KALPA

CPCRI Newsletter

Volume 36 No. 4 October – December, 2017

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

From The Director's Desk

Value Addition to Coconut

Widely acclaimed as Kalpavriksha, coconut provides food security and livelihood opportunities to 20 million people around the globe and 10 million people in India. Even though India is the largest coconut growing country in the world, its contribution to the export market is not significant.

At present, only 8% of coconut produced in the country is used for producing value added products other than copra and coconut oil. This situation can be transformed only when coconut based edible and non-edible products get priority over coconut oil. As compared to the tardy growth recorded by the country in the processing sector, most of the coconut growing countries like the Phillipines, Thailand, Indonesia and Sri Lanka have been making profit from the production and exports of diverse coconut products. Exploiting the potential by enabling production of value added products will help to get the farmers sustainable income. Processing and related activities can mitigate the seasonal price variation and generate income and employment opportunities for over two million peoples in the country. Coconut as an edible oil and food crop, is now slowly transforming into raw material for various pharmaceutical, nutraceutical and cosmetic products. Coconut is rich in fiber, vitamins, and minerals. Because of its health benefits beyond its nutritional content, it has been considered as "functional food". Hence, there exists a huge scope for coconut based agri-business in India, which will increase the present 8% level of value addition to 25%.

The potential list of coconut based value added products include desiccated coconut powder, coconut milk, coconut cream, coconut milk powder, coconut flour, coconut curd / yoghurt, coconut water concentrate, coconut jelly (Nata-de-coco), coconut vinegar, snow ball tender nut, virgin coconut oil, coconut chips, coconut pickle, coconut protein powder, coconut jam, coconut ice cream, neera and neera based value added products such as syrup, squash, honey, jaggery, candy and sugar. In an effort towards value addition, ICAR-CPCRI has developed complete turn-key process for the production of virgin coconut oil (hot and fermentation process), coconut chips, Kalpa Krunch (VCO cake based extrudates), frozen coconut delicacy (vegan ice cream), tender and mature coconut water based jelly, squash and vinegar, and neera based value added products like packaged neera, honey, jaggery, sugar and chocolate items.

Around 16 potential technologies from ICAR-CPCRI, have been licensed to two hundred entrepreneurs. The revenue realized from technology transfer of hot process VCO, fermentation process VCO and coconut chips is Rs.13,70,000, Rs.8,12,500 and Rs.47,35,800 respectively. In Kalparasa, it has been demonstrated that a farmer tapping 15 coconut palms could earn on an average Rs. 45,000 per month, while a tapper can earn about Rs. 20,000 per month. Thus, coconut value addition based ventures can contribute to increase in the income and livelihood of the stakeholders, in general.

CONTENTS

SPECTRUM

Vivipary in arecanut

Rare arecanut tree among South Kanara Local population was identified from the garden of Shri Gopalakrishna Hebbar, Karkala Taluk, Udupi district, Karnataka. This tree started flowering 15 years after planting and seedlings were produced in the inflorescences, while on the tree itself. It was having four bunches and in a single bunch, 86 seedlings of different lengths could be observed. It was noticed that there were two types of nuts, elongated nuts and smaller oval nuts. After removing the calyx and observing under the microscope, elongated type of nuts showed inflorescence like structure inside and others showed small haustorium like structure inside the nuts.

Rare viviparous arecanut tree

Seedlings of different lengths obtained from a bunch of the arecanut tree

Two types of nuts after removing calyx

Small haustorium like structure inside the small nuts

Nagaraja N.R.

Colletotrichum siamense causing arecanut leaf blight disease in Tripura

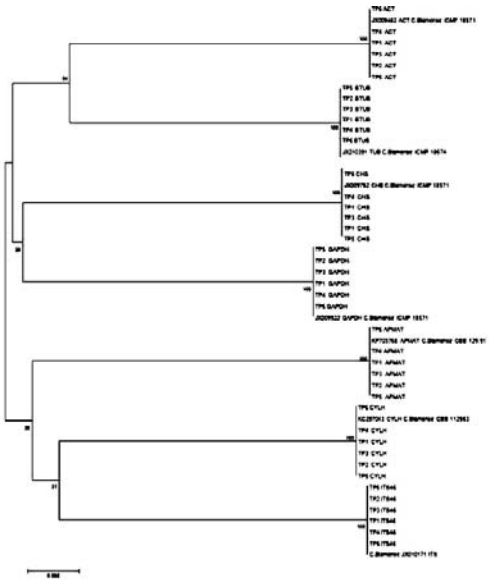
Severe incidence of leaf blight disease was reported in areca plantations of Jampui Hills bordering Mizoram in Tripura, in the North-East India. The typical symptoms of the disease in the outermost whorls of the palm fronds, such as small brown spots with yellow halos, which gradually enlarges. The centre of the spots turns dark brown in the later stage and turns necrotic. Subsequently, spots enlarge, coalesce, causing blight, and in advanced stage, whole frond dries up. Due to heavy wind, the necrotic regions get blown off and give a broom like appearance of the leaves.

A total of six *Colletotrichum* isolates (TP1 toTP6) were identified from the leaf blight samples

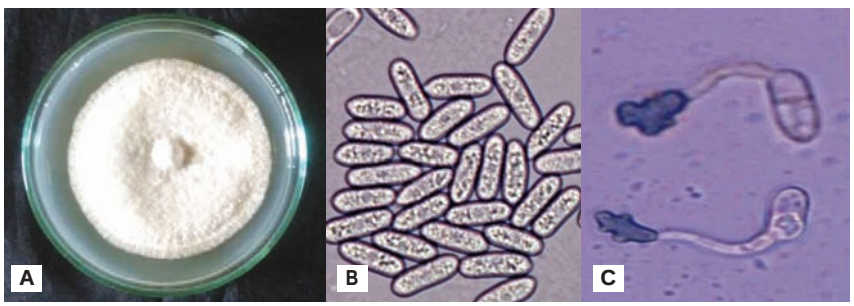
Symptoms of leaf blight disease in areca palm leaves

from the above region. These isolates were characterized by utilizing morphological and phylogenetic characters of multi-locus sequences of seven genes *viz., ITS, ACT, CHS-1, GAPDH, βTub, HIS3* and *ApMat*. Combined analysis of sequence and morphological data revealed that all the *six Colletotrichum* isolates associated with leaf blight disease as *C. siamense*. This is the first record of *C. siamense* causing leaf blight disease in arecanut.

