with medium canopy of 15-18 m^2 yield an average of 45-50 pods/tree/year and 1.5–2.5 kg dry bean/tree/year. Pods are green to yellow with 35-44 beans/pod and single bean weight of 1.0-1.1 g. The variety has 13-15% shelling, 85-87% nib recovery and 50% fat content. Rich in Fe and Zn contents. Suitable for palm based cropping systems in Karnataka, Kerala and Tamil Nadu.

VTLCH 2

Trees with medium canopy of 14-20 m^2 yield an average of 45-50 pods/tree/year and 1.5 – 2.5 kg dry bean/tree/year. The pods are green to yellow with 35-50 beans/pod and single bean weight of 1.0-1.2 g. The variety has 13-15% shelling, 85-87% nib recovery and 50% fat content. Rich in Fe and Zn contents. The variety is tolerant to black pod rot. Suitable for palm based cropping systems in Karnataka, Kerala, Andhra Pradesh and Gujarat.

Certification of products/ technologies/ process/ methodology/ model/ policy, etc. by ICAR

Title of the products/ technology/ process/ methodology	Developer	Associate Developers
Climate suitability for coconut cultivation future approach	K.B. Hebbar	S.V. Ramesh
Frozen coconut delicacy	M.R. Manikantan	Shameena Beegum, R. Pandiselvam, K.B. Hebbar
Rapid detection of adulteration in desiccated coconut powder	M.R. Manikantan	R. Pandiselvam, Shameena Beegum, Subir Kumar Chakraborty
Kalpa Eco Pots: Eco-friendly areca stem pots for raising nursery seedlings	N.R. Nagaraja	T.N. Madhu, M.K. Rajesh, K. Samsudeen, MJ. Shahala, Shreeranjini, V. Niral, K.B. Hebbar
Technique to identify the coconut varieties through palynological parameters	R. Sudha	V. Niral, K. Samsudeen, V. Aparna, V. Selvamani, M. Neema
Integrated nutrient management in Napier Bajra Hybrid for coconut-based system	K. Nihad	Abdul Haris A., P. Subrahmanian, Jeena Mathew, Induja S., Neenu S., Ravi Bhat
Preservation protocol for diced tender coconut	R. Pandiselvam	M.R. Manikantan, Shameena Beegum, S.V. Ramesh, Murali Gopal, K.B. Hebbar
Accelerated virgin coconut oil (VCO) production using skimmed coconut milk	R. Pandiselvam	M.R. Manikantan, Shameena Beegum, S.V. Ramesh, Murali Gopal, K.B. Hebbar
Textural properties of coconut for designing and developing processing machineries	R. Pandiselvam	M.R. Manikantan, D. Balasubramanian, Shameena Beegum, S.V. Ramesh

Distribution of certificates by Dr. S. K. Singh, (DDG) Horticultural Sci. ICAR, New Delhi

TECHNOLOGY COMMERCIALIZATION

During the period from July to September 2024, 12 technologies were commercialized by the Institute to entrepreneurs through 16 different MoAs and Rs. 8.95 lakhs have been collected as technology transfer fees.

Dr. K.B. Hebbar, Director, ICAR-CPCRI, handing over the MoA to licensees.

TECHNOLOGY HIGHLIGHTS

Soil sorption studies for assessing nutrient requirement

Soil sorption studies were conducted to understand the release of nutrients such as potassium (K), phosphorus, copper, manganese and zinc. Soil samples with a gradation in nutrient levels were sorbed with the specific nutrients at varying concentrations. Results of the sorption study for K indicated that for maintaining three times the critical level of K (0.154 m eqvt./100ml) 0.56 m eqvt. K/100 ml is to be added. In the case of copper, where the initial concentration in the soil was less than the critical level, 11mg Cu /ml is to be added to the soil.

SCSP skill development training inaugurated by Shri Raviraj, District development Officer for SC/ST

Current status of exotic whitefly invasions on coconut

Exotic whiteflies have become a pest of national importance infesting wide variety of crops including coconut. Five exotic whiteflies (*Aleurodicus dispersus*, *Aleurodicus rugioperculatus*, *Paraleyrodes bondari*, *Paraleyrodes minei* and *Aleurotrachelus atratus*) were known to occur on coconut since 2016 from all coconut growing regions.

Currently, two species *viz., A. rugio perculatus* and *P. bondari* were alone recorded in declining trend. Weather factors (high precipitation, humidity and low temperature) as well as wide array of defenders (parasitoids, predators and entomopathogens) regulated the invasive potential of the exotic whiteflies in composite cropping system. Non-native whiteflies competitively displaced the native areca whitefly, *Aleurocanthus arecae* and biodiversity driven pest management is the key factor of whitefly management in the country.

Biochemical characterization of pollen of coconut accessions, and assessment of nutraceutical potential

Phytochemical properties of coconut pollen of six tall (West Coast Tall, Laccadive Ordinary Tall, San Ramon Tall, Fiji Tall, Java Tall, Cochin China Tall), three dwarf (Chowghat Orange Dwarf, Malayan Yellow Dwarf, Malayan Green Dwarf), and three hybrids (Kera Sankara, Chandra Sankara and Kalpa Samrudhi) was undertaken to assess diversity and nutritive value.

Pollen yield per inflorescence was higher in WCT (15.9 g), followed by Kalpa Samrudhi (13.8 g), while MYD recorded lower yield (6.8 g). Biochemical analysis of pollen indicated variations in content of total sugars (4.22-6.86%), reducing sugars (0.84-2.05%), starch (7.58-13.31%), crude protein (31.73-38.88%), and ascorbic acid (0.065-1.05%). Liquid chromatography-mass spectrometry (LC-MS) analysis was conducted to determine profile of sugars, amino acids, and phenolic acids in coconut pollen. Sugar profiling indicated significant variation, with fructose being the major component, followed by mannose, glucose, sucrose, and sorbitol. Amino acid profiling revealed presence of all essential amino acids, water. COD recording the highest essential amino acid content, followed by MGD and SNRT. Phenolic acid profiling identified 18 phenolic acids, with coumaric acid, ferulic acid, and caffeic acid in higher quantity. Among the accessions, FJT, MGD, WCT, MYD, SNRT and COD recorded higher total phenolic acid content.

Laboratory rearing protocol for Tea Mosquito bug

Tea mosquito bug (TMB) is a serious pest on cocoa. To establish a population of TMB under laboratory conditions, cocoa pod and tender shoot were used as a food substrate and compared the biological parameters of *H. theivora* between them. The adult females preferred to lay more eggs on the pods (32.20 ± 1.86 eggs/female) either singly or in a small group and low fecundity was observed on shoots (20.75 ± 1.16 eggs/female). Meanwhile, the egg hatching was highest on pods (92.48 ± 2.91%) than shoots (74.08 ± 3.73%). This pest consists of five nymphal instar and the total nymphal duration was 13.40 ± 1.33 and 14.73 ± 0.75 days on pods and shoots, respectively. In addition, percent survival of *H. theivora* was highest on pods (78.66 ± 3.46) and lowest on shoots (51.85 ± 2.33). No significant differences were recorded in adult longevity and the mean life span of male and females were 12.77 ± 1.58 and 16.63 ± 1.64 days on pods; 11.10 ± 1.41 and 15.36 ± 1.53 days on shoots, respectively. Further, females lived longer than males in both substrates. Although, TMB will survive both on pods and tender shoots, rearing on pods could be more suitable and reliable to establish sizable population of *H. theivora* under laboratory conditions.

