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ICAR-CENTRAL PLANTATION CROPS RESEARCH INSTITUTE

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DIRECTOR'S DESK

The period from July to September was marked by unusual and extended monsoon conditions that posed significant challenges to plantation crop cultivation. The high temperatures experienced during summer, followed by prolonged rainfall, created favourable conditions for pest and disease outbreaks. The continuous wet spell also hindered timely crop management practices, including plant protection measures such as spraying.

Recognizing the growing impact of climate variability on plantation crops, ICAR-CPCRI organized an International Workshop on Climate Resilience in Plantation Crops to identify and

evaluate tolerant genetic resources. The event brought together experts and researchers from over 13 countries, who deliberated on the multifaceted effects of climate change and shared adaptive strategies to mitigate its impact.

This newsletter captures the highlights of these discussions and other significant institutional activities during the quarter, reflecting our collective commitment to sustainable development of the plantation crop sector.

K. Balachandra Hebbar
Director

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TECHNOLOGY HIGHLIGHTS

First report of incidence of pin- hole borer *Xyleborus perforans* Wollaston in arecanut

Incidence of pin hole borer (*Xyleborus perforans* Wollaston) is reported on arecanut for the first time from Uttara Kannada District of Karnataka. The beetle carries mutualistic ambrosia fungus in its buccal cavity. Female beetles bore galleries into the trunk and inoculate the fungus into the trunk, which serves as a food source for the developing grubs. The presence of pin holes and powder extrusion through the holes are diagnostic symptoms of infestation.



Galleries inside the arecanut palms trunk



Xyleborusperforans beetle

Coconut palm with aberrant inflorescence traits

A unique coconut palm has been located in the field of Mr. Yatheendra Das, Vadakkuparambil, Karuvatta village, in Alappuzha District of Kerala. In a seven years old West Coast Tall variety abnormal morphological feature was observed wherein a portion of the inflorescences is modified into a leaf-like structure without the emergence of bulbils or vegetative shoots. The outer spathe emerges in the usual manner and opens gradually to reveal the enclosed inflorescence. However, at the tip of the inner spathe is modified into a fused, leaf-like structure, measuring on average around 14 cm in length. To the best of our knowledge, this specific type of modification has not been previously reported in coconut palms, making this a rare type that warrants further scientific investigation.



Abnormal in inflorescence coconut palms



Inflorescence with leaf like structure



Spikelets with stipules at base



Branched spikelet



Spikelet of abnormal vs normal in Harvest.

IMPORTANT EVENTS

Evidence-based research on arecanut and human health

Three key review meetings of the multi-institutional project 'Evidence-based research on arecanut and human health' were convened, one at ICAR-NIANP (9 Aug), and rest two online (26 Aug), and (17 Sep) at ICAR-CPCRI, Kasaragod. Discussions addressed the U.S. ban on arecanut leaf-sheath plates, WHO's classification of arecanut as carcinogenic, and the need for interim results within 3-6 months.

Progress was shared on varietal profiling, alkaloids validation, metabolomics, and cohort studies, alongside collaborative strategies for data sharing and methodological standardization. Researchers emphasized dose-response studies, transcriptome analysis, animal model experiments, and organoid assays to clarify health impacts of arecanut. Key decisions included adopting water or aqueous-alcoholic extracts for studies, resequencing Mangala and Shatamangala varieties, finalizing optimal dosages for animal models, and formalizing inter-institutional MoUs for human research.

The meetings stressed the urgency of generating robust, evidence-based findings and publishing results in reputed journals to address

international concerns, safeguard farmer interests, and guide science-driven policy.



Participants of the 'Arecanut and human health' meeting held at ICAR-CPCRI, Kasaragod.



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concerns, safeguard farmer interests, and guide science-driven policy.

World Coconut Day Celebration

The institute celebrated World Coconut Day 2025 with the theme 'Uncovering coconuts' power, inspiring global action'. The inaugural session was presided over by Dr. Sanjay Kumar Singh, Deputy Director General (Horticultural Sciences), ICAR. Dr. S.K. Singh emphasized the need for long-term planning, common thrust areas for researchers, and stronger collaboration and extension linkages to strengthen the coconut sector.

The event was also graced by Shri Rajmohan Unnithan, Member of Parliament, Kasaragod; H.E. Ambassador Diar Nurbiantoro, Director, NAM-CSSTC, Jakarta; Dr. J. Dinakara Adiga, Director, ICAR-DCR, Puttur; and Dr. B. A. Jerard, Project Coordinator, AICRP on Plantation Crops.

In his inaugural address, Shri. Unnithan hailed coconut as the "Kalpa Vruksha" that sustains livelihoods, while cautioning against challenges posed by climate change and volatile prices. He called for greater focus on value addition, product diversification, and exports to establish coconut products as a strong global brand.

In his welcome remarks, Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI, highlighted the institute's global leadership in coconut research and collaborative initiatives. He underlined threats from climate variability, market fluctuations, and emerging pests and diseases such as rugose spiraling whitefly and black-headed caterpillar. He stressed the importance of germplasm conservation, sustainable soil and water management, fertigation, carbon sequestration, and waste-to-wealth technologies. Dr. Hebbar also stated that CPCRI's 469 germplasm accessions hold significant promise for future breeding programs.

Delivering the keynote address, Dr. Jelfina C. Alouw, Director General, ICC, Jakarta, described coconut as a climate-vulnerable crop facing global competition. She urged ICC member countries to collaborate closely, share technologies and germplasm, and link resilience with value addition and shared prosperity.

As part of the celebration, seven achievers including four innovative farmers and three entrepreneurs were felicitated with CPCRI awards. The programme also saw the release of three publications, launch of a new bio-product for soil health management, and signing of six MoUs for technology transfer.

The publication and bio-products were:

- Coconut Palm Sap - A Natural Beverage and Source of Value-Added Products
Edited by: K.B. Hebbar, et al.
- Handbook for Participants - International Workshop on Strengthening Coconut Gene banks for a Climate-Resilient and Sustainable Future, Compiled by: CPCRI and ICC
- Improved Varieties of Coconut Released from ICAR-CPCRI. The book in Hindi, authored by Niraj V., et al.

A product by ICAR-CPCRI, Arecanut leaf sheath powder 'Tricho-Block', was released.

In recognition of excellence, four awards were presented to the farmers who excelled in coconut farming:

- Sri. B. Natesan, producing hybrid coconuts from Thanjavur, Tamil Nadu.
- Sri. Omkar Murthy, with a high income through



Dignitaries addressing the gathering during the World Coconut Day celebration at ICAR-CPCRI, Kasaragod.



following GAP from Hassan, Karnataka.

- Sri. K.P. Cheriyan Kureekottil, managing a high-income cropping system in root (wilt) affected area of Kottayam, Kerala.
- Sri. Joseph Edutthu, Kolichal, Kasaragod as a plantation based eco-tourism venture in Kasaragod, Kerala.

Three awards were conferred for the Entrepreneurs who excelled in coconut-based business enterprises:

- Smt. Gomati, Gagani Foods, Erode, Tamil Nadu,
- Sri Sathyanarayana Udupa, Kalarasa and All Spices exporter from Udupi, Karnataka.

- Sri Abbas Ali, Malappuram, Kerala.

The technical sessions included a Stakeholder Meeting on farmer empowerment and an International Workshop on genetic conservation and climate-resilient strategies.

The event witnessed participation from about 300 delegates, including 30 foreign members of the International Coconut Community (ICC) representing Indonesia, the Philippines, Malaysia, Australia, Papua New Guinea, Thailand, Sri Lanka, Brazil, France, and the Caribbean islands. Stakeholders from NABARD, state extension agencies, entrepreneurs, scientists, farmers, FPOs, and NGOs also actively participated in the

International workshop on 'Strengthening coconut genebanks for a climate-resilient and sustainable future'

The ICAR-CPCRI, in collaboration with the International Coconut Community (ICC), Jakarta, organized an International Workshop on 'Strengthening coconut genebanks for a climate-resilient and sustainable future' from 2 to 5 September 2025 at Kasaragod.

The workshop was attended by 25 international delegates from 14 countries, including Dr. Jelfina C. Alouw, Director General of ICC, and H.E. Ambassador Diar Nurbintoro, Director of the Non-Aligned Movement Centre for South-South Technical Cooperation (NAM-CSSTC), Jakarta, Indonesia, along with leading researchers and representatives from the Crop Trust and FAO.

Around 42 national participants took part, comprising researchers from ICAR institutes, State Agricultural Universities (SAUs), entrepreneurs, and officials from developmental agencies such as the Coconut Development Board and State Departments of Horticulture. In addition, several ICC-COGENIT ITAG (International Thematic Action Group) members joined online and actively participated in the technical sessions.

The inaugural function, held on 2 September 2025 to coincide with World Coconut Day, was graced by Dr. S. K. Singh, DDG (Horticultural Sciences), ICAR, and inaugurated by Shri Rajmohan Unnithan, Hon'ble

Member of Parliament, Kasaragod. The workshop was coordinated by Dr. K. B. Hebbar, Director, ICAR-CPCRI, and Dr. V. Niral, Head, Division of Crop Improvement, ICAR-CPCRI, while Dr. S. V. Ramesh, Senior Scientist, ICAR-CPCRI, Kasaragod, and Dr. Y. Diwakar, Senior Scientist, ICAR-CPCRI Research Centre, Kidu, served as convenors.

The four-day program featured national and international experts as resource speakers and panelists, and included country reports on the current status of germplasm collection and utilization in genebanks. Technical sessions, panel discussions, and field visits were organized around the following key themes:

- Harnessing genetic diversity for breeding programs
- Best practices in long-term conservation and plant health management
- Strategic alliances and policy harmonization for global frameworks
- Leveraging AI, genomics, and digital systems for smart genebanks
- Young researchers' flash talks and interactive working groups
- Field visits to the International Coconut Genebank - South Asia & Middle East (ICG-SAME)



Dr. Jelfina C. Alouw, Director General of ICC, inaugurating international workshop and coconut exhibition



at ICAR-CPCRI, Research Centre, Kidu, Karnataka.

During the deliberations, following major recommendations have emerged:

- Strengthening international collaboration in germplasm exchange with harmonized guidelines aligned to the agreement.
- Ensuring proper regeneration of accessions, maintaining pedigree records, securing adequate population size per accession, and ensuring safe duplication in at least two genebanks.
- Making effective use of cutting-edge technologies such as multi-omics, AI, and digital

systems to enhance data collection and management of germplasm resources.

- Developing standardized methodologies for germplasm assessment with respect to climate resilience, pest and disease resistance, industrial processing suitability, and carbon sequestration potential.
- Identifying and characterizing genes governing specialty traits and developing robust trait-associated markers to support targeted breeding programs.
- Recent advances made in ovary or inflorescence culture may be shared among member countries and research intensified to upscale commercial production of true to type elite planting material.



Dr. Jelfina C. Alouw, Director General of ICC and Dr. K.B. Hebbar, Director, ICAR-CPCRI, Kasaragod, along with scientists, visiting the ICG-SAME at ICAR-CPCRI, Kidu



Delegates at the ICAR-CPCRI Research Centre, Kidu, during the field visit as part of the International Workshop

ICAR Foundation Day

The 97th ICAR Foundation Day was celebrated at ICAR-CPCRI, Regional Station, Kayamkulam in collaboration with Krishi Vigyan Kendra, Alappuzha on 16 July 2025 by organizing a thematic seminar on 'Connecting frontier technologies to Gen-Next' for college students. More than 100 students from 23 colleges participated in the event. Dr. Alex P. James, Dean of the Digital University Kerala, was the Chief Guest, and Mr. Unni Sankar, General Manager of the Technology Excellence Group, QUEST Global, Trivandrum, was the Guest of Honour.

The celebrations commenced with a stakeholders' meeting involving technocrats from the Digital University Kerala, QUEST Global, and Scientists from the Regional Station, Kayamkulam.

Dr. Regi Jacob Thomas, Head of the Station, presented an overview of its activities, with a special focus on the application of Artificial Intelligence. The discussion highlighted the scope of AI in the coconut sector, including QR code-based seedling quality assurance, modified ground pollination technology, Red Palm Weevil detection systems, and Entomopathogenic Nematode (EPN) capsule delivery mechanisms. The meeting was followed by the inaugural session of the seminar. Dr. Alex P. James delivered the keynote address on 'Revolutionising the Agricultural Sector: Drones, Sensors, and Robotics.' The technological revolution in agriculture was well explained, with a special emphasis on future research directions in an interdisciplinary

context. Mr. Unni Sankar delivered a talk on 'Deep Tech Disruption: Are You Ready?' highlighting technological advancements, their applications, and the need for continuous upskilling and adaptation. Dr. A. Joseph Rajkumar, Pr. Scientist presented the technology snippets highlighting the latest



Inauguration of 97th ICAR Foundation Day at ICAR-CPCRI, Kayamkulam



technologies developed from ICAR-CPCRI Regional Station, Kayamkulam. The Kalpa Anastatus egg card for the management of coreid bugs and the ICAR-KVK, Alappuzha newsletter were released during the function. Felicitations on the occasion were offered by Dr. S. Jyothilekshmi, Asst. Professor, ORARS-Kayamkulam (under KAU) and Dr. P. Muralidharan, Head, ICAR-KVK, Alappuzha. During the afternoon session, a quiz contest on the topic 'ICAR & Indian Agriculture' and an elocution competition on the theme 'Digital Revolution in Agriculture' were conducted for the student participants.

During the interaction, it has been recommended to harness the potential of Artificial Intelligence (AI) in the coconut sector, and develop IoT-based Red Palm Weevil detection systems and other smart monitoring tools. Such gadgets will help in pest surveillance and precision farming. It was also suggested to integrate digital technologies in coconut research and education.

PM Kisan Samman Utsav

Hon'ble Prime Minister Shri Narendra Modiji released the 20th instalment of the PM-Kisan Samman Nidhi from Varanasi on August 2, 2025. With this, the total amount disbursed under the scheme will reach approximately Rs. 3.89 lakh crore, and the current instalment is estimated at Rs. 20,500 crore.

To mark this occasion, ICAR-CPCRI, Kasaragod, along with its regional stations, centres, and KVKs at Kasaragod and Kayamkulam, celebrated the day as PM Kisan Utsav Diwas. The celebrations began with a

farmer interaction programme on “Possibilities of Natural Farming in Kasaragod District”, training sessions, and technology demonstrations. The event was witnessed by more than 700 participants both online and offline.

The programme was inaugurated by N. A. Nellikunnu MLA; and Dr. K. B. Hebbar, Director presided over the event. ATMA Deputy Director Suma, Dr. K. Ponnusamy, Head Social Science and Dr. T. S. Manojkumar, Head, KVK spoke on the occasion.



A glimpse of the PM Kisan Programme

Seminar cum awareness campaign on 'Building healthy cocoa plantations and farmer collectives'

ICAR-CPCRI organized a seminar-cum-awareness campaign on 'Building healthy cocoa plantations and farmer collectives' on 23 September 2025 at Lions Club Hall, Manimala, as part of mentoring the Brown Gold Cocoa Producers Company Ltd. (BGCPCL). Over 100 farmers participated, gaining insights on scientific cocoa cultivation and FPO management.

Swachhta Hi Sewa 2025

Kasaragod

Swachhta Hi Sewa 2025, with the theme Swachhotsav, has been organized from September 17 to October 2, 2025, with the collective involvement of all the regional stations and research centres. The programme was commenced by a national launch by the Hon'ble Union Minister for Agriculture & Farmers' Welfare on September 17, 2025, by taking the Swachhata pledge. A plantation drive “Ek Ped Maa Ke Naam” was commenced by Dr. K. Balachandra Hebbar, Director, ICAR-CPCRI, Kasaragod, at the Institute

premises. Special Swachhta clean-up activities have been carried out at CPCRI beach. Imaginative Slogan Writing Competition, Poster Making Competition, and the “Waste to Art” activity were conducted for the school children of Kendriya Vidyalaya No.1, ICAR-CPCRI Kasaragod. ICAR-CPCRI organized a symbolic human chain event to raise awareness and demonstrate commitment to cleanliness and sanitation. ICAR-CPCRI Research Centre, Kidu, actively participated in a cleanliness drive at the premises of Kukke Sri Subrahmanya Temple, Dakshina Kannada District,

Karnataka, one of the most prominent religious destinations in the region with heavy public footfall. ICAR-CPCRI organized an event to honour the inspiring initiatives taken by the Kasaragod Municipality and the Uralungal Labour Contract Co-operative Society Ltd. related to Swachhata. The Chairman of the Kasaragod Municipality, Shri. Abbas Begum, and the Safety Manager of the ULCCS Ltd., Shri. Ranjith N., were honoured by the Director of ICAR-CPCRI on this occasion, and the Safai Mitras of CPCRI have been recognized and felicitated.

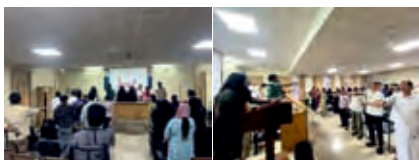




A glimpse of Swachhta Hi Seva programmes and activities

KVK Kasaragod

Flagging off the campaign, KVK staff along with 40 farmers of an ongoing training programme at ICAR- KVK Kasaragod, took the pledge of Swachhta Hi Seva Campaign 2025. The programme had the presence of Smt. Sameera Faisal, President, Mogral Puthur panchayat. The trainees were part of the Capacity Building training on Meliponiculture jointly organised by ICAR KVK and Department of Agricultural development and Farmers' Welfare ATMA, Kasaragod.



Participants standing united for an oath taking during the programme

Painting and Poster making competitions were held for students of Kendriya Vidyalaya No.1, Kasaragod with Swachhta as its theme.



A lively session at the Kendriya Vidyalaya No.1, Kasaragod

Crown cleaning of coconut palms to the farmers as a part of Swachhta Hi Seva Campaign 2025. 18 September 2025 KVK Kasaragod as nearby farmer's plots in Mogral Puthur panchayat. Ex-trainee of KVK's FoCT 2012 ladies' batch, Smt. Krishnaveni K., who has now turned out to be a pollination expert at ICAR-CPCRI Kasaragod, was the resource person. KVK staff oriented 12 farmers about the importance of maintaining hygiene of crown and premises in pest and disease management. The participants were trained to climb up the palm using climbing device and to clean the crown.

ICAR KVK, Kasaragod, as a part of its Swachhta Hi Seva 2025 Campaign activity implemented 'Ek ped maa ke naam' at the botanical garden of the Central University of Kerala, Kasaragod, on 25 September 2025. KVK contributed saplings of 10 tree plants to the botanical garden.

The programme was inaugurated by Dr. Jayaprakash R., Hon. Registrar, Central University of Kerala by planting a sapling of a guava tree. Students counting to nearly 100 formed a chain holding hands, symbolizing their support for Swachhta hi seva campaign 2025.



Coconut crown cleaning as a part of the cleanliness drive to overcome pests



Chain formation to symbolise integration at CUK, Kasaragod campus





Awareness programme

Then thulli (Honey drop) awareness programme

ICAR KVK Kasaragod, as a part of its Swachatha Hi Seva Campaign 2025 activities, organised 2 programmes in the district. One was an awareness programme on the goodness of honey at Pannikkunnu Anganwadi in Mogral Puthur panchayat.



PUBLICATIONS

Research Articles

- Arun Kumar Sit and Shil, S. 2025. Comparative study of different arecanut-based cropping system models under sub Himalayan terai region. *Journal of Plantation Crops*. 52 (2): pp. 55-61.
- Bhagya, N., Chinmaya Narayana, K., Mohammad Arefian, Keshava Prasad, T.S., Gangaraj K.P., Prathibha, V.H., Thava Prakasa Pandian, R., Nirmal Kumar, B.J., Chaithra, M., Paulraj, S. and Rajesh, M.K. 2025. A Gel-Free Genome Annotation Provides Insights into the Proteome of the Oomycete *Phytophthora meadii*, a Disease-Causing Pathogen in Economically Important Crops. *OMICS: A Journal of Integrative Biology*, 29:8, 384-393.
- Brijesh Lekhak, Dutta, M., Rama Prashat, G., Suneha Goswami, Ranjeet Ranjan Kumar, Bansal, N., Nagesh, C.R., Sathish, M., Shalini Gaur Rudra, Somnath Mandal and Ramesh, S.V., 2025. Comparative Evaluation of Plant Protein Isolate Blends and Commercial Isolates: Structural, Digestive, and Functional Insights. *ACS Food Science & Technology* 5, 3413-3429.
- Gangaraj, K.P., Rajesh, M.K., Ashok Kumar Jangam, Prathibha, V.H., Ramesh, S.V., Ginny Antony, Jasmin Habeeb, Amritha, K.T.K., Muralikrishna, K.S., Rajitha, P.B. and N. Hemalatha 2025. Decoding the coconut-Phytophthora conflict: insights from dual RNA-seq analysis. *Journal of Plant Pathology*. <https://doi.org/10.1007/s42161-025-02019-5>.
- Jasmin Habeeb, Rajesh, M. K., Sabana, A. A., Ramesh, S. V., Muralikrishna, K.S., Gangaraj K.P. and Samsudeen, K. 2025. Unveiling the regulatory role of miRNA-mRNA interactions in zygotic and somatic embryogenesis of coconut (*Cocos nucifera* L.). *Journal of Plant Physiology*. Rep. 30, 444-453 <https://doi.org/10.1007/s40502-025-00865-0>.
- Jose Elizabeth, Ponnusamy, K., Kamboj, M. L. and Verma Ajay 2025. Analysis of agriculture and dairy related driving forces for future farming in Haryana. *Indian Journal Dairy Science* 78(4): 379-384.
- Namitha, M.S., Neema, M., Rajesh, M.K., Fathimath Zaeema, M.P., Krishna Prakash, Muralikrishna, K.S. and Anitha Karun 2025. Meta-topolin stimulates *in vitro* plantlet generation from embryonic shoot meristem explants in coconut (*Cocos nucifera*). *Agricultural Research*. <https://doi.org/10.1007/s40003-025-00891-2>.
- Pandiselvam, R., Krishnan, R., Manikantan, M.R., Ramesh S.V., Jacob, A. and Shameena Beegum, P.P. 2025. Comparative study of coconut chips drying using a rotary dryer: influence of thickness on physicochemical properties. *Journal of Food Measurement and Characterization*, <https://doi.org/10.1007/s11694-025-03462-9>.
- Pandiselvam, R., Dilsha, N., Manikantan, M.R., Anjitha Jacob, Ramesh S.V., Shameena Beegum, P.P. and Murali Gopal 2025. Impact of storage conditions on the stability and quality of coconut sap concentrate: A comparative study of refrigeration versus atmospheric temperature. *Journal of Food Measurement and Characterization*. 19, 3677-3686, <https://doi.org/10.1007/s11694-025-03216-7>.
- Pandiselvam, R., Mohan, S., Manikantan, M.R., Jacob, A., Ramesh, S.V., Shameena Beegum, P.P. and Sumitha, S. 2025. Development and characterization of Palmyra pulp-based edible leather: a sustainable approach with nutritional and antioxidant insights. *Journal of Food Measurement and Characterization*, <https://doi.org/10.1007/s11694-025-03470-9>.
- Rajesh, M.K., Prathibha, V. H., Bobby Paul, Roli Budhwar, Rohit Shukla, Akshay Dinesh, Gangaraj, K. P., Thava Prakasa Pandian, R., Jasmin Habeeb, Nirmal Kumar B. J. and Chaithra M. 2025. Decoding *Phytophthora meadii* (McRae): the first genomic insights into the arecanut fruit rot pathogen. *Journal of Plant Pathology*. <https://doi.org/10.1007/s42161-025-02018-6>.
- Rajesh, M.K., Sujithra, M., Josephraj Kumar, A., Latha, K.R., Sabana, A., Roli, B., Praveen Kumar Oraon, Alpna Das and Keshava Prasad, K.S. 2025. The Genome Sequence of the Rugose Spiraling Whitefly (*Aleurodicus rugioperculatus* Martin): Insights on Biology of an Invasive Agricultural Insect Pest and Implications for Pest Control. *OMICS: A Journal of Integrative Biology* 29:8, 394-403.
- Ramesh, S.V., Raphy, K., Sharanya Kodoth, N., Ashamol, P., Sudharshana Sathyanath, Pandiselvam, R., Sandip Shill, Shameena



Beegum, P.P., Manikantan M.R., Murali Gopal and Hebbar, K.B., 2025. Gum arabic edible coating and its impact on the phytophenolics of coconut (*Cocos nucifera* L.) haustorium during storage. *Nutrition & Food Science* 55 (5): 946-963.

Ravi Bhat, Alpana Das, Bhabani Devi, Jayashree Dutta, L.S. Singh and Chaithra, M. 2025. Enhancing soil fertility: comparative analysis of arecanut monocropping and intercropping with cocoa. *Journal of Plantation Crops*, 5 2 (2) : P a g e s 6 2 - 6 8 . <https://doi.org/10.25081/jpc.2024.v52.i2.9623>.

Shameena Beegum, P.P., Ramesh, S.V., Alka Gupta, Pandiselvam, R., Akhina, A., Manikantan, M.R. and Murali Gopal 2025. Temporal quality changes in freshly extracted coconut milk: physicochemical, sensory, and microbiological perspectives. *Journal of Food Measurement and Characterization* <https://doi.org/10.1007/s11694-025-03470-9>.

Shameena Beegum, P.P., Leya Elizabeth, C., Sugatha, P., Ramesh S.V. and Manikantan M.R. 2025. Time course studies on the physicochemical characteristics of coconut oil during continuous and intermittent heating and frying. *International Journal of Advances in Engineering Sciences and Applied Mathematics* . <https://doi.org/10.1007/s12572-025-00408-8>.

Popular Articles

Anithakumari, P. 2025. Farming is Passion (Malayalam). *Indian Coconut Journal* 17(7):15-17.

Jissy George 2025. Fruit pulp production and storage. *Karshakasree*, 31(7): 62.

Jissy George 2025. Fruit pulp based product using sautiner. *Karshakasree*, 31(8): 69.

Ponnusamy, K. and DattChander. 2025. Innovative feeding strategies for higher milk yield in

dairy animals. *Indian Dairyman* 77 (8): 97-101.

Ponnusamy, K., Binoo P. Bonny and Sujatha R. 2025. Strengthening farmer collectives for improving the dairy sector performance. *Indian Dairyman* 77 (5): 102-106.

Book Chapters

Chaithra, M., Shreedeevasena S., Akshay Kumar, H. M. and Gangaraj, R. 2025. Mycotoxin Biosynthesis and Factors Affecting its Production in Post-Harvest Stages. In: Rishi Kumar Behl, Abhishek Kumar and Ankit Kumar. (eds) *Mycotoxin Detection and Management* (pp. 21-40). Daya Publishing House. A Division of Astral International Pvt. Ltd. New Delhi - 110 002. ISBN: 978-93-5919-467-7.

Chaithra, M. and Rashmi, E. R. 2025. Detection and Quantification of Mycotoxins and their Genetic Regulation. In: Rishi Kumar Behl, Abhishek Kumar and Ankit Kumar. (eds) *Mycotoxin Detection and Management* (pp. 93-110). Daya Publishing House. A Division of Astral International Pvt. Ltd. New Delhi - 110 002. ISBN: 978-93-5919-467-7.

Books

Hebbar, K.B., Krishnakumar, V. and Ramesh S.V. 2025. Coconut Palm Sap- A Natural Beverage and Source of Value Added Products, Nova Publishers, USAP. 291

Niral, V., Ranjini, T.N., Diwakar, Y., Surekha, Samsudeen, K., Muralikrishna, K.S., Avadesha Mourya and Muralikrishna, H. 2025. Improved varieties of coconut from ICAR-CPCRI (Hindi). Published by ICAR- CPCRI, Kasaragod, P.54

E- Publication

Prathibha, P.S., Vinayaka Hegde, Josephraj Kumar, A., Mahendran, B. and Prathibha V.H. 2025. E-manual on mass production of bioagents in plant protection in coconut. ICAR CPCRI, 10 September 2025.



HUMAN RESOURCES DEVELOPMENT

Deputation Abroad

- Dr. M.K. Rajesh, Head, RS, Vittal, participated in a scientific meeting organized by ICC (International Coconut Community) and BRIN (Badan Riset dan Inovasi Nasional) National Research and Innovation Agency, Govt. of Indonesia, on 4 August 2025 at BRIN Cibinong, Bogor, West Java, Indonesia.
- Dr. M.K. Rajesh, Head, RS, Vittal Presented an invited talk entitled, 'Genomic and biotechnological approaches to enhance coconut climate resilience' at the Eastern FKPTPI Meeting & International Conference, organized by the Faculty of Agriculture, Sam Ratulangi University (UNSRAT), Govt. of Indonesia, held from 6-8 August 2025 in Manado, North Sulawesi, Indonesia.



Training attended

Name and Designation	Title	Place and Date
Dr. Chaithra M., Scientist, ICAR- CPCRI, RC, Kahikuchi	Biosecurity and Biosafety: Policies, Diagnostics, Phytosanitary Treatments and Issues organized by ICAR-NBPGR, New Delhi	ICAR-NBPGR, New Delhi 19-28 August 2025
Dr. Daliyamol, Scientist, Div. of Crop Protection	International Online Training-cum- Summer School on "Natural Farming and Emerging Technologies (AI, Drones, IoT): Advancing Sustainable Agriculture through Initiatives of the Ministry of Agriculture & Farmers Welfare, Government of India.	16 August to 16 September 2025



TRANSFER OF TECHNOLOGY

A total of 4 training programs were organized for farm and farm women under the ICAR CPCRI Farmer FIRST programme

- A training programme on the scientific cultivation of coconut palms was conducted on 31 July 2025 at Kandalloor Panchayat, with the participation of 20 farmers. The event included experience sharing by model farmers featured in the ICAR success story book, with participants from Devikulangara, Kandalloor, and Pathiyoor Panchayats. The farmers shared their experiences across various sectors of agriculture, including livestock, fisheries, Integrated Farming Systems (IFS), coconut product diversification, and the involvement of women and youth in farming. The programme concluded with the felicitation of farmers for their achievements and contributions to agriculture.
- A Training programme on coconut product diversification was conducted on 26 August 2025 at Kandalloor panchayat. 12 farmers attended the training program.
- Training on cowpea cultivation was conducted on 09 September 2025 at Kandalloor Panchayat. 13 farmers attended the

programme.

Hands on training on 'Mass production of bioagents of plant protection in coconut'

A hands-on-training on 'Mass production of bioagents for palm health management' was imparted to officials on 5 August 2025. A total sixteen officials, including 14 from eight parasite breeding stations and two assistant professors from Kerala Agricultural University participated in the training programme held at ICAR-CPCRI, Regional Station, Kayamkulam.

Another hands on training programme on 'Mass production of bioagents for plant protection in coconut' for the field level extension officials of Karnataka and Kerala was organized at ICAR-CPCRI Kasaragod on 10 September 2025. Total 18 trainees of which 14 were officials of Karnataka State Horticulture Department and 4 officials from KVK Kannur.



Inoculation of larval parasitoids

Skill training

- Skill Development Training Programme for Scheduled Caste & Scheduled Tribe Candidates was inaugurated from 22 July 2025 at CPCRI, Kasaragod under SCSP and STC schemes.
- As part of training on Natural farming for 10 community resource persons (Krishi Sakhis), a demonstration was organised for preparation of bio-products at Neerchal village on 27 September 2025.

Visits of Entrepreneurs and Officers

- Three progressive farmers with Taluka Agriculture Officer Karmala, Sholapur district visited CPCRI from 28- 29 July 2025.

Entrepreneurship Development Programme

- An Entrepreneurship Development Programme on coconut processing for 20 B.Tech. Agricultural Engineering students from Dr. NTR College of Agricultural Engineering, Bapatla, and the College of Agricultural Engineering, Madakasira, Andhra Pradesh, was conducted from 14 July to 13 August 2025 at CPCRI, Kasaragod.





ICAR-Krishi Vigyan Kendra, Kasaragod

Training on Natural Farming for Community Resource Persons/ *Krishi Sakhis*

ICAR Krishi Vigyan Kendra, ICAR-CPCRI, Kasaragod in collaboration with SAMETI, Kerala and Department of Agriculture and Farmers' Welfare, Govt. of Kerala conducted a training programme on natural farming for Community Resource Persons (CRPs)/ *Krishi Sakhis* of Kasaragod district from 25-30 September, 2025. 10 participants, of the district of Kasaragod, attended the training. The participants were oriented towards the concept and principles of natural farming. During the Director's address at the valedictory function at DJ Hall, ICAR CPCRI, Dr. K. B. Hebbar, Hon. Director, ICAR CPCRI, Kasaragod mentioned that soil health management and biodiversity enhancement should be the core agenda of natural farming.



Training programme on natural farming / *Krishi Sakhis* of Kasaragod

ICAR-Krishi Vigyan Kendra, Alappuzha

DAESI Programmes

The second batch of the Diploma in Agricultural Extension Services for Input Dealers (DAESI) from the KVK (fourth batch of Alappuzha district) passed out and received their Government of India certificates from MANAGE, Hyderabad. Thirty-seven of the forty candidates enrolled during 2024-25 successfully completed the programme on 29 July 2025, fulfilling all essential requirements of attendance, marks, and documentation. Commencing in July 2024, participants underwent 80 classroom sessions, 8 days of field visits, and other academic exercises to complete the one-year program. Smt. C. Ambili, Principal Agricultural Officer, Alappuzha, who was the chief guest at the valedictory function, distributed certificates and mementos to the successful participants at a colourful function organized at the KVK on 24



Second batch of the DAESI from the KVK at KVK, Alappuzha



Custom hiring centre activities at NICRA village

As part of the custom hiring centre initiative under the NICRA project implemented by the KVK in Edathua panchayath of Kuttanad, a power tiller, a multipurpose air dryer, and two

brush cutters were handed over to beneficiaries. The handing-over function was organized at the Edathua Panchayath Library Hall. The programme, attended by VCRMC committee members and

farmers, discussed ongoing efforts to enhance farm mechanization, improve efficiency, and promote climate-resilient farming practices through grassroots-level interventions of the KVK.

Training Programme

During the period, 15 training programmes were organized benefitting a total number of 426 farmers/rural youths. The details of the training programmes are as follows:

Training	No. of Programmes	Participants		
		Men	Women	Total
On campus	5	56	76	132
Off campus	8	115	94	209
Sponsored	2	23	62	85
Total	15	194	232	426



Hands-on learning during composting training programme at Cherthala, Kerala

FET for ARS Scientists

Six ARS Scientist Probationers from the 114th FOCARS batch of ICAR-NAARM, Hyderabad, underwent a one-month Field Experience Training (FET) at KVK-Alappuzha from 11 August to 12 September 2025. On the first day, they were given an orientation and introduced to key informants of Vallikunnam village to facilitate their data and information collection. In the initial days, they visited the Agricultural Officer, VFPC market, and interacted with several farmers with the support of the key informants, including



Group visits and knowledge sharing during an agricultural study tour in Kerala

Rural Agricultural Work Experience (RAWE) programme

A one-month Rural Agricultural Work Experience (RAWE) programme was organized for five B.Sc. (Ag.) final-year students from Theerthanker Mahaveer University, Uttar Pradesh, from 8 August to 8 September 2025. The students were oriented on the functions and mandatory activities of the KVK and the agricultural scenario of Kerala.

TECHNOLOGY COMMERCIALIZATION

During the period from July- September 2025, 14 technologies were commercialized and an amount of Rs. 6,31,000/- was collected as technology transfer fees.





OTHER INFORMATION

Independence Day 2025 Celebration at ICAR-CPCRI, Kasaragod

The 79th Independence Day was celebrated at ICAR-Central Plantation Crops Research Institute, Kasaragod. Dr. K.B. Hebbar, Director, hoisted the National Flag and addressed the gathering, highlighting the nation's remarkable progress and the vital role of agricultural research in national development. All the Staff including regular, scheme, contractual, and SCSP trainees, actively participated in the event, reaffirming their dedication to the nation's growth and institutional



Celebrating Independence Day

excellence.

Orientation training programme

An orientation training programme on "Research methodologies in Plantation Crops under AICRP on Plantation Crops" was conducted for the newly joined scientists in the AICRP on Plantation Crops centers during 22-26 September 2025 at ICAR-CPCRI, Kasaragod.

Hindi Fortnight Celebration

The Institute enthusiastically celebrated Hindi Fortnight from 14 to 29 September 2025. The collective inauguration of Hindi Fortnight 2025 for all offices was held on 14 September 2025 at Gandhinagar, Gujarat, by the Hon'ble Home Minister. The valedictory function of the Hindi Fortnight was held on 29 September 2025 under the

chairmanship of the Director, with Mrs. Bhramarambika R.K., Teacher, SGK High School, R.D. Nagar, Kudlu, was the Chief Guest.

In his address, the Director called upon everyone to adopt Hindi and transform research achievements into development for making India a *Vishwaguru* (world leader). The Chief Guest emphasized the role of Hindi in uniting the nation and highlighted the importance of cleanliness. She also distributed prizes and certificates to the winners of various competitions.

During Hindi Fortnight 16-26 September 2025, various competitions were organized in which staff members and trainees participated with great enthusiasm.

A Hindi Multimedia Workshop was also organized on 22 September 2025, during which a feature film on Sahaj Krishi (Natural Farming) was screened to familiarize employees with Hindi terminology related to agriculture.

'Prevention is better than cure' - awareness programme for adolescents

ICAR-KVK, Kasaragod, organized an interactive class on personal hygiene to the students of Soorambail High School by Dr. Dhanya K., Medical Officer APHC Puthige panchayat. Around 100 students interacted in the programme.



Student's awareness programme

NEW PROJECTS INITIATED

A project entitled 'Characterization and diagnosis of nutrient deficiencies, and tailoring crop-specific nutrient formulations for cocoa and arecanut' was sanctioned with a budget of ₹54.9 lakh for a duration of one year, funded by RKVY, Government of Karnataka. Dr. Bhavishya, Scientist, RS, Vittal is the Principal Investigator of the project.



NATIONAL / INTERNATIONAL LEVEL SEMINARS/ SYMPOSIA ATTENDED

Name and Designation	Title	Place and Date
Dr. B. A. Jerad, Project Coordinator AICRP on Plantation Crops	Participated in the Horti-Utsav 2025.	TNAU, Coimbatore on 17 July 2025
Dr. K. Ponnusamy, Head Social Dr. P. Anithakumari and Dr. K. P. Chandran, Principal Scientists.	Attended a meeting of domain experts and President / CEOs of FPOs.	Registrar of Co-operative Societies (RCS), Thiruvananthapuram on 19 July 2025.
Dr. Manikantan, M.R., Principal Scientist, Div. of PB & PHT	Workshop on "Innovate, Connect Grow, Building a vibrant Startup Ecosystem	Online mode 8 August 2025
Dr. Alpana Das, Principal Scientist Scientist & SIC, RC, Kahikuchi	Attended DDCCD, Kerala funded Seminar.	Loharghat, Kamrup (Rural) on 11 August, 2025.
Dr. K. Ponnusamy, Head, Div. of Social Science	Invited as Distinguished expert to share the views on "Frontier Technologies for Climate Resilient FLW Systems" at the National Workshop on Transforming Food, Land, and Water (FLW) Systems to Combat the Climate Crisis, with a specific focus on Karnataka state,	ICAR-Indian Institute of Soils and Water Conservation, Research Centre Ballari, on 13 August 2025.
Dr. B. A. Jerad, Project Coordinator AICRP on Plantation Crops	Coco health international conference'.	Jenneys Residency, Coimbatore, Tamil Nadu on 19-22 August
Dr. Alpana Das, Principal Scientist & SIC, RC, Kahikuchi, Dr. Arun Kumar Sit, Pr. Scientist & SIC, RC, Mohitnagar, Dr. S. Elain Apshara, Pr. Scientist, RS, Vittal, Dr. Merin Babu Sr. Scientist, RS, Kayamkulam, Dr. Chaithra, M., Scientist, RC, Kahikuchi	National Cocoa Conclave 2025.	Jorhat campus of Assam Agricultural University (AAU) during 20-21 August, 2025.
Dr. B. A. Jerad, Project Coordinator AICRP on Plantation Crops	Seminar on 'Coconut and tuber crops based agrifood systems for resilience and sustainable income	ICAR-CTCRI and KVK Kamrup, Assam on 22 August 2025.
Dr. Selvamani, Scientist'	Research and Development in Space Technology for Agricultural Transformation by ICAR.	ICAR at NASC Complex, New Delhi on 23 August, 2025.
Dr. K. B. Hebbar Director, Dr. B. Augustine Jerard, Project Coordinator AICRP on Plantation Department Crops, Dr. Vinayak Hegde, Head, Division of Crop Protection and Dr. Ravi Bhat, Principal Scientist.	One-day brainstorming session on 'Management of Coconut Pests and diseases'	Ramnagara, Bangalore organized by ICAR-CPCRI in collaboration with the the Department of Horticulture Government of Karnataka on 29 August 2025.



Dr. B. Augustine Jerard, Project Coordinator, AICRP on Plantation Crops, Dr. Vinayaka Hegde, Crop Protection, Dr. Niral, V., Crop Improvement, Dr. Murali Gopal, PB& PHT, Dr. Ponnusamy, K. Social Science, Dr. Subramanian P., Crop Production, Heads, Dr. Ravi Bhat, Dr. Selvamani, Dr. Maheswarappa, Dr. Alka Gupta, Dr. Manikantan M.R., Dr. Chandran K.P. and Dr. Jayasekhar, S., Principal Scientists, Dr. Rajkumar, Dr. Ramesh, S.V., Dr. Prathibha V.H., Dr. Paulraj S., Dr. Prathibha P.S., Dr. Sujithra, M., and Dr. Panjavarnam G., Senior Scientists, Dr. Mahendran B., Dr. Daliyamol, Dr. Surekha, Dr. Rajini T.N. and Dr. Hima John, Scientists	International Workshop on “Strengthening Coconut Genebanks for a Climate Resilient and Sustainable Future”.	ICAR-CPCRI in collaboration with the International Coconut Community (ICC), Jakarta, Indonesia during 2-5 September 2025 at ICAR-CPCRI, Kasaragod.
Dr. Maheswarappa, Principal Scientist, Division of Crop Production	Two- Day Mega Kisan Mela, Training and Awareness Programme (MKMTAP 2025)	Guwahati during 23-24 September 2025.
Dr. K. Ponnusamy, Head, Social Science	Attended a programme 'Honey for Health' aiming at creating awareness among Anganwadi children and their mothers at Mogral Puthur	KVK Kasaragod on 29 September 2025
Dr. B. Augustine Jerard Project Coordinator AICRP on Plantation Crops	Participated in the District Level Training Programme on Arecanut cultivation.	KVK, Gobichettipalayam on 30 September 2025.



UPCOMING EVENTS

Five different training programmes are scheduled for imparting systematic knowledge and skill to the interested and aspiring individuals in science-based plantation crops.

Details of training programmes.

Sl.No	Title of the training	Duration	Tentative dates	Maximum participants
1.	Hybridization and quality planting material production in coconut.	3 day	13-15 October 2025	20
2.	Climate-Smart Palm based cropping Systems for Sustainable Livelihoods.	5 days	27- 31 October 2025	20
3.	Plant health management in planation crops.	5 days	10-14 November 2025	20
4.	Post-harvest processing and value addition in coconut	2 days	23- 24 October 2025	20
5.	Prospects of business ventures in plantation crops.	1 day	26 November 2025	50



FACILITIES CREATED

- Nanodrop (UV-Visible Spectrophotometer) for a wide range of applications including measuring the concentration and purity of samples and analyzing various compounds derived from plantation crops has been purchased and installed in instrumentation facility at the Div. of PB&PHT.
- A table top refrigerated centrifuge for the separation of biomolecules, has also been installed.

Sales Counter facility at CPCRI premises

A Sales Counter was opened within the ICAR-CPCRI campus at Kasaragod. The facility was inaugurated by Dr. Sanjay Kumar Singh, Deputy Director General (Horticultural Science), ICAR, New Delhi, on 2 September 2025. This initiative aims to promote and enhance the visibility of value-added coconut-based products and technologies developed by institutions under the National Agricultural Research System (NARS). The counter serves as a retail platform to showcase and market a diverse range of commercialised products and technologies

developed by ICAR institutes and NARS partners across India.

Coconut dryer facility for women SHG under SCSP component

Due to adverse weather conditions, the copra drying process becomes highly challenging, especially during the rainy season. Under the AICRP on PHET project, ICAR-CPCRI has developed a design for cottage-level copra drying. A gender-friendly electric dryer has been designed to dry coconut copra and other commodities. This innovation primarily benefits micro and small-scale entrepreneurs, including women members of self-help groups (SHGs), by facilitating efficient copra drying. The technology is expected to substantially enhance their income and livelihood opportunities. The scientists of ICAR-CPCRI, Dr. M. R. Manikantan and Dr. K. Ponnusamy, handed over the newly developed Coconut Dryer facility to the Vahin Women SHG. The unit was installed at Aranmanaipudur village, Theni district, with the support of KVK, Theni, on 26 July 2025.

PERSONALIA

APPOINTMENT

Name	Designation	Place	Date
Shri Prashant Sharma	Comptroller	CPCRI, Kasaragod	04.08.2025
Shri M. Sreevishnu	LDC	CPCRI, Kasaragod	01.09.2025
Prabhakara Rao			

PROMOTIONS

Name of the staff	From (Designation)	To (Designation)	w.e.f.
Shri P. Narayana Naik	Assistant	AAO	01.08.2025
Shri Prabhakaran P.P.	Skilled Support Staff	Technician	11.09.2025
Smt. Lalitha Bai K.	Skilled Support Staff	Technician	11.09.2025
Shri Sailen Seal	Skilled Support Staff	Technician	11.09.2025
Shri S. Rajesh	Skilled Support Staff	Technician	11.09.2025
Dr. M. Shareefa	Senior Scientist	Principal Scientist	10.02.2024

TRANSFER

Name of the staff	From (Place)	To (Place)	w.e.f.
Dr. Panjavarnam G., Scientist	CPCRI, Kasaragod	NRCB, Trichy	24.09.2025
Smt. Ranjini T.N., Scientist	CPCRI, Kasaragod	IIHR, Bengaluru	26.09.2025
Dr. Chaithra M., Scientist	CPCRI, RC, Kahikuchi	IIHR, Bengaluru	26.09.2025
Shri Sajeev K. N., LDC	CPCRI, RS, Vittal	CPCRI, RS, Kayamkulam	01.09.2025



RETIREMENT

Name of the staff	Designation	Place	Date
Shri S. Manohara	Technical Officer	CPCRI, Kasaragod	31.07.2025
Shri Pratap Kumar Sarkar	Technical Officer (Vehicle)	CPCRI, RC, Mohitnagar	30.09.2025



Cover photo: Coconut variety, COD under fertigation method of nutrient trial experiment.



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