The disease can be managed by giving two sprays of 1% Bordeaux mixture or a systemic plus contact combi-fungicide viz. carbendazim 12% + mancozeb 63% WP @ 2.5 g per litre of water at 35 to 40 days interval to all the leaves in the crown. It is recommended to cut, remove and burn the two or three severely infected lower leaves to reduce the inoculum. Irrigation (about 175 to 200 litres of water per palm for every 7 days) to the palms during summer months and recommended doses of fertilizers (100 g N + 40 g P + 140 g K) in two splits 1/3 rd before monsoon in May–June and 2/3rd dose during September–October, results in early recovery and sustainable yield from the affected areca garden.



Phylogenetic tree of *Colletotrichum siamense*



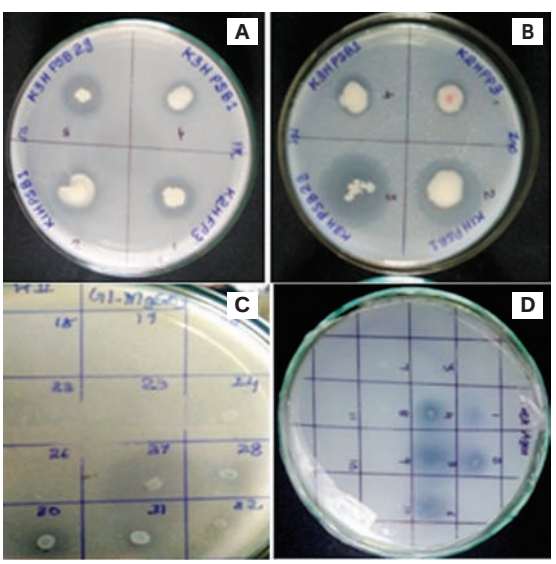
Morphology of *Colletotrichum siamense* culture on PDA (A); Conidia (B) and Appressoria (C)

Prathibha V.H. and Vinayaka Hegde

Mineral nutrients solubilizing rhizobacteria from healthy coconut palms of root (wilt) disease tract

Studies on culture dependent microbial analysis conducted in the rhizosphere soils of healthy and diseased coconut palms, located in the hot spot areas of root (wilt) disease (RWD) in Kottayam and Pathanamthitta districts of Kerala, indicated the dominance of phosphate solubilizers in significant numbers in rhizosphere soils of healthy palms. Around 50% rhizobacterial isolates from healthy palms solubilised tricalcium phosphate (P solubilizers). They were also screened *in vitro* for solubilizing fixed forms of other mineral nutrients such as zinc oxide (for Zn solubilization), magnesium tri silicate (for silicate solubilization) and potassium alumino silicate (for K solubilization). A few isolates like K_1HPSB_1, K_3HPSB_1 K_3HPSB_2, K_3HPSB_3, T_4HFB_9 and T_4HFB_{11} showed phosphorus, zinc, silicate and potassium solubilizing potential. These multipotent isolates are being characterized for developing PGPR consortium for use in RWD affected coconut palms.

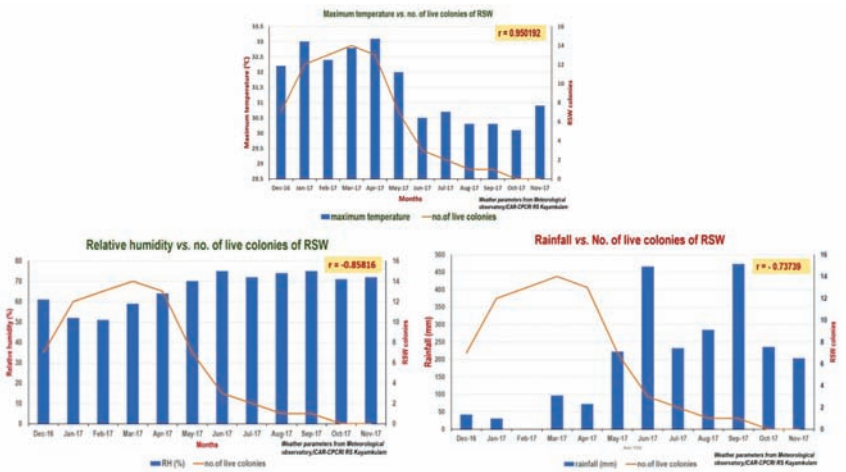
Indhuja S., Alka Gupta and Murali Gopal



Mineral nutrient solubilization by rhizobacterial isolates [(a) P solubilization, (b) Zn solubilization, (c) Silicate solubilization and (d) K solubilization]

Influence of weather factors on rugose spiralling whitefly incidence

Hemipteran insects in general and whiteflies in particular are very sensitive to fluctuations in weather parameters. Gradient outbreak of rugose spiraling whitefly (RSW), *Aleurodicus rugioperculatus* Martin could be linked with weather factors such as maximum temperature, relative humidity and rainfall *vis-à-vis* the infestation potential. The shift in weather pattern reflected as deficit monsoon could be one of the primary reasons of immediate upsurge of RSW in Northern districts of Kerala especially Kannur and Kasaragod. RSW is so sensitive to wet season and heavy rains and the deficit in north-east monsoon during 2017, which triggered a drop in relative humidity in Kasaragod, are the immediate reasons for the flare up. Uniform distribution of rainfall in South Kerala in synergy with high humidity subdued the infestation potential and flare-up of RSW in this region. Based on the weather data from Kayamkulam, a positive correlation with maximum temperature (r = 0.9501) could be associated whereas the relative humidity (r = -0.8581) and rainfall (r = -0.7373) were found to be negatively correlated with the live colonies of RSW. Thus, weather plays a critical role in the establishment and infestation potential of RSW in a particular region.



Influence of weather on rugose spiraling whitefly of coconut

Josephrajkumar, A., Merin Babu, Chandrika Mohan and Krishnakumar, V.

Nylon fishing net – A cost effective insect trap for coconut rhinoceros beetle

Different types of fish nylon net with variable mesh size were tested as an insect proofing mechanism cum trap against rhinoceros beetle during May 2017 - Dec 2017. Generally, the adult beetle damages the palms by boring into the unopened *spindle* leaves and spathes. Unopened spindle along with adjacent leaves was covered with fish nylon net as a mat roll in dwarf palms and seedlings during this study period. At frequent intervals, net was lifted and wrapped again to ensure good cover for the growing palms. Net cover served as physical barrier by protecting the entry points and thereby preventing the adult beetles to feed and cause further damage. Besides, they served as trap by entangling the head as well the whole robust adult beetles while trying to feed the palms. Size of the mesh (0.8 to 1.2 inches) matching with the exact size of beetle's head and body aided in effective trapping. Newly emerged leaves (5 -7 leaves) which are free from rhinoceros damage (V-shaped cut) in the palms indicate its effectiveness. This technique is found as cost-effective, and eco-friendly to keep beetles away from the dwarf palms.

Sujithra, M. and Rajkumar


Rhinoceros damage on seedlings (a.) nylon net with trapped beetles (b. & c.)

Frozen coconut delicacy

Coconut milk can be the best substitute for dairy milk for those in the Asian countries especially in India where coconut is abundant and an integral part of the daily diet. Refined sugar, one of the most important ingredients of ice cream, imparts sweet taste, enhance the flavour, and affect its body and melting behaviour. However, its high calories and Glycemic Index (GI) leading to limitation for consumers concerned with health or suffer from diabetes and obesity. In this context, coconut sugar is a perfect alternative for refined sugar because of its low GI and high vitamins and mineral content. An effort has been made to standardize a technology for a coconut based frozen delicacy. The delicacy is made completely from coconut, with ingredients such as coconut milk, coconut sugar, tender coconut water and pulp. Here the fat content of coconut milk is reduced to 8%. The methodology followed were mixing, pasteurization at 75°C for 15 min, two stage homogenization at 2000 &1000 psi, ageing for an hour at 4°C, freezing using a continuous freezer and hardening at -28°C.

Coconut milk based ice cream

Manikantan, M.R., Shameena Beegum, Pandiselvam, R. and Hebbar, K.B.

Development of coconut milk residue and jackfruit seed enriched biscuits

Coconut milk residue and jackfruit seeds, by-products of coconut and jackfruit, are abundantly available in Kerala. Efforts were made to blend the wheat flour with coconut milk residue and jackfruit seed. The selected variables were levels of coconut milk residue (10 to 40%), jackfruit seed (up to 50%) at different temperatures (180 and 200°C). The physical, sensory and biochemical results showed that 50% wheat flour, 20% coconut milk residue and 30% jackfruit seed flour gave best combination for the preparation of biscuits. Biscuits baked at 180ºC had good colour and appearance at 200ºC. Diameter, thickness and spread ratio of the optimized combination was 5.25 cm, 0.58 cm and 9.13 respectively.

Coconut milk residue and jackfruit seed enriched biscuits

Manikantan, M.R., Shameena Beegum and Pandiselvam, R.

IMPORTANT EVENTS

'World Soil Day' celebration and soil health card distribution

World Soil Day was celebrated on 5th December 2017 at ICAR-CPCRI, Kasaragod with the aim to communicate messages on the importance of soil quality for food security, healthy ecosystems and human well-being. Shri N.A. Nellikkunnu, Hon'ble MLA, Kasaragod, inaugurated the World Soil Day celebration and distributed soil health cards to farmers from Kasaragod district. In his inaugural address, Shri Nellikkunnu highlighted the importance of soil testing and distribution of soil health cards to the farming community for optimizing nutrient

Shri N.A. Nellikkunnu, MLA distributing the soil health card to farmers at ICAR-CPCRI, Kasaragod

management in crops cultivated, reducing cost of cultivation and enhancing productivity. Dr. Ravi Bhat, Director In-charge, presided over the inaugural function. Soil health cards were distributed to about 127 farmers from various villages of Kasaragod district on the occasion. A Scientist-Farmer interface programme was organized on the occasion.

World Soil Day celebrations with the theme "Caring for the Planet Starts from the Ground" was convened by hosting soil quiz competition for students at ICAR-CPCRI, Regional Station, Kayamkulam and Farmer-Scientist interface programme at Pathiyoor Grama Panchayath on 5th December, 2017. Programme was inaugurated by Shri V. Prabhakaran, President, Pathiyoor Grama Panchayath and Shri K. Sukumaran, Standing Committee (Development) Chairman presided over the function. Dr. V. Krishnakumar, Head, ICAR-CPCRI, Regional Station, Kayamkulam delivered the key note address on the importance of soil on human civilization and sustenance. An extension pamphlet on 'Soil health management for sustained coconut productivity' was released on the occasion. Soil health cards were distributed to 60 farmers in the Panchayat. NRPMHSS, Kayamkulam and Panchayath HS, Pathiyoor emerged victorious in the Soil quiz contest and prizes were distributed by Hon'ble MLA Adv. (Mrs.) Prathibha Hari during the valedictory function. She highlighted "Soil as the soul of infinite life and urged students to love farming to reach greater heights".

Training on 'Soil Health Management' in connection with 'World Soil Day' was organized at ICAR-CPCRI, Regional Station, Vittal on 5th December, 2017. Interaction was held among scientists and participants. Dr. Nagaraja N. R., Scientist, ICAR-CPCRI, Regional Station, Vittal, coordinated the programme.

The 'World Soil Day celebrations' was organized by the ICAR-KVK, Alappuzha in association with Department of Agricultural Development and Farmers' Welfare at Palamel Panchayath Community Hall in Bharanikavu Block. During the programme, 48 soil health cards, prepared by analyzing representative geo-referenced soil samples in the KVK laboratory, were distributed. About 135 farmers and officials of Krishi Bhavans of all the panchayaths of Bharanikavu block attended the programme.

World Soil Day was celebrated on 5th December, 2017 at Pradhanpara, Belakoba, Jalpaiguri. A total of 40 farmers of that region attended the programme. Training was imparted on the importance of soil and its health for the benefit of the crops, importance of soil test and method of collection of soil samples for testing.

Inauguration of training on "Soil Health Management" at ICAR-CPCRI, RS, Vittal

Adv. Prathibha Hari, MLA distributing prizes to the winners of quiz competition at Pathiyoor

ICAR-sponsored short course on "Breeding for resistance to pests and diseases in plantation crops"

An ICAR-sponsored short course on 'Breeding for resistance to pests and diseases in plantation crops' was conducted at ICAR-CPCRI, Regional Station, Kayamkulam during 21-30 November, 2017. Prof. P.K. Michael Tharakan, Chairman, KCHR, Thiruvananthapuram & Former Vice Chancellor, Kannur University inaugurated the short course on 21st November, 2017. Twenty scientists from ICAR institutes, research institutes under commodity boards as well as teachers from State Agricultural University participated in the programme.

The valedictory function was held on 30-11-2017 under the chairmanship of Dr. P. Chowdappa, Director ICAR-CPCRI. In his valedictory address, Director urged the scientific fraternity to improve the production standards of plantation crops for which host plant resistance is a key factor and complimented the course director for envisioning the programme. Dr. Regi Jacob Thomas, Principal Scientist was the course director of the programme.

Stakeholder's meet on Arecanut Tissue Culture

A stakeholder's meet on arecanut tissue culture was held on 9 November 2017 under the chairmanship of Dr. P. Chowdappa, Director, ICAR-CPCRI. He briefed about the objective of the meeting and stressed upon the need for replanting of senile arecanut palms and opined that the best option could be planting of dwarf arecanut hybrids. Over 40 delegates including representatives from the company Dr. S. Narayanan, Director, SPIC, Coimbatore; Dr. M.K. Naik, Director of Research, University of Agricultural and Horticultural Sciences, Shivamogga; Dr. Srinath Dixit, Director, ICAR-Agricultural Technology Application Research Institute, Bangalore; Office bearers from CAMPCO, Mangalore; MAMCOS, Sirsi; TUMCOS, Davangere and Raichur; Heads of KVK Mangalore, Sirsi, Uttara Kanada, Uduppi, Shivamogga, and Davangere; Dr. Narayana Swamy, Professor from UAHS, Shivamogga, progressive farmers and scientists from ICAR-CPCRI have participated. Dr. S. Narayanan, Director, SPIC assured the commitment made by SPIC to ICAR-CPCRI on taking up commercial production of arecanut dwarf hybrids by tissue culture technology. He also suggested that a Regional Hardening Facility could be set up at the appropriate time when plantlets become ready.

Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod addressing the stakeholders

PUBLICATIONS

Anithakumari, P., Muralidharan, K. and Chandran, K.P. 2017. Red palm weevil incidence: Spatial pattern and implication in technology adoption. *J. Plantn. Crops* **45**(2): 101-109.

Jeena Mathew, Krishnakumar V., Nampoothiri, C.K., Vijayaraghava Kumar and Narayanan Namboothiri, C. G. 2017. Dynamics and Nutrient Release Pattern of Silica Sources in a Typical Entisol of Tropical Humid Region of Kerala. *Communications in Soil Science and Plant Analysis* **48**(19): 2256-2267.

Neenu, S., Ramesh, K., Ramana, S. and Somasundaram, J. 2017. Effect of cultivars and sowing dates on nutrient uptake and yield of chickpea under aberrant climatic conditions in black soils of Central India. *Advances in Research*, **12(4)**: 1-11.

Nihad, K, Krishnakumar, V. and Haris, A. A. 2017. Marigold-globe amaranth sequential cropping in coconut plantations of coastal humid tropics. *J. Plantn. Crops* **45** (2):121-128.

Pandiselvam, R., Chandrasekar, V. and Thirupathi, V. 2017, Numerical simulation of ozone concentration profile and flow characteristics in paddy bulks. *Pest Management Science,* 73: 1698–1702. doi:10.1002/ps.4516.

Pandiselvam, R., Kothakota, A., Thirupathi, V., Anandakumar, S. and Krishnakumar, P., 2017. Numerical simulation and validation of ozone concentration profile in green gram (*Vigna radiata*) bulks. *Ozone: Science & Engineering*, **39**(1):54-60.

Pandiselvam, R., Thirupathi, V., Chandrasekar, V., Kothakota, A. and Anandakumar, S., 2017. Numerical simulation and validation of mass transfer process of ozone gas in rice grain bulks. *Ozone: Science & Engineering*. Doi: 10.1080/01919512.2017.1404902.

Sivakumar, T., Josephrajkumar, A. and Anitha, N. 2017. First report of tomato pinworm, *Tuta absoluta* (Meyrick) on egg plant *Solanam melongena* L. from Kerala, India. *Entomon* **42**(4): 335-338.

Research Articles

Presented Papers

Jeena Mathew, Krishnakumar, V. and Abdul Haris, A. 2017. Impact of silicates on the growth of coconut seedlings. *In*: Proceedings of the 7th International Conference on Silicon in Agriculture, Bangalore, 24th to 28th October, 2017. p 133.

Jilu, V.S., Sharma, K., Subramanian, S. and Prathibha, P.S. 2017. Attractancy potential of symbiotic bacteria isolated from laboratory reared and wild population of melon fruit fly (Diptera: Tephritidae). *In*: 27th Swadeshi Science Congress. November 7-9, 2017 at Amrita School of Engineering, Kollam, Kerala. pp. 102.

Prathibha, P. S., Jilu, V. S. and Hegde, V. 2017. Compatibility of soil insecticides to *Trichoderma harzianum* under *in vitro* condition. *In*: *27th Swadeshi Science Congress*. November 7-9, 2017 at Amrita School of Engineering, Kollam, Kerala. pp. 103.

Thomas, R.J., Shareefa, M., Merin Babu, Rajeev, G., Josephrajkumar, A. and Chandrika Mohan 2017. Initial assessment of green dwarf varieties of coconut for the root (wilt) disease prevalent tract. *In*: 27th Swadeshi Science Congress 10-12th November 2017, Amrita College of Engineering, Amritapuri, Kollam. p.132.

Book Chapters

Krishnakumar, V. 2017. "Thengu enna kalpaviksham (Malayalam)" pp: 6-10 *In*: "Thengu enna kalpaviksham". (Ed.) Elizbeth George, Farm Information Bureau, Thiruvananthapuram.

Krishnakumar, V. 2017. "Sastreeya krishippanimurakal (Malayalam)" pp: 19-28. *In*: "Thengu enna kalpaviksham". (Ed.) Elizbeth George, Farm Information Bureau, Thiruvananthapuram.

Meena B.P., Ramesh, K., Neenu, S., Jha, P. and Rashmi, I. 2017. Controlled Release Fertilizers for Enhancing Nitrogen Use Efficiency. *In:* Ramesh, K., Biswas, A.K., Lakaria, B.L., Srivastava,S. and Patra, A.K.(Eds.). Enhancing Nutrient Use Efficiency: Concepts, Methods and Management Interventions. New India Publishing Agency, New Delhi. pp.59-79.

Rashmi, I., Biswas, A.K., Neenu,S., Meena, B.P. and Shinogi, K.C. 2017. Improving Phosphorus Use Efficiency. *In:* Ramesh, K., Biswas, A.K., Lakaria, B.L., Srivastava,S. and Patra, A.K.(Eds.). Enhancing Nutrient Use Efficiency: Concepts, Methods **a**nd Management Interventions. New India Publishing Agency, New Delhi. pp.123-140.

Popular Articles

Anithakumari, P. 2017. Coconut – a health food. *Kerala karshakan e-journal* **5**(4): 10-17.

Anithakumari, P. 2017. Kudumba samrambhamayi kerolpannangal. *Kerala Karshakan* **63**(4): 28-29.

Chandrika Mohan, Josephrajkumar, A. and Anes, K.M. 2017. Protecting coconut from enemies. *Kerala karshakan e-journal* **5**(4): 22-27.

Indhuja, S., Daliyamol and Merin Babu. 2017. Interlinking coconut with microbes. *Kerala karshakan e-journal* **5**(4): 28-32.

Jissy George. 2017. Cocoa chocolates to conquer market. *Karshakasree* **23** (11): 90.

Jissy George. 2017. Coconut based enterprises. *Kerala Karshakan* **63**(4): 23-27.

Jissy George. 2017. Food and industrial products from tuber crops. *Karshakasree* **23**(12): 90-91.

Jissy George. 2017. From frozen coconut scrapings to curry mix. *Karshakasree* **23** (10): 98.

Krishnakumar, V. 2017. Coconut and ecosystem service. *Kerala Karshakan e-journal* **5**(4): 4-9.

Krishnakumar, V. 2017. Thengine labha vilayakkam (Malayalam). *Kerala Karshakan* **63**(4): 10-15.

Nihad, K., Krishnakumar, V. and Haris, A.A. 2017. Marigold-globe amaranth sequential cropping fetches more. *Indian Horticulture* **62** (5) : 38-42.

Ravi, S. And Muralidharan, P. 2017. Low cost hydroponics. *Kerala Karshakan* **63**(3): 68-69.

Ravi, S. And Muralidharan, P. 2017. TMR feed. *Karshakasree* **23**(10): 88-91.

Shareefa, M and Thomas, R. J. 2017. Know closely about dwarf varieties of coconut (*In Malayalam*). *Kerala Karshakan* **63**(4): 16-19.

Shareefa, M., Thomas, R. J. and Kalavathy, S. 2017. Coconut varieties suitable for tender nut purpose. *Krishiyanganam* **23** (4): 41-43.

Sivakumar, T. 2017. Kumil rogam vannalum venda krishi mudangum (Malayalam). *Karshakan*. **25**(12): 34-35.

Thomas, R. J. and Shareefa, M. 2017. Diversity in coconut. *Kerala Karshakan (E-Journal).* **5** (4): 18-21

Extension pamphlet

Josephrajkumar, A., Anes, K.M., Merin Babu and Krishnakumar, V. 2017. *Mera Gaon Mera Gaurav* Accomplishments (2016-2017) at Kayamkulam, ICAR-CPCRI, Kasaragod.

Kalavathi, S., Jeena Mathew and Jacob Kurien 2017. Different types of composts from coconut bio-wastes (in Malayalam).

Kalavathi, S., Jeena Mathew, Merin Babu, Indhuja, S. and Jacob Kurien 2017. Efficient use of natural resources (in Malayalam).

Kalavathi, S., Merin Babu, Jeena Mathew and Jacob Kurien 2017. Good quality fortified organic manures for sustainable organic farming.

Books

Maheswarappa, H. P. and Jilu, V. S. 2017. Proceedings of the *XXVI Annual Group Meeting and Technical Programme for 2017-18 of ICAR-All India Coordinated Research Project on Palms.* ICAR-AICRP on Palms, ICAR-CPCRI, Kasaragod. 84p.

Training Manuals

Shareefa, M. Merin Babu, Josephrajkumar, A. and Thomas, R.J. 2017. Practical manual on 'Breeding for resistance to pest and diseases in plantation crops', ICAR-CPCRI, Regional Station, Kayamkulam, Kerala. 43 p.

Thomas, R.J., Josephrajkumar, A., Shareefa, M. and Rajesh, M. K. 2017. Training manual on 'Breeding for resistance to pest and diseases in plantation crops', ICAR-CPCRI, Kasaragod, Kerala. 261 p.

PERSONALIA

Promotions

Name of the staff	From (Designation)	To (Designation)	w.e.f.
Shri Avrajyothi Ghosh	Sr. Technical Officer , ICAR-CPCRI, Research Centre, Mohitnagar	Asst. Chief Technical Officer, ICAR-CPCRI, Research Centre, Mohitnagar	24-11-2015
Dr. M. Shanavas	Asst. Chief Technical Officer, ICAR-CPCRI, Regional Station, Kayamkulam	Chief Technical Officer, ICAR-CPCRI, Regional Station, Kayamkulam	01-07-2016
Shri T.E. Janardhanan	AAO, CPCRI, Kasaragod	AO, CPCRI, Kasaragod	23-12-2017

Transfer

Name of the staff	From (Place)	To (Place)	w.e.f.
Shri Suresh Kumar, CAO	ICAR-CPCRI, Kasaragod	ICAR-CSWRI, Avikanagar	08-11-2017
Smt. Sheeja P.P., JAO	ICAR-CPCRI, Kasaragod	AFAO at NIANP, Bengaluru	16-11-2017
Shri Ram Avtar Parashar, SFAO	ICAR-CIRB, Hisar	ICAR-CPCRI, Kasaragod	26-12-2017

Retirement

Name	Designation	Place	Date
Shri Srihari Balyaya	Skilled Support Staff	ICAR-CPCRI, Kasaragod	31-10-2017
Shri Mohammed Basheer B.M.	Chief Technical Officer	ICAR-CPCRI, Kasaragod	30-11-2017
Shri S. Parameswaran	Skilled Support Staff (Wash Boy)	ICAR-CPCRI, RS, Kayamkulam	31-12-2017
Shri Susanta Roy	Assistant	ICAR-CPCRI, RC, Mohitnagar	31-12-2017

HUMAN RESOURCES DEVELOPMENT

Deputation Abroad

Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod visited Nadi, Fiji during 31st October, 2017 to 4th November, 2017 to attend the "18th COGENT Steering Committee Meeting". He made a presentation on "Current status of International Coconut Genebank for the South Asia and Middle East Countries (ICG-SAME).

Hon'ble Minister, MCCTIL, Government of the Kingdom of Tonga handing over the certificate to Shri Jayasekhar S.

Shri Jayasekhar S., Scientist (Sr. Scale) has been deputed as Coconut Development Expert (under the Indian Technical and Economic Cooperation) under the Ministry of External Affairs, Government of India for a period of seven months (28th February, 2017 to 6th October, 2018) to develop a coconut revitalization strategy for the Kingdom of Tonga. He was awarded with the certificate of appreciation by the Ministry of Commerce, Consumer, Trade, Innovation and Labour, Government of the Kingdom of Tonga for the meritorious work done and the development of the national strategy for coconut sector.

Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod presenting 'Current status of ICG-SAME' at Nadi, Fiji

Training attended

Name & Designation	Training Programme	Place & Duration
Dr. P. Anithakumari, Principal Scientist, Dr. K.M. Anes and Dr. S. Indhuja, Scientists	Training cum workshop on "Methodological Framework for implementation of FFP"	Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Chennai 10-13 October, 2017
Dr. K.M. Anes, Shri Najeeb, N., Dr. L.S. Singh, Scientists and Dr. T. Sivakumar SMS, KVK	Short course training programme on Breeding for resistance to diseases and pest	ICAR-CPCRI, Regional Station, Kayamkulam 21-30 November, 2017

Awards / Honours

Dr. Prathibha, P. S., Mrs. Jilu, V. S. and Dr. Vinayaka Hegde, were conferred with Best Oral Presentation Award for the paper entitled "Compatibility of soil insecticides to *Trichoderma harzianum* under *in vitro* condition", by the *27th Swadeshi Science Congress* held during 7th – 9th November, 2017 at Amrita School of Engineering, Kollam, Kerala.

Ph.D. awarded

Shri M. Arivalagan, Scientist (Biochemistry) has been awarded Ph.D. Degree from the Department of Biochemistry and Molecular Biology, School of Biological Sciences, Central University of Kerala, Kasaragod for his thesis entitled "Biochemical and nutritional evaluation of coconut (*Cocos nucifera L.*) haustorium and its co-products" under the guidance of Dr. Santosh R. Kanade, Asst. Professor, Department of Biochemistry and Molecular Biology, Central University of Kerala.

TRANSFER OF TECHNOLOGY

On-campus trainings

The familiarization visit programme on 'Crop management practices and value addition in coconut' for 12 Field Extension Officers, Coconut Research Institute, Sri Lanka was organized at ICAR-CPCRI, Kasaragod on 13th October, 2017 in collaboration with Indian Institute of Plantation Management (IIPM), Bangalore.

Model Training Course programme on "Participatory Technology Transfer Approaches for Plantation Crops" was conducted at ICAR-CPCRI during 12th-19th December, 2017. A total of 24 Extension Officers from Jammu & Kashmir, New Delhi, Tamil Nadu and Kerala attended the programme.

MTC participants and farmers at farmers field

Entrepreneurship Development Programme on 'Value Addition in Coconut' for 68 interested persons was conducted at ICAR-CPCRI, Kasaragod on 19th October, 2017 which was organized by District Industrial Centre, Kasaragod.

Training programme on 'Integrated Crop Management and Value Addition in Coconut' was conducted for 17 farmers from Kumta Taluk, Karnataka in collaboration with Horticulture department, Kumta Taluk, Karnataka at ICAR-CPCRI, Kasaragod on 8th November, 2017.

Training programme on "Crop Production in Coconut" was organized at ICAR-CPCRI, Kasaragod in collaboration with Agricultural Department, Sirsi Taluk, Uthara Kannada District, Karnataka on 14th November, 2017.

Off-campus training programme on "Integrated Crop Management in Coconut" was organized by Thulunadu coconut producers company for 200 farmers on 28th October, 2017 at Cooperative bank hall, Koliyadukkam, Kasaragod .

Training programme on "Integrated Pest Management and Value Addition in Coconut" was organized at ICAR- CPCRI, Kasaragod for 13 farmers of Pattancherry Krishi Bhavan, Palakkad under Keragrammam project on 23th November, 2017.

A training programme on 'Hybridisation Techniques and Plant Health Management in Coconut' at ICAR-CPCRI, Regional Station, Kayamakulam during 9th-10th November, 2017 and 16th-17th November, 2017 for 14 participants including climbers and Agrl. Asst. of Dept. of Agriculture, Kerala.

An exposure visit cum training of 49 farmers from Tamil Nadu was conducted on "Cocoa Production and Processing Technology" sponsored by MIDH-NHM-DCCD from 18th December, 2017 to 22nd December, 2017 at ICAR-CPCRI RS, Vittal.

Field Extension Officers, Coconut cultivation Board, Sri Lanka on familiarization visit to HDMSCS plot at ICAR-CPCRI, Kasaragod

An exposure visit of twenty nine farmers from West Garo Hills, Meghalaya visited ICAR-CPCRI, RC, Kahikuchi on 8th December, 2017. They were trained on nursery management and cropping systems including arecanut, coconut and black pepper.

An awareness programme on different Govt. schemes for agriculture and allied crops was

Farmers from Tamil Nadu getting acqainted with cocoa prining at ICAR-CPCRI, RS, Vittal

Awareness programme on Govt. schemes for agriculture and allied sectors at ICAR-CPCRI, RC, Mohitnagar

organized at ICAR-CPCRI, RC, Mohitnagar in collaboration with Department of Field Publicity, Ministry of Information and Broadcasting, Govt. of India, Siliguri Centre on 7th December, 2017. A total of 43 farmers from different districts of North Bengal attended the programme.

ATMA Programme

Two days within state training programme on Coconut Production Technologies for 17 farmers from Manjeri Block, Malappuram district was organized at ICAR-CPCRI, Kasaragod during 19th-20th October, 2017 in collaboration with ATMA Malappuram.

ATMA interstate training programme on " Integrated crop management in coconut" was conducted at ICAR-CPCRI , RS, Vittal for 40 farmers of Kudagu district in collaboration with ATMA, Madikeri Taluk, Karnataka on 29th November, 2017.

ATMA inter-state training programme on 'Coconut cultivation practices' was organized at ICAR-CPCRI, RS, Vittal for 15 farmers of Siddapur Taluk, Uthara Kannada at ICAR-

RAWE students of B.Sc. Agri from KAU Padannakkad, getting aquainted on fieldexperiments at ICAR-CPCRI, Kasaragod

CPCRI, Kasaragod during 29th-30th October, 2017.

RAWE Programme

Rural Agricultural Work Experience (RAWE) programme was organised at ICAR-CPCRI, Kasaragod for B.Sc. (Agri) students of College of Agriculture, Padannakkad, Kasaragod during 6-12 November 2017.

Off campus trainings

A training programme on "Health Management in Coconut" for the Agricultural Officers and Assistants of Alappuzha district was held on 5th October, 2017 at Alappuzha where about 50 officials participated. Another training programme was organized on "Advances in Pest Management in Coconut" was held at Eramalloor, Alappuzha district attended by 110 farmers on 20th October, 2017. A training has been conducted for 400 farmers of Muthukulam Block on INM, IPM and IDM techniques in coconut , coconut in connection with the Farmers' Fest held at Devikulangara on 30th October, 2017. A farmer's seminar on "Coconut Based Cropping System" with emphasis on disease and pest management was conducted as part of Keragramam at Kuruppampady, Perumbavoor on 18th December, 2017.

A total of four training programs were organized at Pathiyoor panchayath during 5th - 7th, October, 2017, 11th October, 2017, 16th-17th November, 2017 and 28th-29th December, 2017, as part of the reaching out programs under FFP also included interactive video conferencing with farmers. A total of 396 farmers of the FFP area participated in these programs which consisted of students, teachers, entrepreneurs, coconut and turmeric farmers. A study tour cum exposure visit of 39 farmers from Pathiyoor panchayat (FFP area) and four officials was undertaken during 11th-14th, 2017 to various ICAR institutes located at Bengaluru. Three men and two women farmers under the ICAR-CPCRI programme have participated in the National – level dialogue on 'Let us Listen to Farmers: A workshop on farmer's feedback on doubling farm income by 2022' was organized during 22nd-23rd, 2017 at ICAR-NAARM, Hyderabad.

Dr. (Mrs.) Alpana Das, Senior Scientist, ICAR-CPCRI, Research Centre, Kahikuchi has delivered a lecture on coconut production technology at NIRD, Khanapara, Guwahati on 6th December, 2017. 32 farmers from West Garo Hills, Meghalaya attended the training programme.

Five training programmes were conducted at Nahira and Bongara villages, Kamrup (Rural) district, Assam on identification of pests in coconut and arecanut.

Video conferencing

A video conferencing programme was conducted on 7th November, 2017 with off-campus location at Pathiyoor, Alappuzha District. Dr. K. Muralidharan, Dr. P. Anithakumari, Dr. Regi Jacob Thomas, Panchayath President, Pathiyoor Gramapanchayath and members of Women's SHG have participated in the programme at Pathiyoor and Dr. P. Chowdappa, Dr. C. Thamban, Dr. A.C. Mathew and Dr. P. Subramanian were present at ICAR-CPCRI, Kasaragod. They discussed regarding production, protection and processing aspects of coconut.

Another video conferencing programme was conducted on 10th November, 2017 with off-campus location at ICAR-CPCRI (RS), Krishnapuram, Kayamkulam, Alappuzha District with special reference to increase in coconut production and value addition.

Video conferencing programme from ICAR-CPCRI, Kasaragod

Radio talks/TV programmes

Special documentary on KVK, Alappuzha was telecasted on All India Radio Farm & Home session on 29th December, 2017.

Radio programme from All India Radio, Thiruvananthapuram

Name of scientist	Topic	Date of broadcasting
Dr. Jeena Mathew, Scientist (Soil Science)	Soil health and nutrient management in coconut	27th November, 2017
Dr. M. Shareefa, Scientist (Horticulture)	Intercrops in coconut garden	15th November, 2017
Dr. A. Abdul Haris, Principal Scientist (Agronomy)	Thenggin Thottathil Theetappulkrishi Cheyyumpol (in Malayalam)	6th November, 2017
Dr. A. Joseph Rajkumar, Principal Scientist (Ag. Entomology)	Good Agricultural Practices in Coconut	15th November, 2017
Dr. Chandrika Mohan, Principal Scientist (Ag. Entomology)	Integrated pest management strategies to be adopted for coconut cultivation	29th November, 2017
Dr. Merin Babu Scientist (Plant Pathology)	Integrated management of coconut diseases	6th December, 2017

Participation in Exhibitions

Exhibitions attended	Dates
'Agricultural Technology Show' organized by ICAR-CTCRI, Thiruvananthapuram	27th-28th October, 2017
Exhibition organized by Swadeshi Science Congress at Amritha Viswa Vidyapeetum, Amrithapuri, Kollam.	7th-9th November, 2017
"11th Indian Fisheries and Aquaculture Forum (11th IFAF) " organized by ICAR-CIFT, Kochi in association with Asian Fisheries Society Indian Branch (AFSIB) at Kochi.	21st-25th November, 2017
Krishi Mela organized at Kukke Sri Subrahmanya in connection with the Champa Shashti celebration	23rd - 24th November,2017
Kisan Melas along with various exhibits at Rajganj Block Jalpaiguri Sadar Block and Dhupguri Block	11th-13th December, 2017, 20th-22nd December, 2017 and 21st-23rd December, 2017, respectively
Agricultural and Industrial Exhibition organized by Alappuzha Zilla Agri-Horticultural Society	20th-28th December, 2017

KVK, Kasaragod

Demonstration of mechanized cultivation for rejuvenating paddy fallows

The paddy transplanting at the Kottachery Pada Sekharam was inaugurated by Shri V.S.Sunil Kumar, Hon'ble Minister for Agriculture, Government of Kerala and the Director i/c Dr. Ravi Bhat was the chief guest. Innovative intervention as part of its demonstration programme and was able to rejuvenate 40 acres of paddy fields which was kept fallow for 20 years at Kottachery-Pattare Pada Sekharam and Kolavayal Pada Sekharam in Ajanur panchayat. This is as part of the programme on doubling paddy production in the district. Mechanised implements such as the disc plough, helical blade puddler and demonstration of integrated nutrient management and ecological engineering measures for management of pests in rice were taken up for increasing productivity.

Shri V.S. Sunil Kumar, Hon'ble Minister for agriculture, Government of Kerala inaugurating paddy rejuvenation programme at Ajanur, Kasaragod

A mechanization strategy developed to increase the number of crops per year

The land preparation is presently carried out using cage wheels attached to tractor which can only be done after the required water table is developed. The novel use of disc plough was introduced to promote primary tillage during March - May. Disc plough is capable of penetrating into very hard soils even with stones or stumps. Through this operation, tractor which is unutilized during these months could be used to plough all the paddy fields to be prepared for cultivation immediately on the onset of monsoon. Since the primary tillage makes a lot of ridges and furrows as well as loosens soil, all the rain water gets infiltrated which effectively raises the ground water table. Subsequent puddling using helical blade puddler which is quicker than ploughing, thus, enabling two crops instead of one, for a sustainable increase in livelihood.

Training on stingless bees culture was conducted at KVK Kasaragod on 7th November, 2017

KVK, Alappuzha

Trainings/Meetings conducted

Training	No. of programmes	Participants		
		Men	Women	Total
On campus	17	225	286	511
Off campus	31	476	411	887
Total	48	701	697	1398

SAC meeting of KVK

The 16th SAC Meeting was held under the chairmanship of Dr. P. Chowdappa, Director, ICAR-CPCRI, Kasaragod at ICAR-CPCRI, RS, Kayamkulam on 29th November, 2017. Dr. P. Chowdappa in his introductory remarks congratulated KVK team for winning the Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2016-17 for Zone XI. Dr. D.V.S. Reddy, Principal Scientist, ICAR-ATARI, Bangalore requested the members to critically review the activities of the KVK for improving further and highlight the problems faced by the farmers of the district so that KVK can address them.

SAC meeting of ICAR-KVK, Kayamkulam

TECHNOLOGY COMMERCIALIZATION

Sl. No.	Name of technology commercialized	Date of signing MOU	Value (In INR)	To whom commercialized
1	Process of production of coconut chips	16-10-2017	15,000	Ms. Nithy Cesil, Chetpet, Chennai – 600031, Tamil Nadu
		06-12-2017	15,000	Madhura Agro Process Pvt Ltd, Kuppanur Post, Coimbatore – 641010, Tamilnadu
2	Process of collection of fresh and hygienic Kalparasa and production of natural coconut sugar	26-10-2017	15,000	Kalpatharu Coconut Producer Co. Ltd., Turuvekere, Thumkur Dist, - 572227, Karnataka
		27-10-2017	15,000	Maharaja Coconut Producer Company, Chapuradoddy, Mandya District– 571429, Karnataka.
		06-12-2017	50,000	Madhura Agro Process Pvt Ltd, Kuppanur Post, Coimbatore – 641010, Tamilnadu
		19-12-2017	50,000	Gurushri Farmer Producer Co. Ltd., Beeraganahally, Tumkur District, Karnataka
		19-12-2017	50,000	Malenadu Nuts & Spices Producers Co. Ltd.,Bhadravathi – 577245, Shimoga, Karnataka
		19-12-2017	50,000	Nunke Male Siddeshwara Producer Co. Ltd., Chitradurga (Ditstrict) - 577529, Karnataka
3	Process of carbonated tender coconut water	08-11-2017	25,000	A. Rajagopalan, Shivasailam, Thrissur – 680002, Kerala
4	Technical know-how of Kalpa Organic Gold (coconut leaf vermicompost)	27-11-2017	20,000	M/s SPIC Agro Biotech Centre, Pooluvapatti – PO, Coimbatore – 641101, Tamil Nadu
5	Technical know-how of Kalpa Soil Care (urea free coir pith composting)	27-11-2017	25,000	M/s SPIC Agro Biotech Centre, Pooluvapatti – PO, Coimbatore – 641101, Tamil Nadu
6	Technical know-how of frozen coconut delicacy	06-12-2017	60,000	Madhura Agro Process Pvt Ltd, Kuppanur Post, Coimbatore – 641010, Tamilnadu
7	Technical know-how of production of virgin coconut oil (VCO)	06-12-2017	40,000	Madhura Agro Process Pvt Ltd, