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

From the Director's Desk

Aatmanirbhar Bharat: Aatmanirbhar Krishi

Mankind had progressed through several confrontations with natural calamities and diseases. Every hurdle opened us many ways to overcome it. So is the case with the Covid-19 pandemic. It did throw our livelihood, works, trade and business out of position, but at the same time provided many lessons for outliving. The nationwide lockdown made us cultivate essential crops in our backyard. We were, in fact, learning by doing the first lessons for self-reliance.

At the national level, the central government had rolled out a very ambitious plan 'Aatmanirbhar Bharat'. Hon'ble Prime Minister of India, Sri Narendra Modi in his speech during the launch of 'Aatmanirbhar Bharat Abhiyan' underscored that 'A rise of New India is essential not just for India, but for the world, and this will come true only when a self-reliant nation is built'. In a spirited response to this call, Ministry of Agriculture & Farmers' Welfare, Government of India has taken a host of historical pro-agriculture landmark initiatives towards 'Aatmanirbhar Krishi' with a motive to transform the Indian agriculture into a sustainable enterprise.

Rising to the occasion, ICAR-CPCRI has initiated different programmes to achieve the Hon'ble prime minister's vision. The number of outreach programmes conducted was enhanced to bring awareness on technologies for startups in the coconut sector. The Institute is striving to increase the planting material production at its own level, and also through a participatory approach with the involvement of Farmers' groups.

One of the key points of 'Aatmanirbhar Krishi' is organic recycling and organic farming. Vermicomposting of coconut leaves, urea-free compost from coir pith, composting of tender coconut husk and biochar production are the important components in this regard. The CPCRI is the front runner in developing organic farming practices, especially for controlling coconut pests and diseases. The Institute has come up with several success stories that highlight concerted efforts of researchers, department officials, and farmers that had resulted in control of coconut pests such as rhinoceros beetle, leaf-eating caterpillar and eriophyid mite. Similarly, such collaborative efforts could control diseases such as coconut bud rot and Tanjavur wilt in several affected tracts. The Institute has also brought out a complete package of practice on organic cultivation of coconut.

Value addition by farmers or group of farmers is another key aspect to realize higher returns from the farming enterprise, and in this direction, the Institute has successfully developed many processing protocols for coconut value added products such as Virgin Coconut Oil, Coconut Chips, Kalparasa, and Palm Sugar. Other than processing technologies, the Institute has licensed many other technologies like varieties, protocols for planting material production, biofertilizers and biocontrol agents, and so far, over 250 entrepreneurs had signed Memorandum of Agreement for the technology knows how. Besides, the Institute offers incubation support to our licensees to perfect their production after licensing. To sum up, as in the past, the Institute will continue to support farmers to achieve the Nation's aspirations.

CONTENTS

SPECTRUM

Variability in cocoa clonal trees

Among 39 trees of cocoa clonal progenies of VTLC 32 (NC 45), 24 trees were with small pods, 7 trees with long, light green pods with a wide shoulder and 9 trees with medium long, narrow, dark green, bottlenecked pods with cordate apex form. These were delineated and grouped into different genotypes with minimum descriptor data (Fig. 1.).

Fig. 1. (a) VTLC 32A (Small pods), (b) VTLC 32B (Wide shoulder) and (c) VTLC 32C (Bottle neck)

Elain Apshara, S.

Abnormality in coconut inflorescence

Fig. 2. Inflorescence abnormality in coconut var. Fiji Tall

An abnormality known as the fasciated spike was observed in Fiji Tall coconut accessions at ICAR-CPCRI, Research Centre, Kahikuchi. This abnormality is seen in the terminal tip portion of the spikelet either in the form of a fan or terminal portion modified to a finger-like structure (Fig. 2.). The fasciated spikes fail to bear fruits and remain barren.

Singh, L.S., Niral, V., Anok Uchoi and Alpana Das

Microbial Community dynamics during fermentation of Neera

Fresh phloem sap, artificially exudated from unopened spadices of coconut palm using Coco-sap chiller (Kalparasa®), was fermented for 12 hours at 30°C and its microbiome was deciphered. Microbial analysis of both fresh and fermented neera by culture-dependent method revealed bacterial numbers to increase manifold on fermentation. Use of culture-independent method *via* high-throughput Illumina platform, which sequenced both cultivable and non-cultivable microbes directly from neera, gave an insight into its prospective probiotic composition. *Leuconostoc* was the single major group of probiotic bacteria present in both fresh and fermented neera followed by *Fructobacillus* spp. Both are food-related, obligate heterofermentative lactic acid bacteria together metabolizing glucose, sucrose and fructose to ethanol, lactate and acetate, and are amenable to artificial culturing on growth medium. As the fermentation proceeded, microbiota dynamics showed partial replacement of *Leuconostoc*, *Acetobacter* and *Acinetobacter* groups by *Fructobacillus*, *Gluoconobacter* and *Lactococcus* (Fig. 3.). Fermentation caused specific stimulation of *Fructobacillus fructosus* and *Gluconobacter oxydans* numbers; the presence of *Leuconostoc citreum* got strengthened as well.

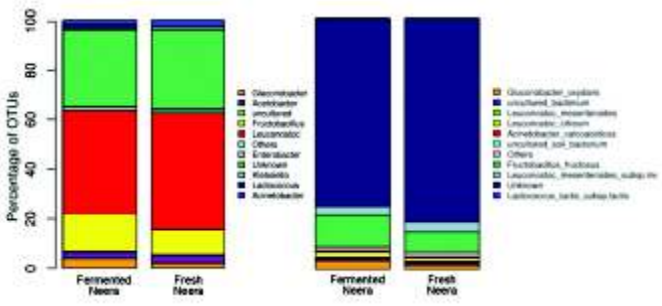

Fig. 3. Dynamics of bacterial genera and species in coconut inflorescence sap during its fermentation

Murali Gopal, Alka Gupta, Sandip Shil and Hebbar, K.B.

Structural characterization of cement gland in *Aleurodicus rugioperculatus* and *Paraleyrodes bondari* as an identification marker

Cement gland is the accessory reproductive gland in adult female whiteflies producing secretions for effective adherence of eggs on the epidermis over the underside of leaves. As a part of adult whitefly taxonomy, cement glands were characterized through dissection on the two exotic whiteflies infesting coconut *viz*., rugose spiralling whitefly *Aleurodicus rugioperculatus* and the Bondar's Nesting whitefly, *Paraleyrodes bondari*. The shape and structural alignment of the bulb body of these glands are recently used as one of the identification features of adult whiteflies. Upon examination of these two non-native whiteflies, the bulb body of cement gland was found to have a wavy margin in case of P. *bondari* whereas it had a smooth margin having bulged middle portion for *A. rugioperculatus*. Considering the significant structural modification of bulb body in each of the whitefly species, cement glands could probably emerge as an identification marker for adult whiteflies. Unique structural modifications of these cement glands in *A. rugioperculatus* and *P. bondari* are reported for the first time.

Josephrajkumar, A., Chandrika Mohan, Merin Babu and Anes, K.M.

Improvement in soil and palm health by adoption of site-specific management practices

The fertility status of Onattukara sandy (Agroecological Unit-3, AEU-3) soil, as well as the South-Central Laterite (Agroecological Unit-9, AEU-9) soils, was assessed before and after site-specific nutrition management. Soil properties in AEU-9 and AEU-3 were significantly improved. Two units rise in pH over the pre-treatment values was observed in the South-Central Laterite soils (AEU-9), and one unit rise in pH in AEU-3. The base nutrient ions such as calcium, magnesium and potassium were also increased. In situ recycling of all the palm residues within the basin resulted in improvement in the organic carbon content of the treated palms. The soil nutrient status improved for all the nutrients as compared to that of the pre-treatment condition in 2015, both in the sandy as well as in the laterite soils. Improvement in leaf nutrient status was observed in treated palms, which reached sufficiency level. The content of P, K, Ca and Mg in the index leaf samples of AEU-3 were 0.164%, 1.73%, 0.406% and 0.172% respectively. Forty per cent improvement in nut yield was observed compared to that of control in AEU-9.

Jeena Mathew, Krishnakumar, V., Abdul Haris A. and Ravi Bhat

Coconut testa-derived oil and its anti-oxidant potential

Biochemical characterization of oil extracted from teas, by-products of the coconut processing industries was carried out for six varieties. Soxhlet-based solvent extraction of oil from oleaginous testa yielded 40.46 % to 50.80% of fat material. Gas chromatography-based fatty acid profiling of coconut testa oils revealed that lauric acid (26.66 ± 0.44 to 31.93 ± 0.36 %) is the most predominant fatty acid though which is relatively low compared to coconut oil (51.5 ± 0.5 %). Poly and mono unsaturated fatty acids contents of the testa oil are very high compared to the coconut oils.

Ramesh, S.V., Rose Mary, Shameena Beegum P.P, Pandiselvam R., Sugatha P., Manikantan M.R., Niral V. and Hebbar K.B.

Ready to use botanical based insecticidal soap for coconut whitefly management

Three different types of plant aqueous extract based insecticidal soaps (Garlic soap, Neemsoap and Karinochi, Vitex negundo soap) were prepared for the management of invasive whiteflies on coconut. It was observed that reduction in the coconut whiteflies population ranging between 52 74% with these soaps when sprayed @ 5 to 10 gm per litre. These botanical products get readily dissolved in spray solution and relatively safer for non target organisms as well to the environment due to their non persistent nature. Further work on optimizing the dosage to avoid any phytotoxicity effects on palms is in progress.

Sujithra, M. and Rajkumar

Optimization of pasteurization temperature and time for preservation of tender coconut water

The perishable nature of tender coconut water affects its market potential. Nevertheless, tender coconut water contains vitamins and electrolytes (sodium, potassium), which render it ideal for rehydration drinks and replacement for carbonated beverages. To maintain the physico-chemical and sensory properties of tender coconut water, enzyme inactivation during thermal processing is vital. The data was analysed using response surface methodology to find out the optimal time-temperature combination for inactivation of enzymes in tender coconut water. Experiments were conducted at different temperature (80-95 °C) and exposure time (5-15 min). The pH, TSS, turbidity, titratable acidity, phenolic content, overall acceptability, PPO and POD activity were tested for the pasteurized samples. It was observed that the pasteurization temperature 83.6 °C for 15 min exposure time could able to inactivate the PPO and POD activity without affecting the physico-chemical and sensory properties of tender coconut water.

Pandiselvam, R., Prithviraj, V., Manikantan, M. R., Ramesh, S. V. and Shameena Beegum, P.P.

Whitefly complex in arecanut

Field incidence of exotic whitefly complex comprising two Neotropical nesting whiteflies *viz*., *Paraleyrodes bondari* Peracchi and *Paraleyrodes minei* Iaccarino in association with invasive rugose spiralling whitefly *Aleurodicus rugioperculatus* Martin and native areca whitefly, *Aleurocanthus arecae* David and Manjunatha on arecanut is reported from Karnataka, India during 2020. These arecanut palms were previously infested by *A. arecae* which was earlier reported from Karnataka during 2003. To our knowledge this is the first report on the infestation of *P. bondari* and *P. minei* on arecanut as highlighted in this current investigation (Fig. 10a and b). Morphological identification based on pupal taxonomy and male genitalia as well as molecular characterization of the mitochondrial cytochrome oxidase I (COI) gene confirmed the identity of nesting whiteflies. The Bondar's nesting whitefly, *P. bondari* is the most predominant whitefly species with 87.5% active colonies followed by the nesting whitefly, P. minei (13.64 %) and the rugose spiralling whitefly, *A. rugioperculatus* (6.25 %). Co-occurrence of these three non-native whitefly species on arecanut in synergy with the native *A. arecae* indicates a kind of competitive regulation of one species over the other upsetting biodiversity. Due to polyphagous nature of the pest coupled with increased trade and transport in a climate change scenario, this whitefly complex may become a serious threat to arecanut production in India and elsewhere. This requires strict quarantine protocols to avert its spread to other arecanut growing areas.

Fig. 10a. Damaging symptoms; and presence of sooty mould fungus

Fig. 10b. Whitefly colonies

Shivaji Hausrao Thube, Josephrajkumar, A., Thava Prakasa Pandian, R., Bhavishya and Santhoshkumar, P.

Effect of edible coatings on fresh coconut kernel pieces

Application of edible coating on coconut kernel pieces was explored. Nine different formulations of edible coatings such as Aloe vera extract, xanthan gum, soy protein isolate, glycerol, caboxymethyl cellulose, 4-hexyl resorcinol, propionic acid, citric acid and ascorbic acid were used. Physiological loss in weight and sensory evaluations were evaluated daily. Combination of xanthum gum, glycerol and citric acid was found to be better for two days under ambient temperature (28 ± 2ºC) with respect to the responses. The results are to be correlated and confirmed with the microbiological evaluation of the products.

Shameena Beegum, P.P., Pravitha, C., Manikantan, M.R. and Pandiselvam, R.

Estimation of arecoline content from different parts of arecanut palm

Estimated arecoline content from three different parts of arecanut palms viz., leaf sheath, inflorescence and roots of six varieties namely Mangala, Mohitnagar, Kahikuchi, Shata Mangala, VTLAH-1 and VTLAH-2. For each part, samples were collected from three different palms of the varieties. In leaf sheath arecoline content found to be ranged from 333.20 µg/gm to 5045.01 µg/gm. Lowest arecoline content was observed in the leaf sheath of arecanut variety Shata Mangala and the highest arecoline content was recorded from the leaf sheath of VTLAH-2 dwarf hybrid. In inflorescence samples arecoline content was in the range of 667.08 µg/gm to 10512.72 µg/gm. Highest arecoline content was observed in the inflorescence of the arecanut dwarf hybrid VTLAH-2 and the least was found in the VTLAH-1. Among the root samples of the arecanut varieties, arecoline content was ranged from 5174.73 µg/gm to 21510.96 µg/gm. Lowest arecoline content was recorded from the root sample of VTLAH-1 and the highest was recorded from VTLAH-2.

Nagaraja, N. R. and Geetha Shetty, S.

Air blast sprayers for coconut

It has two units: an air blast blower to blow a powerful stream of air and an pump to inject chemical solution/water. Required power is taken from the tractor PTO. A centrifugal atomiser atomises the chemical solution and is carried away by the powerful air stream. With this machine spraying could be done from the ground and the spray could reach a height of 30m. Prime mover of this sprayer is a mini tractor/tractor (Fig. 7).

Another variant is a self-propelled sparyer that can be carried manually or monted on a tractor (Fig. 8). Its range is 20m only.

Fig. 7. Tractor driven air blast sprayer

Fig. 8. Self-propelled air blast sprayer

Mathew, A.C.

Low cost biodegradable eco grow bags for raising arecanut seedlings

Fig. 9. Biodegradable grow bags made from arecanut leaf sheath

Low cost biodegradable eco grow bags using arecanut leaf sheath was made for raising arecanut seedlings as alternative to polythene bags to (Fig. 9). Arecanut leaf sheath bags were filled with recommended potting mixture for raising arecanut seedlings viz., soil:FYM:sand in the ratio of 7:3:2 and seednuts were sown. Based on the observations, it needs further technological improvements to prevent rotting of bags during rainy season.

Nagaraja, N. R. and Shahala, M. I.

PUBLICATIONS

Research Articles

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Thube, S.H., Saneera, E.K., Pandian, R.T.P., Nagaraja, N.R. and Rajkumar. 2020. Occurrence of pentatomid bug, *Halyomorpha picus* in southern part of Karnataka. *In*: Abstracts- National Web Conference: Vegetable Farmers Forum 2020 (Natwebcon VVF-2020), Mahapatro, G.K. (Eds.). Division of Entomology, ICAR-Indian Agricultural Research Institute, New Delhi-110012, India, 25th to 26th June 2020. Pp.26.

Book Chapters

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Training Manuals

Khadke, G.N., Nagaraja, N.R., Niral, V., Samsudeen, K., Dhathri, N.R., Latha, H.K. 2020. Thotada belegalalli sasimadi thanthrikate mattu uthpadana thantragnanagalu tharabethi kaipidi (Kannada). ICAR-CPCRI, Kasaragod 671 124, Kerala. 78 pp.

HUMAN RESOURCES DEVELOPMENT

Trainings within India

Name & designation	Title of the programme	Place and date
All Staff from Regional Stations and Research Centres (online) All Staff Members HQ (offline)	Familiarisation cum virtual training programme - Introduction to eOffice	ICAR-CPCRI, Kasaragod 1 July-2020
Dr. Arun Kumar Sit, Principal Scientist, Dr. Sandip Shil, Scientist, Dr. Saran Kumar Rizal, CTO, Dr. Avrajyoti Ghosh, ACTO, Sri Pratap Kumar Sarkar, STA, Sri Jagadish Roy, STA, Sri Subhash Paul, Asst.	Virtual zoom meeting on e-Office training	ICAR-IASRI, New Delhi 1 July-2020
All Scientific, Technical, Administrative, Accounts and Skilled Support Staff of ICAR-CPCRI including Regional Stations and Research Centres	Hands on Training eOffice	ICAR-CPCRI, Kasaragod 2 - 10 July 2020
Dr. Sandip Shil, Scientist	Online Training Programme, Analysis of Experimental Data using R	ICAR- NAARM, Hyderabad August 05 - 11, 2020
Dr. C. T. Jose, Head I/C, Dr. S. Kalavathi, Head I/C, Dr.Chandrika Mohan, Dr. A. Joseph Rajkumar, Dr. A. Abdul Haris, Dr. Regi J. Thomas, Dr. S. Elain Apshara, Dr. Arun Kumar Sit, Principal Scientists, Dr. M. Shareefa, Dr. K. Nihad, Dr. Jeena Mathew, Dr. Merin Babu, Dr. K.M. Anes, Dr. Alpana Das, Dr. Anok Uchoi, Dr. L. S. Singh Sujithra M., Dr. Sandip Shil, Dr. N.R. Nagaraja, Mr. Bhavishya, Dr. Chaithra, M., Scientists, Dr. Saran Kumar Rizal, Mr H. Muralikrishna, CTOs, Dr. B. Chowdhury and Dr. Avrajyoti Ghosh, ACTO, Dr. Nirmal Kumar, Mr. Bisun Bhaskar, Sri Pratap Kumar Sarkar, Technical Assistants	Workshop cum training programme on digital field data book	IIMR, Hyderabad 18th September, 2020
Dr. R. Pandiselvam, and Dr. Shameena Beegum, P.P., Scientists	14 days virtual workshop cum Training Programme on "Intellectual Property Rights in Agricultural Research & Education in India"	IP&TM Unit of ICAR, New Delhi 12-28 September 2020

Awards/ Honours

Dr. T. Sivakumar, SMS (Agricultural Entomology) bagged the ICAR Cash Award for technical category for the year 2019 during the Foundation Day celebrations of ICAR on 16th July, 2020.

Dr. L. S. Singh, Scientist (Sr. Scale), has got the best oral presentation award in the International webinar on urban and peri-urban agriculture for livelihood organized by Dr. Ram Avatar Shiksha Samiti and ICAR-CAZRI, RRS, Pali, Marwad, Raj during 29th to 30th July, 2020.

TRANSFER OF TECHNOLOGY

Atmanirbhar Krishi: Farmers Training Programme on Enterprise Diversification in Coconut Sector

For Sensitizing the coconut communities to make best use of the reforms in agriculture sector announced by the Central Government towards Atmanirbhar Krishi, three day multi lingual farmers training programme on 'Enterprise diversification in coconut sector' was conducted online during 14-17 September, 2020. The programme was conducted in three languages (Malayalam, Tamil and Kannada) concurrently. The topics on how to form a farmer producer company (FPO) and Agribusiness incubation unit were dealt by the respective experts. The training also covered expert interaction from other agencies as well. Introduction on new initiatives under MSME schemes, e-NAM, Agricultural insurances, export promotion and other schemes of CDB in compliance with Aatmanirbhar Bharat helps the farmers to get more acquainted towards the new policies of Government of India. It also covered the policy reforms and schemes under Athmanirbhar Krishi- a step towards transformation of agriculture into sustainable enterprises. Dr. Anitha Karun, Director (Act.), ICAR-CPCRI inaugurated on 14 September 2020. In the valedictory function held on 17 September 2020, Dr. S. Arulraj, Formerly Director, ICAR-IIOPR, Pedavegi delivered the valedictory address in Tamil. Dr. Nirmal Babu, Formerly Director, ICAR-IISR, Kozhikode and Dr. R. Muraleedhara Prasad, Formerly Associate Director of Extension, Kerala Agricultural University addressed the farmers in Malayalam. And Sri S. R. Satishchandra President, CAMPCO delivered the valedictory address in Kannada. This programme was well received by the farmers with a participation of 1400, 600 and 400 farmers respectively for the programmes in Malayalam, Tamil and Kannada. Dr. K. Muralidharan, Acting Head, Social Sciences Division coordinated the programme. Dr.Nihad, K. and Dr. Jeena Mathew were the coordinators for Malayalam; Dr. Rajkumar and Dr. N.R. Nagaraja for Kannada; and Dr. Sujithra, M. and Dr. Sudha, R. for Tamil. The training helped in making awareness to the farmers about good agricultural practices in coconut and its value addition.

Kalpa Graduate Readiness Programme for Agri/Horti UG students

To equip the final year agriculture/horticulture graduate students to address field level problems in plantation crops, an online lecture series was started on 17 September 2020. Dr. Laxman Singh Rathore, Formerly Director, IMD and Vice President, VIBHA inaugurated the programme. Dr. B. K. Pandey, ADG (Hort. Sci.), ICAR presided over the function. Dr. Manjunatha K. Naik, Vice Chancellor, UAHS, Shivamogga delivered the keynote address. Sri. Sajl Ghose, Vice Chancellor, Bidhan Chandra Krishi Viswa Vidyalay, Kalyani and Dr. Tolety Janakiram, Vice Chancellor, Dr. YSR Horticultural University, Venkataramannagudem, Andhra Pradesh were guests of honour. Nearly 1500 students from all over India registered for the programem. Dr. K. Muralidharan, HoD (Act.) Social Science briefed about the programme. Dr. Anitha Karun, Director (Act.), ICAR-CPCRI welcomed the gathering and Dr. S. Jayasekhar, course director proposed vote of thanks.

IMPORTANT EVENTS

Digital discourse on 'Coconut for nourishing mankind and nurturing ecology' held students as part of 'World Coconut Day - 2020'

As a part of World Coconut Day 2020, ICAR-CPCRI, Regional Station, Kayamkulam in collaboration with National Service Scheme, Alappuzha District organized one day Virtual Workshop for the VHSC students on 2 September, 2020. The programme was inaugurated by Adv. U. Prathibha, Hon'ble MLA, Kayamkulam and she emphasised on effective linkage between Scientists and Students to evolve a knowledge-centric society. Three technical sessions viz., 'Contribution of coconut to humanity', 'Coconut an ecological service provider' and 'Coconut in dairy industry' were handled by Dr. S. Kalavathi (Acting Head), Dr. A. Joseph Rajkumar, Pr. Scientist and Dr. Shameena Beegum, Scientist, respectively. More than 900 students across the state participated in the programme through videoconferencing platform and YouTube Live.

National digital discourse on 'Gender and pandemic: Challenges and opportunities'

Farmer FIRST Programme (FFP) center of ICAR CPCRI along with ICAR-NIANP, ICAR-IIHR and ICAR-CIFT, organized digital discourse series on 'Gender and Pandemic: Challenges and Opportunities' during 10 12 August, 2020. Dr. A.K. Singh, Deputy Director General (Agrl. Extension) in his key note address highlighted the productive performances of agriculture during this pandemic period indicating the resilience of farming community and technologies. Mainstreaming the entire farming communities, including women farmers realizes the goal of 'Atmanirbhar Krishi' in the country. A total of 538 participants attended the discourse series. The panelists included experienced experts from ICAR, General Universities, IGNOU, and National and international NGOs and gender researchers representing various sectors. Dr. P. Anithakumari, Principal Scientist, ICAR- CPCRI, RS, Kayamkulam was one of the coordinators.

Coconut seed garden inaugurated in Palakkad Jail Campus

A coconut seed garden has been initiated by ICAR-CPCRI in the District Jail Campus, Palakkad, Kerala, in collaboration with the State Department of Prisons and Correctional Services and State Dept. of Agriculture Development & Farmers' Welfare. A total of 100 seedlings; with 20 seedlings each of five coconut varieties released by CPCRI viz., Kera Chandra, Kalpatharu, Kalpa Prathibha, Kalpa Mithra and Kera Keralam have been planted in the seed garden. Shri V. S. Sunilkumar, Minister for Agriculture, Government of Kerala inaugurated the seed garden on 16th July 2020 through videoconferencing. Shri K. V. Vijayadas, M.L.A., Kongad, was the chief guest in the inaugural function. Dr. Anitha Karun Director, ICAR-CPCRI, Kasaragod and Smt K. Santhakumari, President, Palakkad District Panchayat were the Guests of Honour. Dr. C Thamban, Principal Scientist, ICAR-CPCRI presented the details of the project on coconut seed garden.

Inaugural planting of coconut seed garden at District Jail Campus, Palakkad, Kerala

Webinar series 'Coconut based integrated farming system'

Five days Webinar series on 'Coconut based integrated farming system' was organized by ICAR-CPCRI, Regional Station, Kayamkulam in collaboration with Mavelikkara block and Cherthala South block 7-25August, 2020. Dr. S. Kalavathi, Acting Head inaugurated the programme. More than 400 farmers, extension workers and students from different parts of Kerala as well as from outside the country attended the webinar series. The programme was coordinated by Dr. S. Kalavathi, and Dr. Anes K.M. with patronage from Kerala State Department of Agricultural Development and Farmer's Welfare.

Training on Value added products of coconut

Training programme on VCO and value addition of coconut byproducts for improving income was organized on 18 August, 2020 for farmers of Pathiyoor, Munroe Thuruthu and Chettikulangara Panchayaths. Dr. K.B. Hebbar, Head, Division of PB & PHT and Dr.. Shameena Beegum, Scientist, ICAR-CPCRI, Kasaragod handled the sessions. Mr. Binu Karunakaran, President, Munroe Thuruthu Panchayath inaugurated the programme. It was decided to start a Farm tourism spot of Coconut products at Munroe Thuruthu for promotion of coconut products and coconut with technical facilitation of ICAR-CPCRI and 42 farmers attended the programme.

Online training Seedling production of dwarf coconut varieties

An online training on 'Seedling production of dwarf coconut varieties' was conducted on 17 September 2020 for officials of Dept. of Agriculture (Alappuzha District). A total of ninety officials attended. The training was inaugurated by Dr.S. Kalavathi, Acting Head, ICAR-CPCRI, Kayamkulam. Mrs. Elizabeth Daniel, Deputy Director of Agriculture (YP) welcomed the participants to the online training programme. Dr. Regi J. Thomas, Dr. A. Joseph Rajkumar and Dr. M.Shareefa were the resource persons. Dr. K. M. Anes, Scientist was the coordinator of the training.

Online training on 'Scientific Coconut Cultivation' for the farmers

ICAR-CPCRI, Regional Station, Kayamkulam in collaboration with Principal Agricultural Officer, Idukki District, organized one day online training on 'Technological Advances in Coconut Cultivation' for the benefit of farmers on 24 September 2020. More than 500 farmers attended the programme. The programme was coordinated by Dr. S. Kalavathi and Dr. K. M. Anes. Dr. A. Abdul Haris, Dr. Chandrika Mohan and Dr. Merin Babu were the resource persons.

Off campus trainings

Field demonstration and distribution of *Metarhizium majus* to Dairy farmers in Vallikunnam Bio-village for area-wide bio-suppression of coconut rhinoceros beetle

As part of “Convergence of bio-control technologies for area-wide management of coconut rhinoceros beetle”, about seven kilogram of *Metarhizium majus* was distributed to Dairy farmers in Vallikunnan bio-village on 9 September, 2020. The application procedure of the entomopathogenic fungus on the breeding sites was demonstrated by ICAR-CPCRI Crop Protection Scientists at the hamlet with progressive dairy farmers under the co-ordination of the Agricultural Officer. The farmers were empowered on the technical know-how as well as sustainable impact of the technology moulding Vallikunnam as a bio-village model.

'*Thengum thanalum*'- Radio series on coconut

Broadcasting of a radio series, on coconut farming entitled 'Thengum thanalum', a collaborative initiative of AIR Kannur and ICAR-CPCRI Kasaragod got underway through All India Radio Kannur station. The radio programme broadcast under 'Kisan vani' has been streamlined to create awareness among farmers and other stakeholders on various aspects of scientific coconut farming. The series include topics such as improved varieties of coconut, nursery practices for production of quality seedlings, planting and after care, integrated nutrient management, irrigation and water management, soil and water conservation in coconut gardens, coconut based multiple cropping and integrated farming systems, integrated pest and disease management, value addition of coconut, Farmer Producer Organisations for sustainable coconut development and experience sharing by successful coconut growers. The radio series started on 15 August, 2020 with the broadcasting of the first part on improved varieties of coconut.

Online training programme for farmers on 'Coconut Production Technologies - Seed to market'

Online training programme for farmers on 'Coconut Production Technologies - Seed to Market' was organised by ICAR-CPCRI Kasaragod in collaboration with Farmers Training Centre, State Dept. of Agriculture, Vengeri, Kozhikode during 4-27 August 2020. Dr. Dr. Anitha Karun, Director, ICAR-CPCRI, Kasaragod inaugurated the training programme Dr. T.V.Rajendralal, Additional Director of Agriculture (Agrl. Extension), Dept. of Agriculture Development & Farmers' Welfare, Thiruvananthapuram was the chief guest. Dr. Thamban C, Principal Scientist briefed about the programme. . Mrs. Rosly Mathew, Deputy Director of Agriculture, Farmers' Training Centre, Vengeri, Kozhikode offered felicitations.

Scientist-extension personnel interface programme on management of coconut gardens in flood affected areas

A Scientist-Extension Personnel Interface Programme on 'Management of coconut gardens in flood affected areas' was conducted through videoconferencing on 3 July 2020 involving scientists from ICAR-CPCRI Kasaragod and officers of Department of Agriculture, Tamil Nadu. Dr. Anitha Karun, Director, ICAR-CPCRI, Kasaragod inaugurated the interface programme and Mr. A. Justin, Joint Director of Agriculture, Thanjavur, Tamil Nadu gave the introductory remarks. Dr. P Subramanian, Principal Scientist presented the topic. Technologies recommended for the management of coconut gardens in flood affected areas and ways to enhancing efficiency of implementing various technological interventions for the same were discussed in the interface programme. Dr. Thamban C, Principal Scientist, ICAR-CPCRI, Kasaragod and Mr. S. Eswar, Deputy Director of Agriculture (GoI scheme), Thanjavur were the coordinators.

Self-reliance (Aatmanirbhar) in production of EPN at local village level

Trainings were conducted to make farmers atmanirbhar in the production of entomopathogenic nematodes (EPNs) at their farms and transferred 'Kalpa EPN (CPCRI - SC1) aqua formulation' technology on 30 September, 2020 to Shri. Manjunath K.S., a progressive farmer from Hadonahalli village of Shivamoga district.

Farmer undergoing training on mass production of EPN

FFS on Ecological Engineering and System Approaches in Doubling Income of farmers

A Farmer Field School was conducted by Dr. A. Joseph Rajkumar, Pr. Scientist, ICAR-CPCRI, Regional Station, Kayamkulam on 23 September, 2020 at Chettigulankara Panchayat organized by the Agricultural Officer following strict COVID-19 "social vaccine" protocols. Twelve farmers in the region were empowered on technological advancements in Ecological Engineering and Integrated Cropping System Approaches for doubling income and continuous employment emphasising on Nariyal Dhuvara Aatmanirbhar Krishi. Most coconut farmers had components including fisheries, dairy, and poultry in synergy with crop pluralism at their homestead and the FFS refined on technological integration accomplishing inclusive farming.

Other online trainings

Organizer	Programme title	Date	Number of participants
ICAR-CPCRI, Regional Station, Vittal	Integrated management of arecanut crop	20 August 2020	75
	Good cultivation practices in arecanut	1 September 2020	30
		4 September 2020	80
ICAR-CPCRI, Research Centre, Mohitnagar	Arecanut cultivation and crop diversification in plantation garden with black pepper -DAESI training	17 August 2020	40
	Horticulture and allied sector to develop Atmanirbhar farming communities	26 September 2020	20
ICAR-CPCRI, Regional Station, Kayamkulam	Ecological engineering and system approaches in doubling income of farmers	23 September 2020	15
	Convergence of bio-control technologies for area-wide management of coconut rhinoceros beetle	9 September 2020	25

SCSP Activities

The cluster of SC families in Thonnakkal, Pothankode block, Thiruvananthapuram was provided with various agriculture inputs. Four training programmes were conducted benefitting 118 SC family members. Planting material of coconut (1000) and fruit crops (2200) were distributed to 103 families. Bee hives (150) were provided to 100 beneficiaries. Three coconut climbing machines, one garden tiller and one sprayer were distributed in the region. Besides 100kg Kera Probio®, 250kg bone meal and 3.5t neem cake to the group of SC farmers in Thonnakkal.

STC Activities

One training programme on scientific cultivation of cashew was organized at Koyyuru, Visakapatnam district in collaboration with Integrated Tribal Development Agency, Paderu benefitting 100 tribal farmers. Cashew grafts (6000) were provided to 60 tribal families.

Sri Prabhakara Rao, Project Horticutlure Officer, ITDA, Paderu handing over the cashew grafts to the selected tribal farmers

Kalpa Green Web Chat

Kalpa Green Web Chat programme is conducted regularly on every Saturdays for technology transfer as well as entrepreneurship development in agriculture. A total of 15 programmes were conducted during the period benefitting about 1425 enterprising youth and businessmen.

Details of the programme conducted during the period is given here below:

Date	Programme	Resource persons	No. Of participants
04.07.2020	YAWA- You Ask We Answer - Business built on technologies Experience sharing:	Dr. K. Muralidharan - Moderator Dr. Murali Gopal, Dr. M.R. Manikantan, Dr. Shameena Beegum P.P., Dr. P. Anitha Kumari, Dr. N.R. Nagaraja, Mr. K. Kannan, Lead Bank Manager Mr. Jayaraj P. Nair, Business Consultant and Mrs. Pavithra S., Founder of Sri Yoganarasimha International	75
11.07.2020	You too can make chocolate from cocoa beans	Dr. K. Muralidharan - Moderator Dr. Shameena Beegum P.P., Dr. Elain Apshara S., Dr. Chaithra M.	105
18.07.2020	Startup opportunities and credit support	Dr. K. Muralidharan Moderator Mr. Riyas P.M. Project Director Kerala Startup Mission, Mr. K. Kannan, Lead Bank Manager	100
25.07.2020	Post Covid livelihood security Institutional support	Dr. K. Muralidharan - Moderator Mr T T Surendran, Coordinator, District Kudmbashree Mission, Mr. Sudheesh Kumar V.K., Industries Extn. Officer	65
01.08.2020	YAWA- You Ask We Answer - Business built on technologies Experience sharing:	Dr. K. Muralidharan - Moderator Dr. M.R. Manikantan, Dr. Shameena Beegum P.P., Dr. Murali Gopal, Dr. N.R. Nagaraja, Mr. Jyothis Jagannath DGM NABARAD Kasaragod, Dr. Shyamala Prasad, Spandana Ayurveda and Panchakarma, Kasaragod, Mr. Sayyid Sawad, Bus. Dev. Coordinator, KSUM Mr. Sibi Mathew, Prop. Magicco Life Care (Coconut Chips), Mr. Mahesh Bhat Prop. Shreekalpa Industries, (Virgin coconut oil)	105
06.08.2020	Webinar on Technology, Finance & Policy Support for Coconut MSMEs	Mr. M. Palanivel Director (I/C)- MSME DI Thrissur, Dr. Anitha Karun, Director, ICAR-CPCRI Mr Martin P. Chacko Asst. Director MSME DI Thrissur, Dr. K. Muralidharan, Mr. N. Kannan	225
08.08.2020	Mechanization in agricultural enterprises: The need of the hour Interaction with machine manufacturers and fabricators	Dr. A.C. Mathew - Moderator Dr. K. Muralidharan, CPCRI Mr. Sheen Antony, Pilotsmith, Mr. Nagaraja, ProB Products, Mr. Premchand, Oscar Industries, Mr. Raguram Raja, Stonehat Technologies	80
22.08.2020	Technology Driven Agri Business: Interaction with Incubators	Dr. K. Muralidharan - Moderator Dr. Sheeja T.E., IISR Kozhikode, Dr. K.N. Shiva, NRCB Thiruchirappalli, Dr. Shailesh Kumar Tiwari, IIVR Varanasi, Dr. Manjunath B L , IIHR Bangalore, Dr. D Balasubramanian, DCR Puttur, Dr. P. Sethuraman Sivakumar, CTCRI, Thiruvananthapuram and Dr. M.R. Manikantan, CPCRI, Kasaragod	110

Date	Programme	Resource persons	No. Of participants
02.09.2020	World Coconut Day-Entrepreneurship Development Programme on coconut value addition	Dr. K. Muralidharan Moderator Dr. Shameena Beegum, Dr. Pandiselvam CPCRI Kasaragod	65
05.09.2020	Protection of Intellectual Properties	Dr. K. Muralidharan Moderator Dr. V. Niral, Dr. Shameena Beegum, Mr. H. Muralikrishna, ICAR-CPCRI and Mr. Sayyid Sawad, KSUM	90
12.09.2020	Exporting Coconut Products: How To and Where To?	Dr. S. Jayasekhar, ICAR-CPCRI Mrs. S. Deepthi Nair Dy. Director Coconut Devt. Board	175
19.09.2020	Technology Driven Agri Business: Interaction with Incubators Part 2	Dr K Muralidharan Moderator Dr B. Dayakar Rao, IIMR - Hyderabad	110
26.09.2020	Entrepreneur's Talk: 1. Desiccated Coconut 2. Introduction to hydroponic farming	Mr Jayaraj P. Nair Business Consultant Mr Suraj Ajila & Mr Kiran Soilless Gardener Pvt. Ltd.	120
		Total	1425

Field visits

A diagnostic field visit to Mr. Nagendra Chandra Das at Bongara, Kamrup (rural), Assam on was conducted on 3 August, 2020. The farmer had established a demonstration plot was funded by DCCD, Kochi, Kerala Arecanut based cropping system garden with intercrops of cocoa, Assam lemon and banana. Another field visit to Barsimaluwa village, Dist. Nalbari, Assam was conducted on 25th September, 2020 and a meeting with the villagers was held for implementation of SCSP.

Another field visit to the turmeric and ginger fields was conducted on 25 August, 2020 at Sadar block Jalpaiguri.

Field visit to Bongara

Meeting with villagers for SCSP

Exposure visits

An exposure visit for 15 officials from APMC, Sullia Tk., Dakshina Kannada Dt., Karnataka was organized at ICAR-CPCRI, Regional Station, Vittal on 6 September 2020.

Crop based advisory on cocoa and arecanut seasonal operations were given through 439 SMS and 10 WhatsApp messages to 391 farmers. Cocoa technical bulletins given to 37 farmers and cocoa seedlings supplied to 16 ha.

FLD plot visits and demonstration of pruning in cocoa

Radio talks/TV programme broadcast

Radio talks

Dr. P. Anithakumari, Principal Scientist delivered a radio talk on 'Farmer FIRST Programme- Innovations in integration' by Akashavani, Kochi on 05.09.2020

Dr. A. Joseph Rajkumar, Principal Scientist delivered a radio talk on 'Integrated Management of rhinoceros beetle and red palm weevil infesting coconut' (Broadcast on 22.09.2020 during the Vayalum Veedum) by AIR, Thiruvananthapuram.

A programme on 'Vegetables and fruits which provide us immunity' was broadcast on Radio Mango, Kannur on 9th September 2020 with Smt. Jissy George, SMS (HS) as a resource person.

TV programmes

Dr. Anok Uchoi, Scientist and Dr. L. S. Singh, Scientist delivered television talk on Arecanut based high density multispecies cropping system, the perspective of coconut cultivation and scope of cocoa cultivation in Assam. The programme was telecast in DD Kisan channel on 2 September, 2020 under the programme titled 'Bhadte Kadam, Episode - 04'.

ICAR-Krishi Vigyan Kendra, Alappuzha

Poshan Abhiyan programme

Poshan Abhiyan campaign was organized on 17th September, 2020 on the occasion of the 70th birthday of the Hon. Prime Minister Sri. Narendra Modi at Thekkekkara Grama Panchayath meeting hall. Sri. R. Unnikrishnan, Chairman, Welfare Standing Committee inaugurated the programme and handed over the vegetable seed packets to the Anganwadi teachers. Dr. P. Muralidharan, Head, KVK explained the importance of establishing Nutrigardens at each homestead especially in the present circumstances of COVID-19. Smt. Jissy George and Sri. M.S. Rajeev, SMSs of the KVK explained about the Nutrigardens demonstrations and how to establish the Nutrigardens in Anganwadi's and homesteads, respectively. Teachers representing 40 Anganwadi's and farm women from Thekkekkara and Chettikulangara panchayaths attended the programme. Seed packets received from IFFCO and distributed by the KVK to the participants.

Distribution of Onam kits to shareholders of FPO

Shareholders of Onattukara Spices Farmer producer Company Limited (OSFPCL), promoted by ICAR-KVK-Alappuzha were provided vegetable kits on the occasion of Onam, the state festival of Kerala, with the support from NABARD. The kit distribution was inaugurated by Smt. Rajini Jaydev, Block Panchayath President, Bharanikkavu and Managing Director, OSFPCL. Dr. P. Muralidharan, Head and Sri M.S. Rajeev, Smt. Jissy George, SMSs of KVK-Alappuzha were present on the occasion. OSFPC director board members and selected shareholder farmers attended the function following the COVID precautions.

Distribution of seeds as a part of Poshan Abhiyan

Training on nutrigardens at Thekkekara, Alappuzha, Kerala

Training programmes

During the period organized 17 training programmes benefitting a total number of 303 farmers/rural youths. The details of the training programmes were as follows:

Training Programmes	Nos.	Participants		
		Men	Women	Total
On campus (online)	14	171	104	275
Off campus	3	21	7	28
Total	17	192	111	303

COMMERCIALIZATION OF TECHNOLOGY

During the period from July to September, 2020, six technologies were commercialised by the Institute to different entrepreneurs through MoA as per the details given below, an amount of Rs. 1.80 lakhs have been collected as technology transfer fees.

Dr. K. Muralidharan, Director (I/c), ICAR-CPCRI handing over MOA

Sl. No.	Name of Technology Commercialized	Date of Signing MOU	Value (In INR)	Licensee
1	Collection of fresh and hygienic Kalparasa and production of Kalparasa based value added products	23-07-2020	100000	Mr. J. Harikishan, Asst. Secretary (Hqrs), Office of Commissioner, on behalf of Prohibition & Excise Department, Govt. of Telangana, Nampally, Hyderabad 500001
2	Kalpa Vardhini	23-07-2020	10000	M/s Odanadu Farmer Producer Company Ltd., Alappuzha, Kerala
3	Aqua formulation of Kalpa EPN (CPCRI- SC1) and technology	27-07-2020	5000	Mr. Sandeep Bhat, Kanchigadde village, Sirsi Taluk, Uttarakannada District of Karnataka
		30-09-2020	5000	Mr. Manjunatha K.S., Hadonahalli village, Shivamoga Taluk, Karnataka District 577216.
4	Matured coconut water based value added products	14-08-2020	15000	M/s JK farms, Bela village, Nirchal post, PIN - 671321, Kasaragod Dist.
5	Coconut Chips	15-09-2020	25000	Mrs. Kavitha Pandiyammal B, Telungupalayam Pudur, Coimbatore 641039, Tamil Nadu
6	Kalpa Organic Gold (coconut leaf vermicomposting)	30-09-2020	20000	Mr. M.T. Pradeep Kumar, Deepthi Eco Store, J T Road, Vadakara, Kozhikode 673101, Kerala
	Total		1,80,000	

NEW PROJECTS

A new project was sanctioned, entitled “Establishment of FLDs on arecanut root diseases management using mandipropamid fungicide” under the leadership of Dr. V.H. Prathibha. The project has Rs. 3.99 lakhs funding from DASD, Kozhikode. This will be under operation for three years.

Another Farm Sector Promotion Fund (FSPF) of NABARD sponsored project on 'Value chain in Turmeric' has been implemented in 10 panchayaths of Mavelikkara and Chengannur Blocks by KVK, Alapuzha.

SUCCESS STORY

Vermicomposting of coconut biomass Good Agricultural Practice for livestock units

Vermicomposting technology using coconut biomass developed by ICAR-CPCRI was adopted as a bioenterprise in the Farmer FIRST Programme (FFP) Panchayath by Sri. Gopalakrishnan, Kottanattu Banglow of Pathiyoor Panchayath. Two vermi composting tanks of 8 X 1 x 0.75 m dimensions were constructed in 2018 as per the advisories of CPCRI scientists. Adoption of this technology enabled hygienic surroundings in the farm along with the value addition of cow dung. He is producing 5 tonnes of vermicompost per year, which is packed and labeled as 'Kottanattu Farm Vermicompost' being sold @ Rs.25 per kg. Cow dung is also value added and marketed as 'shade dried cow dung' at Rs.15 per kg to a total quantity of 1 ton/year. The rest of the cow dung is utilized for biogas production. The farmer opined that "Vermicomposting technology of ICAR-CPCRI by using bio waste from coconut garden is a very valuable and easy to adopt technology for small and marginal farmers especially with livestock components". There is huge demand for the vermicompost especially for urban and semi urban areas for terrace and ornamental gardening. Mr. Gopalakrishnan has converted his farm to a farm school and more than 1000 farmers from various districts visit his farm and acquire knowledge on vermicompost, which is as a very important component of farming system. The farmer has acknowledged the motivation and support received from ICAR-CPCRI, Kasaragod and Kayamkulam.

Anithakumari, P.

Participatory quality planting material production in coconut

A total of 4500 coconut seedlings including 1250-WCT, 1650-Hybrids and 1600-Dwarf Segregants were handed over to Deputy Director of Agriculture (YP), Alappuzha for distribution among farmers in 36 Krishi Bhavan under nine blocks of Alappuzha District. These seedlings were produced under the project 'Production of coconut seedlings with high yield potential' funded by Alappuzha District Panchayath with an outlay of Rs. 20 lakhs.

A total of 13,500 coconut seedlings (5000-Dwarfs, 3500-WCT, 2400-Hybrids and 2600-Dwarf segregants) produced were handed over in three instalments. The objective of the project was the production of quality planting materials of coconut in a decentralized manner. The organizations involved in decentralized coconut seedling production were Peringala Coconut Producers Society, Agro Service Center-Muthukulam, Samrudhi Nalikera Ulpadaka Samithi-Chingoli, Samabhavana Samskari Vedi-Harippad and Punnapra Ksheerolpadaka Sahakarana

Regi J. Thomas, Shareefa, M., Merin Babu and Kalavathi, S.

Innovative Farmer Award for ICAR-CPCRI FFP farmer

As a part of the 45th foundation day of NAARM, Hyderabad, 11 innovative farmers were felicitated from each ATARI Zones. Shri Gopalakrishna Pillai, Kottinaattu Bungalow, Pathiyoor was selected from Zone XI. He is a practitioner of livestock-based IFS system in 1 ha area. The farmer could increase his income 3-fold, compared to pre-Farmer FIRST project (FFP) interventions by ICAR-CPCRI, RS, Kayamkulam through various innovations, technology adoption, value addition and marketing strategies. FFP interventions included the introduction of cow mat in cattle shed which reduced laming, foot and mouth disease, drudgery reduction in cleaning and protection of animals from the summer heat and value addition of milk into curd and buttermilk earned 10-12 % additional income. The direct marketing of milk without any adulteration and under good agricultural practices fetched 36.84% additional price per litre of milk. Maintaining hygiene and disposal of cow dung and cow urine on the farm with 47 milch animals was a challenge. The FFP process of farm planning enabled him to intensify green fodder cultivation, hydroponics, 2 units of vermicomposting and shade drying of cow dung. The IFS module interventions system is an organic model, comprising of organic vegetable cultivation, pond fisheries, biogas plant and supporting organic farmers through production supply of vermicompost, bioagent enriched compost and liquid fertilizers. The organic residues and farm waste are effectively recycled for additional income. The farmer runs the unit with the active support and involvement of the family and provides regular employment to four labourers and he is also the founder-director board member of the Odanadu Farmer Producer Company with NABARD support and ICAR CPCRI as the Producer Organization Promoting Institution (POPI).

Anithakumari, P.

Mera Gaon - Mera Gaurav

Under new normal COVID-19 condition, online discussion meeting and virtual delivery of technological advancement benefiting MGMG farmers were undertaken in Koppareth and Velanchira villages by Scientists. Coconut seedlings developed under the Kera Nanma MGMG programme were distributed to farmers in Bharanikavu, Chunakara and Vallikunnam Panchayat. These villages are thus becoming self-reliant and self-sustainable in meeting the demand for quality planting materials under this Block Panchayat sponsored programme. A replicable success story fostering farmer-centric decentralized coconut seedling production programme.

Drs. Chandrika Mohan, A. Abdul Haris and K.Nihad conducted online training 'Coconut based integrated farming system' for MGMG farmers of Velanchira and Koppareth villages of Kandalloor Panchayath on 29 September, 2020.

Online training on AMF mass multiplication to three women groups of MGMG village was jointly organized by ICAR-CPCRI, RS, Kayamkulam and Dept. of Microbiology, College of Agriculture, Vellayani on 24.08.2020. Dr. K.S. Meenakumari, Professor & Head, Dept. of Microbiology handled the session on AMF mass multiplication through a video demonstration of pot culture method of AMF multiplication in sorghum for the benefit of participants.

Under MGMG, agricultural issues faced by the farmers of the three adopted villages (-namely Pradhanpara, Southmatiali and Kudipara) were solved over virtual/online mode/ phone calls/ SMS.

CELEBRATIONS

Independence Day

The Institute has celebrated 74th Independence Day of our nation. Dr. Anitha Karun, Director (Acting), hoisted the National Flag and delivered Independence Day address at Kasaragod on 15 August, 2020. Independence Day was also celebrated in the Regional Stations at Kayamkulam, Vittal and Research Centres at Kahikuchi, Kidu and Mohitnagar with patriotic furore.

Hindi Day

Hindi Saptah was celebrated from 14 to 17 September, 2020 at KVK, Alappuzha with a spectrum of activities starting with Hindi Diwas celebrations on 14 September, 2020. Dr. P. Muralidharan, PS and Head, KVK gave the inaugural address. He emphasized the importance of Hindi in day to day life and appealed all KVK staff to increase the use of National language in official correspondence. Different competitions on use of Hindi like memory test, reading, translation, handwriting etc. were arranged for the staff and all the staff members actively participated in these contests. Winners were awarded prizes, items which were specifically required to prevent Covid-19, in the valedictory function on 17 September, 2020.

Officials and staffs of ICAR-CPCRI RC Kahikuchi celebrated Hindi week from 14th to 19th September, 2020 at the centre. The competition was held during the week and Shri. Badari Yadav, Research Officer, Regional Implementation Office (North-East), Department of Official Language, Govt. of India, graced the occasion through online on 17th September, 2020.

Participation in National Conferences/Seminars/ Symposia/Workshops/Webinars

During the period, 42 officials have paricipated in various programmes conducted online. These include, thirty six scientific and six technical staff participated in 91 programmes.Details of the above are given seperately in tabular format.

Details overleaf.

Participation in national seminars/symposia/conferences/workshops/webinars

Name and designation	Programme	Place & Date
Dr. L. S. Singh	'International web conference on Climate Smart Agriculture for sustainable food and nutritional security'	Beni Singh College Chenari, Rohtas, Bihar and Society for Upliftment of Rural Economy, Varanasi, UP 10-11 July, 2020
Dr. L. S. Singh	'International webinar on environment in 2020: vision and Mission' organized in collaboration with Faculty of Science, Lincoln University College, Malaysia.	NSS Unit, Bidhan Chandra Krishi Viswa Vidyalaya, Mohanpur, Nadia, West Bengal 12 July, 2020
Dr. P. Muralidharan	Annual Review Meeting of KVKs of Zone XI (online)	ATARI, Bengaluru 14 15 July, 2020
Dr. P. Anithakumari, Principal Scientist	Webinar on 'Programme on accounting, reporting and compliance for FPOs'	Banking Institute of Rural Development (BIRD) and NABARD 15-16 July 2020
Dr. K. Sajnanath	Webinar on "Protected cultivation: Promising technology to boost crop production during pandemic period	CWRDM, Kozhikode 17 July, 2020
Dr. P. Anithakumari, Principal Scientist	Virtual Dialogue webinar 'Online methodologies and training for gender equality	UN Women Centre 22 July, 2020
Smt. Jissy George	Webinar on "Prospects of Agro-Processing"	Kerala Start Up Mission 22 July, 2020
Dr. S. Kalavathi, Acting Head	Sensitization workshop on Standardized Scheme Process	IASRI, New Delhi 23 July 2020
Dr. A. Abdul Haris, Principal Scientist	Webinar on 'Precision Farming in Banana"	ICAR-NRC on Banana 25 July, 2020
Dr. Nagaraja, N. R., Scientist	Attended online Annual Review Meeting of the MIDH (Mission for Integrated Development of Horticulture)/ NHM (National Horticulture Mission) programmes implemented through DASD	DASD, Calicut 28 - 29 July 2020
Dr. Anok Uchoi and Dr. L. S. Singh Scientists	'International webinar on urban and peri-urban agriculture for livelihood'	Dr. Ram Avatar Shiksha Samiti and ICAR-CAZRI, RRS, Pali, Marwad, Rajasthan 29 - 30 July, 2020.
Dr Chandrika Mohan and Dr. A. Joseph Rajkumar, Principal Scientists	Online meet on Evolving Protocol for Whitefly management in coconut	CDB, Kochi, 3 August, 2020
Dr. A. Joseph Rajkumar, Principal Scientist	Online discourse on Integrated Management of Insect Pests & Nematodes in Banana	ICAR-NRCB, Tiruchirapalli, 4 August, 2020
Dr. T. Sivakumar, SMS	Webinar on "Integrated pests and nematode management in banana"	ICAR-NRCB, Trichy 4 August, 2020
Dr. Regi Jacob Thomas Principal Scientist	Coconut varieties suitable for Kerala's agro-ecological zones and management of young coconut palms FB Live 'Krishi Pathasala'	SAMETHI, Thiruvananthapuram 5 August, 2020
Dr. R. Thava Prakasa Pandian and Dr. Shivaji Hausrao Thube, Scientists	International Web Conference on 'Ensuring the Food Safety, Security and Sustainability through Crop Protection'	BAU, Bihar 5 - 6 August, 2020
Dr Chandrika Mohan, Principal Scientist	International web conference on 'Ensuring food safety, security and sustainability through crop protection'	Bihar Agricultural University, Sabour 5-6 August, 2020
Shri M.S. Rajeev, SMS	Webinar on "Planting material in banana: Present and next generation technologies"	ICAR-NRCB, Thiruchirappilly 7 August, 2020
Dr. Shameena Beegum, P.P, Scientist	Online Workshop on "Application of Statistics in Science and Technology using SPSS"	World Food Preservation Center, USA 08-10 August, 2020
Dr. A. Abdul Haris, Principal Scientist and Dr. K.Nihad, Scientist	Coconut Webinar Series No.2	ICAR-CPCRI, RS, Kayamkulam 10 August, 2020

Name and designation	Programme	Place & Date
Dr. S. Kalavathi Dr Chandrika Mohan, Dr. A. Joseph Rajkumar, Principal Scientists	Online Workshop on the AICRP (Palms) Annual Group Meeting	ICAR-CPCRI, Kasaragod 10-11 August, 2020
Dr. S. Kalavathi, Dr. Chandrika Mohan, Dr. A. Joseph Rajkumar, Principal Scientists Dr. Anes K.M., Scientist	Orientation to training Pest Management in coconut Invasive pests on coconut and ecological engineering Nematodes: the hidden enemies	Mavelikkara 11 August, 2020
Dr. Murali Gopal, Principal Scientist and Dr. Sandip Shil, Scientist	Webinar on Bioinformatics Analysis on Soil Microbial Community Sequence Data	ICAR- IARI, New Delhi 12 - 13 August, 2020
Dr. K. Sajnanath, SMS	Webinar on “Advances in Rice research for food security and environmental sustainability”	TNAU, Aduthurai Campus 13 August, 2020
Dr. Priya, U.K., Scientist	National webinar on 'nature extent and management of problematic soils for sustainable agriculture’	RVSKV, Gwalior 13 August 2020
Dr. Thamban, C., Principal Scientist	Webinar on 'Building farm resilience during COVID-19 pandemic'	Purogamana Kala Sahithya Sangham 17 August, 2020
Dr. Anes K.M., Scientist	Endowment lecture on Advances in Nematode Management	TNAU, Coimbatore 17 August, 2020
Shri. M.S. Rajeev, Dr. T. Sivakumar, Smt.G. Lekha, Dr. K. Sajnanath, SMSs	Online workshop on “ABC of Scientific writing”	KVK-Cuttack & ICAR-NRRI, Cuttack 18 August to 2 September, 2020
Dr. Shivaji Hausrao Thube and Dr. R. Thava Prakasa Pandian Scientist	'CRISPR/ Cas9: Basics and application'	ICAR-IISR, Calicut 19 August 2020
Sri. M.S. Rajeev, SMS	E-learning programme on “Strengthening of FPOs- Linking with e NAM, Commodity exchanges, Opportunities and Challenges”	BIRDS (NABARD), Mangaluru 18 - 20 August, 2020
Dr. P. Anithakumari, Principal Scientist	'Practical tips in coconut management by small and marginal farmers'	RATTC, Kazhakoottam 23 August, 2020
Dr. M. Shareefa Senior Scientist	Coconut varieties and its scientific management 'Krishi Padasala' by Farmers Training Centre	Pandalam 24 August, 2020
Dr. A. Abdul Haris, Principal Scientist, Dr. K.Nihad and Dr. Jeena Mathew, Scientists	Coconut Webinar Series	ICAR-CPCRI, RS, Kayamkulam 24 August, 2020
Dr. Alka Gupta,	Webinar on "Agriculture and the Microbiome"	Council for Agricultural Science &Technology (CAST), IOWA, USA 25 August, 2020
Dr. S. Kalavathi, Dr. Chandrika Mohan, Dr. A. Joseph Rajkumar, Principal Scientists and Dr. Anes K.M. , Scientist	Orientation to training IPM in Coconut Incursion management of invasive pests and Ecological Engineering - Nematodes: the friend & enemy	Cherthala 25 August, 2020
Dr. A. Joseph Rajkumar Principal Scientist	Virtual workshop on Mitigation and Adaptation Strategies for Alleviating Impact of Climate Change on Food Security	BSNVPG, College Lucknow 25 August, 2020
Dr. P. Muralidharan Principal Scientist	Governing Body meeting of ATMA, Alappuzha chaired by the District Collector (Online)	ATMA, Alappuzha 25 August, 2020
Dr. Anok Uchoi and Dr. L. S. Singh Scientists	'International webinar on Horticulture Industry under Covid-19 Pandemic'	Assam Agricultural University, Jorhat 27 -28 August, 2020
Mr Hareesh G.S., Technical Officer	Webinar on IoT Security (WISE)	ISEA, CDAC, Hyderabad 28-29 August, 2020
Dr. T. Sivakumar SMS	Webinar on “Plant biosecurity strategies for sustainable plant health: protect domestic plant health, promote exports”	NIPHM, Hyderabad 29 August, 2020

Name and designation	Programme	Place & Date
Dr. A. Josephrajkumar, Principal Scientist	Pest and disease management	Karshakashree 1 September, 2020
Dr. Thamban, C., Principal Scientist	Webinar on 'Enhancing productivity and income from coconut farming' on World Coconut Day	Karshakasree (Farm journal) 2 September, 2020
Dr. Anitha Karun, Director (Acting), Dr. Jayasekhar, Senior Scientist Dr. Nagaraja, N.R., Dr. Chaithra, M., Dr. Shivaji Hausrao Thube, Dr. Priya, U.K., Dr. R. Thava Prakasa Pandian, Scientists	Webinar on the theme "Invest in coconut to save the world"	CDB, Kochi 2 September, 2020
Dr. R. Thava Prakasa Pandian, Scientist	'Coconut for nourishing mankind and nurturing ecology'.	2 September, 2020
Dr. V. Niral, Principal Scientist	Virtual webinar on "Application of Rapid breeding techniques in plantation crops"	ICAR-IIOPR 2 September, 2020
Dr. Shivaji Hausrao Thube and Dr. R. Thava Prakasa Pandian, Scientists	'Plant Health Management for Sustainable Agriculture'.	4 September, 2020
Dr. P. Anithakumari, Pr. Scientist	'The wonder world of coconut'	Agri -Horti Society, Alappuzha 5 September, 2020
Dr. R. Thava Prakasa Pandian, Dr. Shivaji Hausrao Thube, Scientists	Teachers day lecture on 'Future Perspectives in Agricultural Education' delivered by Dr. T. Mohapatra, DG ICAR, New Delhi.	5 September, 2020
Dr. Chaithra, M.	Training/ Webinar on cocoa production and processing technology.	5 September, 2020
Dr. A. Joseph Rajkumar Principal Scientist, Dr. Shivaji Hausrao Thube, Dr., R. Thava Prakasa Pandian Scientist	'Advances in Red Palm Weevil research and Management'	8 September, 2020
Dr. A. Abdul Haris Dr. K. Nihad	Webinar and Report Release: Organic and Natural Farming in India	Centre for Science and Environment 8 September, 2020
Dr. Chandrika Mohan, Principal Scientist, R. Thava Prakash Pandian and Shivaji Hausrao Thube, Scientists,	Advances in red palm weevil research and management	Don Bosco College of Agriculture, Goa 8 September, 2020
Dr. Vinayaka Hegde, AHD, Crop Production and Dr. Rajkumar, Scientist (Nematology)	Webinar on “Drone remote sensing in agriculture”	Indian Society of Agrophysics, IARI, New Delhi 9 September, 2020
Dr. Vinayaka Hegde, AHD, Crop Production	Meeting on international research programme on comparative mycoplasmaology (IRPCM) plant and arthropod mycoplasma (PAM) team on phytoplasma diseases.	IRPCM 9 September, 2020
Dr. A. Joseph Rajkumar, Dr. A. Abdul Haris, Principal Scientists Dr. K.Nihad and Dr. K.M. Anes, Scientists	Virtual International workshop on Drone Remote Sensing in Agriculture	Division of Agro-physics, ICAR-IARI, New Delhi 9 September, 2020
Dr. A. Joseph Rajkumar, Principal Scientist Dr. Merin Babu Scientist	Online International Research Programme on Comparative Mycoplasmology (IRPCM)-Plant and Arthropod Mycoplasma (PAM) meeting	IRPCM 9 September, 2020
Dr. T. Sivakumar, SMS	Webinar on “ Programmes and Policies of Govt. of India and Kerala for Agri-Entrepreneurs”	MSME, Thrissur 9 September, 2020

Name and designation	Programme	Place & Date
Dr. A. Abdul Haris Dr. A. Joseph Rajkumar, Principal Scientists	Online Dr. B.P. Ghildyal memorial lecture delivered by Dr T. Mohapatra, DG, ICAR	Division of Agricultural Physics, IARI, New Delhi 10 September, 2020
Dr. Chaithra, M. Scientist	'Soil survey and Land use planning for realizing sustainable development goals of the united nations'	ICAR-NBSS&LUP, Nagpur 11 September, 2020
Dr. Thamban, C., Principal Scientist	Handled a session on 'Reorganisation of technology transfer programmes and new approaches' in the online training programme for input dealers of Kozhikode district under the DAESI programme	F.T.C., Kozhikode 14 September, 2020
Dr. A. Abdul Haris, Principal Scientist	Coconut production technology 'Enterprise diversification in coconut sector'	ICAR-CPCRI 14 September, 2020
Dr. K. Nihad, Sr. Scientist	Webinar on "Scientific practices for improving coconut production"	KAU 14 September, 2020
Dr. P. Muralidharan, Head, KVK	Annual Review Meeting of DAMUs of Zone XI (online)	ATARI, Bengaluru 15 September, 2020
Dr. C. T. Jose, Head I/C Regional Station, Vittal	Birth Centenary symposium on contributions of Prof. C. R. Rao in Statistics	ICAR- IASRI, New Delhi 15 September, 2020
Dr. A. Joseph Rajkumar, Principal Scientist	Webinar on 'Ozone for Life-35 years of Ozone layer protection'	KSCSTE 16 September, 2020
Dr. R. Thava Prakasa Pandian, Scientist	'Advances in Plant Pathology with special reference to diagnosis and management'	Dr. YSRHU, Andhra Pradesh 16 September, 2020
Dr. S. Kalavathi and Dr. Chandrika Mohan Principal Scientists	Inaugural function of 'Kalpa Graduate Readiness' program	ICAR-CPCRI, Kasaragod, 17 September 2020
Dr. Regi J. Thomas Dr. A. Joseph Rajkumar Principal Scientists Dr. M. Shareefa, Sr. Scientist	Webinar on 'Seedling production of dwarf coconut varieties' for officials from Agriculture Department (Alappuzha)	17 September, 2020
Dr. K. Nihad, Scientist	Coconut based cropping systems	KAU 18 September, 2020
Dr. Anok Uchoi and Dr. L. S. Singh, Scientists	'International Symposium (online) on Food security and the stand of civilization: Agri-Hort-Livestock dynamics in changing global Ecology'	BCKV, Kalyani 20 - 21 September, 2020
Dr. R. Thava Prakasa Pandian and Dr. Shivaji Hausrao Thube, Scientists	'Management of Biotic and abiotic stresses in protected Agriculture'	CSKHPKV, Palampur 22 - 24 September, 2020
Dr. Ramesh S.V., Scientist	Attended the National Oilseed Brainstorming Meet	ICAR-IISR, Indore 24 September, 2020
Dr. Alka Gupta, Principal Scientist	Workshop/Web meeting on "Commercialization of microbe based technologies"	NBAIM 23 September, 2020
Dr. Ramesh S.V., Scientist	Two day " Oilseed Brainstorming Meet " on research, industry and developmental challenges	ICAR - IISR, Indore 23 - 25 September, 2020
Dr. S. Kalavathi and Dr. Chandrika Mohan, Principal Scientist Dr. Merin Babu, Scientist	Webinar on Advances in Coconut Health Management	ADA-Idukki 24 September, 2020
Dr. A. Abdul Haris, Principal Scientist	Scientific management practices in coconut cultivation to enhance productivity	CPCRI, RS, Kayamkulam 24 September, 2020
Dr. S. Elain Apshara, Principal Scientist, Dr. Priya, U.K. And Dr. Chaithra, M., Scientists	Farm Bills 2020: Understanding the Implications	ICAR-IARI 26 September, 2020
Dr. P. Muralidharan, Head, KVK and Shri. M.S. Rajeev, SMS	Meeting of the "District Monitoring Committee (D-MC) of FPOs" (Online)	NABARD, Alappuzha 26 September, 2020

Name and designation	Programme	Place & Date
Dr. S. Indhuja, Scientist	'Sasyangalude Poshaka labhyathakku Mithrasookshmaanukkal' Webinar Series 'Krishiyum Sookshmaanukkalum'	Dept. of Microbiology, KAU, College of Agriculture Vellayani 25 September, 2020
Dr. A. Abdul Haris, Principal Scientist	Scientific management in coconut for improving productivity Online training by Kerala (Krishi Padashala-26) as FB live programme	SAMETI, 28 September, 2020
Dr. K. Sajnanath, SMS	2nd National (web) Conference on "Advances in Sustainable Agriculture"	Society of Krishi Vigyan, Kolkata 26 - 28 September, 2020
Dr. Ramesh S.V., Scientist	International Webinar on Phytochemistry-2020	University of Kerala, Thiruvananthapuram 28-29 September, 2020
Dr. Chandrika Mohan, Principal Scientist	Pest Management in Coconut Online Face book live webinar for Krishi padasala	SAMETI 29 September, 2020
Dr. K.Nihad, Scientist	Commercial floriculture in coconut gardens FB live; (Krishi Padashala-38)	RATTC, Kazhakkoottam 30 September, 2020
Dr. S. Ravi, SMS	International e-workshop on "Reproductive diagnostic techniques for bovine infertility"	TANUVAS, Chennai 29 - 30 September, 2020

OTHER INFORMATION

Reconstitution of Institutional Biosafety Committee (IBSC)

Department of Biotechnology (DBT)-Review Committee on Genetic Manipulation (RCGM) has reconstituted the Institutional Biosafety Committee (IBSC) at ICAR-CPCRI on Aug. 4th, 2020. The reconstituted committee comprises the following members: Dr. Anitha Karun, Director, ICAR-CPCRI (Chairman), Dr. A. Ishwara Bhat, ICAR Indian Institute of Spices Research, Kozhikode (DBT Nominee) and Dr. Rajendra Pilankatta, Central University of Kerala, Periya, Kasaragod, Kerala (Outside Expert).

Sanitization of ICAR-CPCRI, Regional Station, Kayamkulam office premises

Based on the instructions from District Administration and to comply with COVID-19 protocol, sanitization drive was conducted routinely at ICAR-CPCRI, Regional Station, Kayamkulam. General sanitization using bleach solution was done on 9th July, 31st July and 2nd August 2020 employing farm labourers. Besides, fume sanitization of Office premises, laboratory buildings, Auditorium, Canteen, Farm Office, Krishi Vigyan Kendra, vehicle garage and vehicles was done on 8th September, 9th September & 24th September 2020 by engaging Santhwanam Cultural and Charitable Trust, Krishnapuram.

Sale of coconut seedlings for Kerala Coconut Development Council programme

A total of 10,600 coconut seedlings including 10,000 dwarfs and 600 hybrids were handed over to Deputy Director of Agriculture (YP), Alappuzha for distribution among farmers in 40 Krishi Bhavans of Alappuzha District under Coconut Development Council Programme.

OTHER INFORMATION

Implementation of e-office in ICAR-CPCRI

Inauguration of e-office system in ICAR-CPCRI was done by Dr. Anitha Karun, Director (Acting) on 4th July 2020, by Approval of a circular on implementation of e-office in ICAR-CPCRI. Subsequently, different demonstration cum training programmes were arranged from 6th to 10th July 2020. Dr. K. Muralidharan, Acting Head (Div. of Social Science), Dr. S. Jayasekhar, Sr. Scientist (Ag. Economics), Dr. Neema M., Scientist (SPM&AP), Shri Hareesh G.S., Technical Officer (Instrumentation Engineering) and Shri Arunji G. Technical Asst. (Library) have trained the staff.

Inauguration of e-Office by Director at Kasaragod

PERSONALIA

APPOINTMENTS

Name	Designation	Place	w.e.f.
Shri. Tanka Bahadur Thapa	Skilled Supporting Staff	ICAR-CPCRI, Reasearch Centre, Kahikuchi	20.07.2020

PROMOTIONS

Name of the staff	From (Designation)	To (Designation)	w.e.f.
Shri S.Thajuddin	ACTO	CTO	01.07.2017
Smt Jayashree K	UDC	Assistant	07.08.2020
Smt Preethi K	UDC	Assistant	30.07.2020
Shri Paulson Sam George	UDC	Assistant	30.07.2020

TRANSFERS

Name of the staff	From (Place)	To (Place)	w.e.f.
Dr Ajeet Singh, Scientist (Biochemistry)	ICAR-CPCRI, Kasaragod	ICAR-IARI, New Delhi	10.08.2020
Mrs Jesmi Vijayan, Sr. Tech. Asst.	ICAR-CPCRI, Kasaragod	ICAR-IARI, Regional Station, Indore	03-07-2020

OBITUARY

Dr. Senthil Amudhan, M., Senior Scientist (Biochemistry) of ICAR- CPCRI, Regional Station, Vittal, Karnataka breathed his last on 24.07.2020. He joined the ARS service on 05.11.1998. Director and staff of ICAR- CPCRI pray the Almighty for the peace and tranquility to the departed soul.

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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@gmail.com, cpcrinews@gmail.com
Website: www.cpcri.gov.in; Facebook: cpcrikasaragod.kerala

Cover Photo: A bunch from Chowghat Orange Dwarf coconut palm