TRANSFER OF TECHNOLOGY

Programmes under the Scheduled Caste Sub Plan/ Tribal Sub Plan

Inauguration of skill development training programmes (SCSP)

Sri Raviraj, District Development Officer for SC/ST of Kasaragod district of Kerala Inaugurated three specialized skilled training programs under the Scheduled Caste Sub Plan (SCSP) on 1 July 2024 at ICAR – CPCRI, Kasaragod. These programs, scheduled from 1 July 2024 to 28 February 2025, focus on enhancing skills in coconut-based plantation sector. The training programs include: Basic Computer Applications and Office Automation, E-office

Management Skills, Laboratory Techniques and Coconut Agro-techniques, Cropping System Models, and Planting Material Production. A total of 23 trainees have enrolled in these programs.

A total of 10 trainees joined at ICAR-CPCRI Regional Station, Kayamkulam under the Scheduled

View of participants of skill development training programme

Caste Sub Plan (SCSP) and two trainees under Tribal Sub Plan (TSP) for an eight months upskilling and entrepreneurship development training programme. The selected trainees will undergo training on 32 modules during the training period.

Training on arecanut cultivation for farmers of West Bengal under SCSP

Training cum planting material distribution programme on 'Scientific cultivation of arecanut for better growth and yield under SCSP was conducted on 5 July 2024 at ICAR-CPCRI, Research Centre, Mohitnagar, West Bengal. A total of 60 farmers belongs to Scheduled Caste community of different block of Jalpaiguri districts participated in this programme. After the training programme, arecanut seedlings were distributed to farmers by Dr. K.B. Hebbar, Director.

A total of 4200 arecanut seedlings and 210 coconut seedlings were distributed at ICAR-CPCRI, RC, Mohitnagar to 210 farmers belongs to SC community. Another 1000 arecanut seedlings and 50 coconut seedlings were distributed to 50 ST farmers.

A training on 'Scientific arecanut cultivation' was conducted as off campus training at Dhupguri block for farmers of the SC community on 30 August 2024. A total of 150 farmers attended the training programme.

Training-cum-coconut seedling distribution (SCSP)

ICAR-CPCRI in collaboration with ICAR-KVK, Dakshina Kannada and Karnataka State Rural Livelihood Promotion Society (KSRLPS), Bangalore under SCSP organized comprehensive capacity development programme on 'Scientific Coconut Cultivation-cum-Seedling Distribution Programme' in Sullia on 26 July 2024 and at Belthangady on 23 August 2024. At Sullia about 45 farmers of Scheduled Caste communities participated in the programme. A total of 1100 coconut saplings were distributed to 304 SC

Seedling distribution to SCSP farmers by Dr. K.B. Hebbar, Director

farmers from 25 villages of Sullia taluk.

At Belthangady 1,500 coconut seedlings of the West Coast Tall variety were distributed to Scheduled Caste participants. This distribution covered 91 beneficiaries from 19 Gram Panchayats in Belthangady Taluk and 199 beneficiaries from 13 Gram Panchayats in Kadaba Taluks in Dakshina Kannada district, Karnataka.

Training on scientific arecanut cultivation at Lower Dibang Valley, Arunachal Pradesh

Aonedaytrainingcum demonstration and distribution of arecanut seedling was conducted at Balek Village under

Participants of the training programme along with coconut seedlings at Sullia, Karnataka

the NEH programme on 01-07-2024 organized by ICAR–CPCRI, Kasaragod, Kerala in collaboration with KVK, Balek and Department of Agriculture, Assam.

The farmers were trained and demonstrated on scientific cultivation practices of Arecanut by Dr. L.S. Singh (Scientist ICAR – CPCRI) Kahikuchi, Guwahati, Assam. 5000 Arecanut seedling were distributed to 75 farmers from various villages of the district who participated in the programme.

ZPC Tony Borang, DHO Kuru Ama, Director Dr. K.B. Hebbar, Principal Scientist Dr. C. Thamban, Dr. K. Samsudeen, Principal Scientists

(ICAR-CPCRI) and Senior Scientist and Head (KVK, Balek) Dr. Deepanjali Deori were present during the programme.

State level workshop cum training on Scientific Arecanut Cultivation Technologies

A state-level workshop on "Scientific Areca Nut Cultivation Technologies" was held at the College of Agriculture, Pasighat, funded by ICAR-CPCRI, Kasaragod, Kerala, under the Tribal Sub Plan (TSP). The program, benefited 100 farmers from districts like East Siang, Siang, Upper Siang, and Lower Siang, who were trained in modern Arecanut cultivation and provided 20,000 saplings.

MLA Oken Tayeng, the Chief Guest, appreciated the initiative to empower farmers and improve their livelihoods. Dean Dr. B.N. Hazarika urged farmers to adopt multi-cropping with Arecanut alongside black pepper, cocoa, and banana to boost income. Experts, including Dr. Hebbar K.B. Dr. Samsudeen K, Dr. Thambam C, Dr. A.K. Tripathi, Dr. Anok Uchoi, and Dr. Senpon Ngomle shared insights and encouraged farmers to leverage the training for sustainable agriculture.

Dr. K. B. Hebbar Director, ICAR-CPCRI Kasaragod distributing arecanut seedlings to farmers

Meeting on identification and integrated management of leaf spot disease of arecanut

A meeting was held at Netravati Hall, D.K. District Panchayat, Mangalore on 8 July 2024 to sensitize the officials of the Department of Horticulture from arecanut growing districts of Karnataka about the latest developments in Leaf Spot Disease of arecanut. Deputy Directors, Senior Assistant Directors and Officers attended the meeting. Information on proper identification and integrated management of leaf spot disease was imparted to all the officers.

Training cum exposure visits

Training cum exposure visit was organized at ICAR-CPCRI, Regional

Farmers visiting CPCRI, RS, Vittal Station, Vittal on 11 September 2024 for 2 staffs and 46 FPO Farmers from KVK, Hassan, Karnataka.

Radio Programmes

Dr. Nagaraja, N.R., Senior Scientist (Plant Breeding), ICAR-CPCRI, Regional Station, Vittal, delivered radio talk to Kisan Vani Programme of Akashavani Mangaluru (AIR, Mangalore) on varietal wealth of arecanut and quality planting materials production in arecanut, which was broadcasted on 11 July 2024.

TV Programme

Dr. K. Balachandra Hebbar, Dorector, ICAR-CPCRI Kasaragod participated in a live - phone - in programme broadcast by DD – Kisan Channel on 25 September 2024.

Off-campus trainings

Programme	Title	Place and Date
A training program for 40 farmers and women SHG members	A training program for 40 farmers and women SHG members	Arattupuzha on 5 July 2024
A training program for extension officials, farmers and women SHGs (48 trainees attended from eight panchayaths of the block area)	Income and nutrition for households through inter cropping in coconut gardens	Muthukulam block panchayat on 19 July 2024

Other On-campus trainings

Programme	Title	Place and Date
Training programme for 20 unemployed youths sponsored by CDB	Friends of coconut tree	ICAR-CPCRI, Research Centre, Mohitnagar from 1-6 July 2024
Training program for 19 extension officers, ATMA, Tamil Nadu	Integrated pests and disease management in coconut	ICAR-CPCRI, Regional Station, Kayamkulam on 2 July 2024
Training cum demonstration programme	Advanced production technologies	ICAR-CPCRI, Kahikuchi on 4 July 2024.
Training programme for 21 farmers of Kothamangalam, Ernakulam district	scientific coconut cultivation	ICAR-CPCRI, Regional Station Kayamkulam on 21 July 2024
Training programme for 38 input dealers of DAESI (KVK, Jalpaiguri)	Good agricultural Practices of plantation crops	ICAR-CPCRI, Research Centre, Mohitnagar ,on 1 August 2024
Training programme for 33 input dealers of DAESI (KVK, Jalpaiguri)	Plantation based cropping system	ICAR-CPCRI, Research Centre, Mohitnagar on 11 September 2024
Training programme	Scientific orchard management with special focus on arecanut disease prevention and management, collaborated by Centre for Microfinance and Livelihood (An initiative of TATA trust)	ICAR-CPCRI, RC, Kahikuchi, Guwahati, Assam on 20 September 2024

KRISHI VIGYAN KENDRAS

ICAR-Krishi Vigyan Kendra, Kasaragod

ICAR-Krishi Vigyan Kendra Kasaragod conducted four frontline demonstrations on paddy and cassava in Kasaragod district.

Capacity development programs

Krishi Vigyan Kendra Kasaragod conducted 18 Skill development and other training programs on vermicomposting, jackfruit value added for extension functionary of Kudumbhashree, jasmine cultivation, scientific beekeeping, oyster mushroom cultivation, value added products from coconuts and millets, nutri-garden activities, and EDP on millets. 161 farmers and rural youth (122 women and 39 men) got benefited.

Extension Activities

The Golden Jubilee torch a symbol of knowledge transfer was received by the Director, for CPCRI from the KVK Kannur on the 19th July 2024 was further handed over by the Head KVK, Kasaragod to KVK, Dakshina Kannada on 23rd July 2024.

Dr. K.B. Hebbar, Director receiving the torch at KVK, Kasaragod

National Nutrition Month 2024

As part of National Nutrition Month, an awareness programme and Nutrition Food Mela was organised in GWLPS School at Madhur panchayat, Kasaragod, on 7th September 2024.Sixty Kudumbashree members participated in the function and 60 varieties of traditional healthy food products from sweets to savoury were on the array.

Fruit plants distribution under swachhata hi seva campaign

Drive in KVK premises and distribution of more than 50 fruit plants to women and rural youth was done with the message of beautification across local bodies

Distributed more than 50 fruit plants at KVK premises to women and rural youth with the message of beneficiation across local bodies.

Swacchata activities at KVK, Kasaragod

Launch of products under ODOP programme at Kasaragod

Inauguration of event by Smt. C. Ambili, Principal Agricultural Officer, Alappuzha

ICAR-Krishi Vigyan Kendra, Alappuzha

Launching of activities and Golden Jubilee Celebrations of Krishi Vigyan Kendras

KVK Action Plan (2024-25) launching was conducted at Kanjikuzhy Grama panchayath community hall on 29 August 2024. The programme was inaugurated by Smt. C. Ambili, Principal Agricultural Officer, Alappuzha. As part of the Golden Jubilee Celebration of KVKs in the country, fellow-farmer certificates were distributed and grafted saplings of jack, mango, guava, sapota and curry leaf seedlings were distributed to farmers. About 125 farmers from different parts of the district participated in the programme. An orientation cum capacity building programme on 'Natural Farming Practices' was organized during 29-30 August 2024. Fifty five farmers participated in the programme.

Training programmes

A total of 31 training programmes were conducted benefitting a total number of 921 farmers/rural youths. The details of the training programmes were as follows:

Training	No. of Programmes	Participants		
		Men	Women	Total
On campus	14	182	199	381
Off campus	20	241	299	540
Total	34	423	498	921

HUMAN RESOURCES DEVELOPMENT

Deputation Abroad

Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI Kasaragod and Dr. V. Niral Head, Crop Improvement, ICAR-CPCRI Kasaragod participated in the 51st International COCOTECH Conference and Exhibition at Surabaya, East Java, Indonesia during 22–25 July 2024. They made presentations on 'Scientific Insights : Carbon Sequestration in Diverse Coconut Plantations : Strategies and Implications' and 'Advancements in Coconut Breeding and Gene Bank Programs: Catalyzing Farmer and Industry Development through inclusive approach in India.'

Trainings

Dr. Chaithra M., Scientist, RC, Kahikuchi attended a 21–day summer school and training (online mode) on 'New advancements in agricultural sciences from green revoluion to Viksit Bharat 2047' from 15 August to 4 September 2024.

Dr. Sandip Shil attended an online training on Intellectual Property Rights, during 08–14 August 2024 organized by ICAR-IIHR, Bengaluru.

Dr. Jeena Mathew, Sr. Scientist, CPCRI, RS, Kayamkulam attended an Online training programme on Advances in Mobile Application Development at ICAR - NAARM, Hyderabad during 5-9 August, 2024

Awards/ Honours

The conference paper titled "Economic Analysis of Different Stocking Densities of Whiteleg Shrimp Production in Tamil Nadu, India" by Kalidoss, R., Prakash, S., Ananthan, P.S., and Shil, S. (2024), of the 11th International Conference on Fisheries and Aquaculture 2024 received the Best Oral Presentation Award at the conference held in Bangkok, Thailand.

Dr. Madhu T. N. was awarded the best oral presentation at "International Conference on Plant Protection in Horticulture - Advances challenges", held at ICAR - IIHR, Bangalore 25-27 September 2024.

PUBLICATIONS

Research articles

Aswathy, C., Thamban, C., Jayasekhar, S., Priyanka Singh, Hema, M., Eradasappa, E., Thondaiman, V., Jyoti, Nishad, Raviprasad, T.N. and Dinakara Adiga. 2024. Trend analysis of the raw cashewnut production in India. *International Journal of Agriculture Extension and Social Development.* **7** (9): 635-643. (NAAS-5.04)

Dutta, M., Dineshkumar, R., Nagesh, C.R., Lakshmi, Y.D., Lekhak, B., Bansal, N., Goswami, S., Kumar, R.R., Kundu, A., Mandal, P.K., Arora, B., Ranjeet Sharad Raje, Somnath Mandal, Achchhelal Yadav, Aruna Tyagi, Ramesh, S.V., Rama, G. Prashat, Vinutha, T. 2024. Exploring protein structural adaptations and polyphenol interactions: Influences on digestibility in pigeon pea dal and whole grains under heat and germination conditions. *Food Chemistry*, **460,** p.140561. https://doi.org/10.1016/j.foodchem.2024.140561. (NAAS: 14.80)

Josephrajkumar, A., Evans, G., Merin Babu, Anes, K.M., Jilu, V. Sajan, Hegde, V. (2024) Discovery of *Aleuroclava canangae* (Corbett) (Hemiptera: Aleyrodidae) on *Coleus* in India and the establishment and review of the *Aleuroclava canangae* species group. *Journal of Natural History.* **58** (17-20), 603-623. (NAAS-6.80)

Madhu, T.N., Saneera, E.K., Thava Prakasa Pandian, R., Bhavishya, Chaithra, M., Sujithra, M., Nagaraja, N.R., Nirmal Kumar, B.J. and Elain Apshara, S. 2024. Laboratory rearing of tea mosquito bug, *Helopeltis theivora* Waterhouse (Hemiptera: Miridae) on cocoa (*Theobroma cacao* L.). *Phytoparasitica*. **52**:64. https://doi.org/10.1007/s12600-024-01182-2. (NAAS Rating: 7.40)

Madhu, T.N., Mohan, K.M., Keerthi, M.C., Prabhulinga, T., Thube, S., Shah, V., Elansary, H.O., Mousa, I.M. and El-Sheikh, M.A., 2024. Effect of temperature on the biological parameters of pink bollworm, *Pectinophora gossypiella* Saunders (Lepidoptera: Gelechiidae). *Scientific Reports*, **14**(1), p.15047. (NAAS – 10.60)

Mathew, J., Haris, A.A., Indhuja, S., Nair, K.M., Krishnakumar, V., Bhat, R., and Shil, S. 2024. Influence of mineral nutrition on the soil health and productivity of coconut palms (*Cocos nucifera* L.) in tropical land use systems. *Journal of Animal and Plant Sciences,* **34**(5):1–15 (NAAS Score 6.70).

Mediga, K.R., Sunkad, G., Shil, S., Kulkarni, S., Patil, B., Sharathchandran, U.S., Ashwini, P. and Sharma, M. 2024. Assessment of the spatial distribution and identification of potential risk areas for the sterility mosaic disease of pigeon pea (*Cajanus cajan* L. Huth) in Southern India. *Front. Sustain. Food Syst.* 8:1386823. doi: 10.3389/fsufs.2024.1386823 (NAAS Score 10.70).

Pandian, R.T.P., Thube, S.H., Rajashekara, H., Madhu, T.N., Diwakar, Y., Santhoshkumar, P., Nirmalkumar, B.J., Patil, B. and Hegde, V., 2024. *Colletotrichum kahawae* subsp. cigarro causing leaf spot disease on arecanut, *Areca catechu* L. in India: A first report. *Crop Protection,* **179**, p.106607. (NAAS – 8.70).

Pandiselvam, R., Daliyamol, Imran, S., Syed, Hegde, Vinayaka Sujithra, M., Prathibha, P.S., Prathibha, V.H. and Hebbar K.B. 2024. Evaluation of unmanned aerial vehicle for effective spraying application in coconut plantations. *Heliyon* **10**. doi:10.1016/j.heliyon.2024.e38569 (NAAS-10.00)

Pandiselvam, R., Sathyanath, S., Manikantan, M.R., Ramesh, S.V., Beegum, P.S. and Hebbar, K.B., 2024. Physicochemical properties of coconut inflorescence sap (neera) under double wall open heating system. *Journal of Food Measurement and Characterization*, pp.1–9. https://doi.org/10.1007/s11694-024-02824. (NAAS Score 9.40)

Pervez, R., Rajkumar, Chandramani, D. Waghmare and Surekha, R. 2024. Management of root-knot nematode *Meloidogyne incognita*

infesting turmeric (*Curcuma longa*) under coconut (*Cocos nucifera*) cropping system. *Indian Journal of Agricultural Sciences,* **94**(4):422–426. (NAAS Score 6.40).

Prathibha, V.H., Rajesh, M.K., Akshay Dinesh, Balanagouda Patil, Daliyamol, Nagaraja, N.R., Rajkumar, Sabana, A.A., Gangaraj, K.P., Thejasri, K.P., Sunil, S. Gangurde and Vinayaka Hegde. 2024. Multi-gene phylogeny and phenotypic analyses revealed an association of different *Colletotrichum* species with inflorescence dieback and leaf spot of arecanut in India. *Physiological and Molecular Plant Pathology*. **134**. 102416. https://doi.org/10.1016/j.pmpp.2024.102416. (NAAS Rating: 8.70).

Ramesh, S.V., Pandiselvam, R., Beegum, P.P.S., Shil, S., Sugatha, P., Sharanya, K., Manikantan, M.R., Gopal, M. *et al*., 2024. Valorization of coconut (*Cocos nucifera* L.) testa as a biocolourant. *Frontiers in Sustainable Food Systems.* doi: 10.3389/fsufs.2024.1382214 (NAAS-10.70)

Pandiselvam, R., Manikantan, M.R., Subramanian, P., Khanashyam, A.C., Anjaly Shanker, M., Surekha, R. and Alka Gupta. 2024. Comparison of engineering properties of organic and inorganic coconut: Implications on the design of coir fiber extraction machine. *J Food Process Eng*. https://doi.org/10.1111/jfpe.1457 (NAAS-9.00)

Shivakumara, K.T., Polaiah, A.C., Joshi, S., Keerthi, M.C., Manjunatha, C., Ramya, R.S., Gotyal, B.S. and Madhu, T.N., 2024. Detection and molecular characterization of soft scale insect, *Megapulvinaria maxima* (Green)(Hemiptera: Coccidae) infesting *Gymnema sylvestre* (Retz.) R. Br. ex Sm. from India. *Phytoparasitica, 52*(4), p.57. (NAAS – 7.40)

Pandian, R.T.P., Bhavishya, Kavi Sidharthan, V., Rajesh, M.K., Merin Babu, Sharma, S.K., Nirmal Kumar, B.J., Chaithra, M. and Hegde Vinayaka. 2024. From the discovery of a novel arepa virus in diseased arecanut palms (*Areca catechu* L.) in India to the identification of known and novel arepa viruses in bee and plant transcriptomes through data-mining. *Virology*. 600: 110256-110263. https://doi.org/10.1016/j.virol.2024.110256

Veluru, A., Mohamed, N., Shil, S., Prakash, K., Kavya, K., Anand, S. and Raju, S. 2024. Standardization of *in vitro* multiplication technique for *Areca concinna* Thwaites, an endangered palm species for its conservation and utilization. *In Vitro Cellular and Developmental Biology-Plant*, 1-7. (NAAS-8.60)

Veluru, A., Devakumar, K. Neema, M.Sandip Shil, Nagaraja N.R., and Anitha Karun. 2024. Effect of light-emitting diodes on somatic embryogenesis and tissue-cultured plantlet growth of arecanut (*Areca catechu*) dwarf hybrid VTLAH-2. *Current Horticulture* **12** (1): 55-60. (NAAS-4.62)

Popular Articles

Anithakumari, P. 2024. Experiential learning in integrated root (wilt) disease management over five decades: Case study. *Indian Coconut Journal*. **67** (1): 5–11.

Jeena Mathew and Abdul Haris, A. 2024. Boron, the hero micronutrient for coconut. *Indian Coconut Journal*. **67**: 27–29.

Mageshwaran V., Osemwegie O.O., Rameshkumar A., Indhuja S., Yalavarthi N. and Victoria O.F. 2024. cycling loops of anthropogenic climate change, soil microorganisms, and sustainable agriculture. *Bradleya*. **42** (10): 56-104.

Nihad, K. 2024. Scope for intercropping ornamental plants in coconut based system (In Malayalam). *Indian Naleekera Journal*. **16**(7): 5–8.

Nihad, K., Abdul Haris, A., Subramanian, P. and Ravi Bhat 2024. Helconia as intercrop in coconut plantations. *Kerala Karshakan* July Edition. p. 52–55.

Sivakumar T. and Anju Sathyan. 2024. Coconut palms need monsoon management. *Karshakan*. **32**(8): 9-12.

Anithakumari P., Akhilesh, P.K., Anju Krishna and Bhavya, S. 2023. Millets as intercrops in coconut gardens. *Indian Coconut Journal*. **64** (4): 5-10.

Anithakumari, P., Akhilesh, P.K., Anju Krishna and Bhavya, S. 2024. Sorghum cultivation in coconut gardens. *Kerala Karshakan*. **68** (11): 27-29.

Anithakumari, P. and Gowda, H. 2024. Coconut Farmer Field Schools (CFFS). *Indian Coconut Journal*. **67** (3): 18-24.

Books

Ramesh, S.V. and Shelly Praveen 2024. Coconut-based nutrition and nutraceutical perspectives. **16**, 266 https://doi.org/10.1007/978-981-97-3976-9 Springer Singapore.

Book Chapters

Jayasekhar, S. and Thomas, V. 2024. Policy Issues and Trade Potential of Coconut: A Global Outlook. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives*. S.V. Ramesh and Shelly Praveen (Eds.). Springer, Singapore. 245-260.

Nulu, N.P.C., Yang, C., Kong, E.Y., Ramesh, S.V., Bazrafshan, A., Nguyen, V.A., Kalaipandian, S. and Adkins, S.W., 2024. Coconut (Kalpavriksha-Tree of Life): A Prologue. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives* (pp. 1–16). Singapore: Springer Nature Singapore.

Prithviraj, V., Parvathy Nayana,N., Prabha, K., Pandiselvam, R. and Ramesh, S.V., 2024. Conventional Technologies for Preservation of Coconut Products. *In*: *Preservation and Authentication of Coconut Products: Recent Trends and Prospects* (pp. 1–20). Cham: Springer International Publishing.

Ramesh, S.V. and Praveen, S., 2024. Bio-nutritional Constituents of Coconut. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives* (pp. 17–42). Singapore: Springer Nature Singapore.

Ramesh, S.V. and Praveen, S., 2024. Coconut Biomolecules-Future Perspectives. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives*. Singapore: Springer Nature Singapore pp. 261–266). Ramesh, S.V., Pandiselvam, R., Shameena Beegum, P.P., Manikantan, M.R., Gopal, M. and Hebbar, K.B., 2024. Coconut Inflorescence Sap (Neera): Nutritive Potential and Health Conferring Products. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives*. Singapore: Springer Nature Singapore (pp. 169–185).

Ramesh, S.V., Sudharshana, S., Jacob, A., Shameena Beegum, P.P., Pandiselvam, R., Manikantan, M.R., Gopal, M. and Hebbar, K.B., 2024. Coconut Sugar: Nutritive Potential and Prospects. *In*: *Coconut-Based Nutrition and Nutraceutical Perspectives*. Singapore: Springer Nature Singapore (pp. 187–201).

Extension Folder

Anithakumari, P., Vishnu, K.S., Bhavya, S. and Akhila Mohan 2024. Sweet potato- potential intercrop in coconut gardens. Extension folder (In Malayalam). Published by CPCRI under ICAR-Farmer FIRST Program.

IMPORTANT EVENTS

World Coconut Day

Kasaragod

World Coconut Day was celebrated at ICAR-CPCRI, Kasaragod on 2 September 2024 with the theme "Coconut for a circular economy building: partnership for maximum value." Chief guest Sri P.Prasad, Agriculture Minister, Kerala, emphasized the need for circular agriculture to boost sustainability and praised coconut milk as a superior plant-based milk. He highlighted the importance of coconut-based secondary agriculture for entrepreneurial growth and called for solutions to combat pests like the rhinoceros beetle and red palm weevil. Dr. S.K. Singh, DDG (Hort. Sci.), ICAR, who presided over the function, noted the coconut sector's

Sri. P. Prasad, Hon'ble Minister for Agriculture inaugurating the function

potential for zero waste and continuous employment. Dr. K. Balachandra Hebbar, Director, CPCRI, showcased recent advancements, including two newly released coconut varieties (Kalpa Suvarna and Kalpa Vajra), pest management technologies, and drone-based innovations. Dr. Hebbar also presented a Rs. 3,66,000/- donation to Minister Prasad for the Kerala CM's Distress Relief Fund for Wayanad.

Successful farmers and entrepreneurs were honored, and MoUs were signed for technology transfers, including varieties and products. Two products viz., "Kalpa Bliz – Flavored Coconut Mylk" by ICAR-CPCRI and "Zila," an aerated coconut water by an entrepreneur from Uppala, Kasaragod were launched on the occasion. Publications on coconut farming innovations were also released.

Dr. Rajesh Kannan Megalingam emphasized integrating AI in the coconut sector, and Dr. B. Augustine

Inaugurating Kalpa crown Observatory by Dr. S.K. Singh, DDG (Hort. Sci.) ICAR New Delhi

Releasing of publication during the function

Launching of Flavoured Coconut Mylk ' Kalpa-Bliz'

Jerard noted coconut's role in achieving UN Sustainable Development Goals. The event concluded with a stakeholder-scientist session attended by over 400 participants.

Kayamkulam

As part of the World Coconut Day, a farmers technological conclave on the theme: 'Scientific health management in coconut' was conducted at ICAR-CPCRI, Regional Station, Kayamkulam on 2 September 2024. More than 50 farmers participated in the seminar. In his presidential address, Dr. Regi J. Thomas, Head, sensitised the participants about

Dr. CPR Nair, addressing the delegates

Inaugurating the function by Dr. CPR Nair, Former Head of ICAR-CPCRI, RS, Kayamkulam

various technologies developed at the station and emphasized on the one-health concept for the welfare of the mankind. The seminar was inaugurated by Dr. C.P.R. Nair, Former Head of ICAR-CPCRI, RS, Kayamkulam. Mrs. Sanju Susan Mathew, Project Director, ATMA Alappuzha, was the special guest during the event. Mr. M. Abdulla, CEO of Nata Nutrico, was the special invitee during the program.

Kahikuchi

Training cum input distribution programme on coconut was conducted on 2 September 2024 at ICAR-CPCRI, RC, Kahikuchi, Guwahati to celebrate World Coconut Day.

About 40 farmers from Hajo, Rangia, Dhankhanda and Madhukushi Kamrup (Rural) district of Assam participated in the programme. Dr. Alpana Das, Principal Scientist and Scientist In-charge of the Centre, highlighted the importance of coconut cultivation in North East India. The programme involved demonstration of coconut climbing device and distribution of coconut climbing machine to participating farmers.

Mohitnagar

A training on 'Coconut cultivation for tribal farmers' was conducted on 2 September 2024 at Jalpaiguri block as off farm training programme. A total 50 farmers attended the programme.

Demonstration of coconut climbing device

Dr. Alpana Das, Principal Scientist delivering speech on World Coconut Day

Distribution of coconut climbing device to farmers

Brainstorming session on 'Addressing productivity issues in coconut: Status, strategies, and way forward'

ICAR-CPCRI, Kasaragod organized a Brainstorming titled 'Addressing Productivity Issues in Coconut: Status, Strategies, and Way Forward' on 4 September 2024, as a first step to address this concern. The session was conducted in a hybrid mode. The participants represented all the relevant institutions such as Directorate of Economics and Statistics (DES), State Agricultural Directorates (Kerala, Tamil Nadu, Karnataka and Andhra Pradesh), Coconut Development Board, Agricultural Universities, State Planning Boards, Commission for Agricultural Costs and Prices (CACP), and ICAR-National Institute of Agricultural Economics and Policy Research (NIAP). Altogether, there were 52 participants representing 14 institutions. Key stakeholders and experts enriched the discussion by identifying context-specific solutions and also by developing a strategic actionable framework.

It was suggested to have a collaboration between CDB and ICAR-CPCRI to develop a district-level database on coconut area and productivity to resolve discrepancies in current data. It was also suggested

A view of the meeting at ICAR-CPCRI Kasaragod

collecting reliable data at the national level using a uniform methodology, addressing region-specific issues like homestead farming in Kerala, drought in Karnataka, and root wilt in Tamil Nadu, as well as replanting old coconut trees.

Workshop on 'Geospatial applications for plantation crops'

A one-day Workshop on "Geospatial Applications for Plantation Crops" was jointly organized by the ICAR-Central Plantation Crops Research Institute (ICAR-CPCRI), Kasaragod, Kerala and the Regional Remote Sensing Centre–South (RRSC-South), NRSC–ISRO, Bengaluru at ICAR-CPCRI, Kasaragod on Thursday, 5 September 2024. Directors from five Institutes (DCR, IIOPR, DASD, DCCD, CDB) and Scientists / Officials from ICAR-CPCRI, NRSC-ISRO and IIT-G participated in the workshop. Dr. Prakash Chauhan, Director, NRSC/ISRO, Hyderabad graced the occasion as Chief Guest. More than 100 Scientists / Officials participated in the workshop (both offline and online modes). From ICAR-CPCRI, Dr. K. Balachandra Hebbar, Director,

A view of the Workshop at ICAR-CPCRI, Kasaragod

Dr. Augustine Jerard, Project Coordinator (Palms) Dr. Murali Gopal, Dr. Subrahmanyan, Dr. K. Ponnuswamy, Dr. Vinyaka Hegde, Heads, Dr. P. Muralidharan, Head, KVK, Dr. Ravi Bhat, Dr. Thamban C., Dr. Jayashekhar S., Dr. Alka Gupta, Dr. Chandran, K.P., Dr. Manikantan M. R, Dr. Selvamani V., Dr. Joseph Rajkumar, Dr. Abdul Haris, Dr. Arun Kumar Sit, Principal Scientists, Dr. Sandip Shil, Dr. Neenu S., Dr. Paulraj S, Dr. Ramesh S. V., Dr. Sujithra M., Senior Scientists, Dr. Shameena

Beegum, Scientist, Dr. Daliyamol, Dr. Sumitha S, Dr. Chaitra, Dr. Bhavishya, Dr. N. R. Nagaraja, Dr. Suchithra M., Dr. Saneera E.K., Dr. Madhu T.N., Dr. Jilu V. Sajan, Dr. Anok Uchoi, Scientists were among the participants. It was decided to draft a comprehensive collaborative project proposal by CPCRI along with Relevant Centres / Institutes and NRSC for assessment of area under plantation crops (such as coconut, arecanut, oil palm, cashew and palmyrah) using geospatial technology, ground based hyperspectral studies on food products and site suitability analysis. It was also suggested to initiate research studies on detection of pests and disease, above ground biomass and carbon sequestration.

Dr. K.B. Hebbar, Director, ICAR-CPCRI along with Prof. Devendra Jalihal, Director, IITG, Prof. Sudip Mitra, Head, School of Agro & Rural Technology, IITG and CPCRI Scientists

The following actionable points were identified during the workshop:

(i) A pilot-scale study on the area estimation of plantation crops will be undertaken (~0.6 m resolution).

(ii) Detection of the geographic spread of yellow leaf disease in arecanut using remote sensing approaches(iii) Above-ground biomass estimation for analyzing the carbon sequestration potential of plantation crops.

(iv) Development of a soil suitability map for coconut cultivation in India using high-resolution maps.

Annual Group Meeting of AICRP on Palms

The 33rd Annual Group Meet of AICRP on Palms was organized at Bihar Agricultural University (BAU), Bhagalpur during 21-23 September, 2024. Dr. V.B. Patel, Assistant Director General (Fruits and Plantation Crops), ICAR, New Delhi presided over the inaugural session. Dr. D. R. Singh, Vice Chancellor, Bihar Agricultural University, Sabour was the Chief Guest of the event. Dr. P. Rethinam, Former Director, Asian and Pacific Coconut Community, Jakarta, Dr. K.B. Hebbar, Director, ICAR-CPCRI, Kasaragod, Dr. K. Suresh, Director, IIOPR, Pedavegi and Dr. R.K. Mathur, Director, IIOR, Hyderabad were the Guests of honour. The Project Co-ordinator of AICRP (Palms), CPCRI, Kasaragod, Dr. B. Augustine Jerard presented the report. Dr. V.B. Patel, ADG (F &PS) applauded the scientists for the contribution towards release of four varieties by Hon'ble Prime Minister of India. He also drew the road map that nontraditional coconut belts with climatic vulnerabilities can offer excellent platform for screening varieties for tolerance to abiotic stress which should be positively exploited. Dr. D. R. Singh, Vice Chancellor, BAU, Sabour highlighted the status of coconut plantations in the state of Bihar.

There were technical sessions on variety release proposal, genetic resources and crop improvement, crop production, crop protection and post-harvest technology. About 80 participants from different AICRP centres attended the meet. From ICAR-CPCRI, Dr. K. Balachandra Hebbar, Director, Dr. Augustine Jerard, PC (Palms), Dr. Vinayaka Hegde, Dr. P. Subramanian, Dr. Niral V., HoDs, Dr. Ravi Bhat, Dr. C. Thamban, Dr. S. Jayasekhar, Dr. K. Samsudeen, Dr. K.P. Chandran, Dr. Arun Kumar Sit, Dr. A. Joseph Rajkumar, Dr. S. Elain Apshara, Principal Scientists, Dr. R. Sudha, Dr. M. Suchitra, Dr. V.H. Prathibha, Dr. N.R. Nagaraja,and Dr. Sandip Shil, Senior Scientists Dr. Surekha, and Dr. S. Sumitha, Scientistsparticipated in the meeting.

Hindi Fortnight Celebration

Kasaragod

Hindi Fortnight was inaugurated under the chairmanship of Director Dr. K. Balachandra Hebbar at ICAR-CPCRI, Kasaragod on 12 September 2024. The Director invited the employees to use modern digital technologies to increase the use of Hindi as per the Official Language Guidelines. Chief guest Dr. V. Muralidhar Naik, former Head of the Department, University College, Mangalore emphasized Hindi's role as a unifying language.

Dr. Shameena Beegum Scientist

spoke on personality development, focusing on positive thinking. Various activities like See Picture and Write Name, Word Formation, Hindi Poem Recitation, Memorization Test, Speak on the Spot, Antakshari, Translation, Hindi Typing etc. were organized

Presenting memento to
Dr. V. Muralidhar Naik,
Former Head of the Department,
University College, Mangalore

Chief guest Dr. Shylaja Thykandi
addressing at the
valedictory function

along with various activities to promote the use of Official Language. About 30 people participated in the competition. The closing ceremony on 27 September 2024 featured Chief' Guest Smt. Shailja Taikandi, who praised employees' use of Hindi, and prizes were distributed to competition winners..

Kayamkulam

Hindi Week celebrated at ICAR-CPCRI, Regional Station Kayamkulam from 17 to 24 September 2024. Various competitions like Hindi song, Hindi dictation, Hindi translation, memory test, poetry recitation and use of maximum Hindi words in government communication were organized for the employees and naming picture and Hindi handwriting competition were organized for the skilled support staff. The closing ceremony of Hindi week was organized on 26 September 2024 under the chairmanship of Dr. Abdul Haris. Dr. Purnima R, Associate Professor, S.D. College, Alappuzha was the chief guest. She highlighted the importance of use of Hindi and the need for celebration of Hindi Week.

Kidu

Hindi Fortnight was inaugurated at the ICAR-CPCRI, Research Centre, Kidu by Dr K. B. Hebbar, Director ICAR-CPCRI Kasaragod. In his inaugural address Dr. K.B. Hebbar highlighted the importance of Hindi language and encouraged the participants to include Hindi in their Official communications. A series of Hindi

Shri Ram Avatar Parashar (CF & AO),
ICAR-CPCRI addressing the delegates
at Kidu

competitions were organized at the event for staff members and school children. About 48 students from five local schools and staff members of the research centre Kidu participated in competitions including poster making, quiz, singing, speech and essay writing.

Mohitnagar

Hindi Week was celebrated at Mohitnagar from 14 to 20 September 2024.

Swacchata Hi Sewa 2024 Cleanliness Campaign

Kasaragod

The Swachhata Hi Sewa 2024 cleanliness campaign with the theme of 'Swabhav Swachhata-Sanskar Swachhata (Cleanliness of nature-Cleanliness of culture)', was launched at the ICAR-CPCRI by Shri. Rajmohan Unnithan, the Honorable Member of Parliament, Kasaragod. He highlighted the importance of swachhata initiative. Shri N.A. Nellikunnu, Hon'ble MLA, Kasaragod, emphasized the need to honor the sanitary workers and the need to initiate cleanliness at

Handing over 'A grade Green Protocol unit: Certificate' award by Shri. Inbasekar K, IAS, District Collector, Kasaragod.

household level under Safaimitra Suraksha programme. A talk on effective waste management at household level was delivered on the occasion by Mr. H. Krishna, Coordinator, Malinya Mukta Nava Keralam Campaign, Suchithwa Mission, Kasaragod. The sanitary workers of the institute were honored

by the chief guest. Earlier Dr. K. Balachandra Hebbar, Director, ICAR-

Collection of compost from the composting yard

CPCRI administered the swachhata pledge to all the staff members. Different programmes viz., awareness class on "Effective waste management at household level", 'Ek ped maa ke naam' plantation drives,

Mohitnagar

At Research Centre, Mohitnagar, *Swachhta* Pledge was taken by all the staff. Other activities included office cleaning, locality cleaning, skit, extempore speech and drawing competition for school children. A total of 60 forest trees have been planted within the campus under the programme 'Ek ped maa ke naam'. e. Shri N.A. Nellikunnu, Hon'ble MLA, Kasaragod, emphasized the need to honor the sanitary workers and the need to initiate cleanliness at household level under Safaimitra Suraksha programme. A talk on

Felicitation of Sanitation workers of ICAR-CPCRI, Kasaragod

effective waste management at household level was delivered on the occasion by Mr. H. Krishna, Coordinator, Malinya Mukta Nava Keralam Campaign, Suchithwa Mission, Kasaragod. The sanitary workers of the institute were honored by the chief guest. Earlier Dr. K.

Mega cleanliness activities at Bekal and CPCRI Beach

Balachandra Hebbar, Director, ICAR-CPCRI administered the swachhata pledge to all the staff members. Different programmes viz., awareness class on "Effective waste management at household level", 'Ek ped maa ke naam' plantation drives, swachhata run, swachhata samvad on "Role of agricultural input dealers in SHG campaign", swachhata ki pathshaala, mega cleanliness drives at Bekal and CPCRI Beach, swachhata lakshit ekayi (cleanliness drives at offices & institutional buildings, religious places), time bound transformation of difficult & dirty spots (black spots) generally neglected garbage points, safai mitra suraksha shivirs (honoring, health check up and talk on social welfare linkages etc. were organized.

As part of the Swachhata Hi Sewa-2024, the Swachhata Diwas was celebrated at the institute on 02 October 2024. Dr. K. B. Hebbar, Director of the institute, felicitated sanitation workers of Haritha Karma Sena, Suchithwa Mission, Mogral Puthur Panchayth, Kasaragod. On the occasion, the 40 sanitation workers of the institute were distributed with umbrellas, which would be useful while working in the field during the rainy seasons. In his remarks, Director highlighted the importance of the Swachhata Diwas and acknowledged the staff of the institute for taking active interest and making the institute and surrounding areas clean.

A new bio-waste management (composting) unit at Hill Block was also inaugurated. As part of shramadan, the two black spots were cleaned by the staff of the institute.

Suchitwa Misison, Kasaragod district, Govt of Kerala has been actively involved with the CPCRI in disposing all the plastic and other non-bio waste materials from the institute campus. In recognition of this complete cleanliness, Suchitwa Misison has declared the Institute as a green institute and awarded with an **'A grade Green Protocol Certificate'**. Shri. Inbasekar K, IAS, District Collector handed over the certificate to Dr. K. B. Hebbar, Director, ICAR-CPCRI on the occasion of Swachhata Diwas.

Kayamkulam

Swachhta Hi Sewa 2024 campaign of ICAR-CPCRI, Regional Station, Kayamkulam commenced on 17 September 2024 with *Swachhta* Pledge administered by Dr. Regi J. Thomas, Head. *'Swachhata Samvad'* on 'role of agricultural input dealers in SHS campaign', *'Ek Ped Maa Ke Naam'* programme, essay competition for school students, *Swachhta* run, 'Waste to art' competition and cleaning of the campus were part of the *Swachhta Hi Sewa* 2024 campaign.

Mohitnagar

At Research Centre, Mohitnagar, *Swachhta* Pledge was taken by all the staff. Other activities included office cleaning, locality cleaning, skit, extempore speech and drawing competition for school children. A total of 60 forest trees have been planted within the campus under the programme 'Ek ped maa ke naam'.

Kidu

The Swachhata Hi Seva 2024 campaign at ICAR-CPCRI, RC, Kidu was inaugurated by Dr. K. B. Hebbar, Director of ICAR-CPCRI, Kasaragod on 18 September 2024. Three Safai Karmi workers from Bilinele grama panchayat were identified and honoured with Safai Mitra Samman. About 50 students from five schools and all the staff members of RC Kidu participated in swachhata programmes and competitions including poster making (on theme Ek Ped Maa ke Naam), quiz, singing and essay writing on the key aspects of Swachhata Hi Seva programme.

Inaguration of the programme by Dr. K.B. Hebbar, Director, ICAR-CPCRI

Independence Day

Independence Day was celebrated at ICAR-CPCRI Kasaragod and its subordinate offices on 15 August 2024.

Flag Hosting by Director at ICAR-CPCRI Kasaragod

WOMEN'S ACTIVITIES

A Women Entrepreneurship Development Programme was conducted on 21 August 2024, on homemade chocolate making, at ICAR-CPCRI, Kahikuchi.

OTHER INFORMATION

Institute Management Committee Meeting

The Institute Management Committee Meeting was convened in a hybrid mode on 4 September 2024 at ICAR-CPCRI, Kasaragod under the Chairmanship of Dr. K. Balachandra Hebbar, Director ICAR-CPCRI, Kasaragod. Dr. V.B. Patel, Asst. Director General (Fruits & Plantation crops), ICAR New Delhi, Dr. V. Srinivasan, Head (Crop Production & PHT) ICAR-IISR, Kozhikode, Dr. R.H. Laxman, Principal Scientist, ICAR-IIHR Bengaluru, Dr. Mohana G.S., Principal Scientist, ICAR-DCR-Puttur, Dr. Vinayaka Hedge, Head (Crop Protection), ICAR-CPCRI, Kasaragod, Dr. Tejaswi Gowda, Chikkamagalur, Karnataka, Shri R.N. Subramanian, Senior Administrative Officer, ICAR-CPCRI, Kasaragod were present in the meeting. During the meeting the IMC has overviewed the progress on the research achievements and financial management aspects and taken appropriate decisions for implementation.

A view of the IMC meeting

NEW PROJECTS INITIATED

A project entitled 'A comparative study on the performance of cocoa (*Theobroma cacao* L.) in intensive monocropping and mixed cropping system' was initiated with the CSR funding of Rs.87.67 lakhs from M/s Mondelez India Foods Private Ltd. for a duration of three years. Dr. Ravi Bhat, Principal Scientist (Agron.), ICAR-CPCRI, Kasaragod is the Principal Investigator of the project.

A project on 'Integration of beekeeping and mushroom cultivation to increase the income of farmers under plantation based cropping system in coastal region of Karnataka' was initiated with a funding of Rs. 34.00 lakhs from RKVY, Karnataka for a duration of two years. Dr. Madhu T.N., Scientist (Ento.), ICAR-CPCRI, Regional Station, Vittal is the Principal Investigator of the project.

Coconut Development Board, Govt. of India sanctioned a scheme on 'Integrated Farming for Productivity Improvement' - Laying Out of Demonstration Plots. The first year funds (Rs. 17.50 lakhs) were released for implementing the scheme at Tenkasi,Tamil Nadu State in an area of 100- hectare. Dr. A. Joseph Rajkumar, Prinicipal Scientist, ICAR -CPCRI Regional Station, Kayamkulam is the Principal Investigator of the scheme.

Director, ICAR-CPCRI exchanging MoU with officials from M/s Mondelez India Foods Private Ltd.

NATIONAL/ INTERNATIONAL LEVEL SEMINAR / SYMPOSIA ATTENDED

Name and Designationn	Title	Place and Date
Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI Kasaragod	96th ICAR Foundation Day Technology Day	NASC Complex, Pusa, New Delhi during 15–16 July 2024
Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI, Kasaragod and Dr. V. Niral, Head, Crop Improvement	51st International COCOTECH Conference and Exhibition 2024	Surabaya, East Java, Indonesia during 22-25 July 2024
Dr. K. Balachandra Hebbar, Director Dr. Regi Jacob Thomas Head, ICAR-CPCRI RS, Kayamkulam	Grand Finale of International Design Competition Robocon 2024	Amrita Coconut Research and Development Centre, Amrita Vishwa Vidyapeetam University, Kollam, during 17 August 2024
Dr. Nagaraja, N. R. Senior Scientist, Dr. Chaitra M. Scientist	International Conference on Plant Protection in Horticulture (ICPPH 2024)	ICAR-IIHR, Bengaluru. during 25-27, September 2024
Smt. Jissy George SMS (Home Science)	Kisan Samrudhi Workshop	KAU, Thrissur 28-29 August 2024
Smt. G. Lekha (SMS) and Smt. P. V. Bijila (Farm Manager)	Zonal Workshop of KVKs of Zone XI	ICAR-IISR, Kozhikode 2-4 September 2024

PERSONALIA

APPOINTMNET			
Name	Designation	Place	Date
Shri Arun N.K. Raj	Assistance Finance and Accounts Officer	ICAR-CPCRI, Kasaragod	22 August 2024

PROMOTIONS			
Name	From (Designaion)	To (Place)	w.e.f.
Shri Aswin Raghunath	UDC	Assistant	13 August 2024
Dr. Sandip Shil	Scientist	Senior Scientist	15 December 2022
Dr. Avrajyothi Ghosh	ACTO	CTO	24 November 2022

TRANSFER			
Name	From (Place)	To (Place)	w.e.f.
Shri Bikash Choudhary	RC, Kahikuchi	Regional Station, Kayamkulam	06 August 2024
Shri Vignesh J.	CPCRI, Kasaragod	RC, Kidu	19 July 2024
Shri Muhammed Haneefa P.K.	CPCRI, Kasaragod	RS, Vittal	03 July 2024
Shri Kamal Kumar V.	RC, Kidu	RS, Kayamkulam	12 August 2024
Dr. Anok Uchoi	RC, Kahikuchi	Associate Professor (Medicinal and Aromatic Plants), Central Agricultural University, Impal	05 September 2024

UPCOMING EVENTS

A Workshop on 'Evidence-based research on arecanut and human health' will be held on 4 November 2024 at the ICAR-CPCRI, Kasaragod, Kerala. Researchers from various institutions like AIIMS, CSIR-CCMB, CSIR-CIMAP, CSIR-CFTRI, CSIR-NBRI, IISc, KMC, NITTE University, and SDM University, and to conduct strategic research.

Launching of laying out of demonstration project (LODP) scheme at Tenkasi, Tamilnadu on 5 November 2024 by the District Collector, Tenkasi, Tamil Nadu.

World Soil Day on 5 December 2024 in different locations of ICAR-CPCRI. The theme for this year is 'Caring for soil: Measure, Monitor, Manage'.

National Conference of Plant Physiology 2024 (NCPP-2024), is scheduled to be held at ICAR-CPCRI, Kasaragod, Kerala, India, from December 17–19, 2024. The event will be jointly organized by the ICAR-CPCRI, Kasaragod, Kerala, and the Indian Society for Plant Physiology, New Delhi. The theme of the Conference, "Frontiers in Cell to Whole Plant Physiology: Bridging Science and Sustainability,".

A seminar on 'Harnessing plantation sector for sustainable development goal' is scheduled for 3-5 January 2025 at ICAR-CPCRI, Kasaragod.

KALPA

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

Agrisearch with a human touch

Published by: Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI
Compiled and edited by: Dr. Ravi Bhat and Shri H. Muralikrishna
Photo credits: Shri K. Shyama Prasad
ICAR-Central Plantation Crops Research Institute, Kudlu P.O., Kasaragod, Kerala - 671 124
Phone: 04994 232893, 232894, 232895, 233090, 232333 (Director); Fax: 04994 232322
E-mail: director.cpcri@icar.gov.in, cpcrinews@gmail.com
Website: https://cpcri.icar.gov.in; Facebook: cpcrikasaragod.kerala
Digital layout: Kum. M.V. Maithri at PME Cell, CPCRI, Kasaragod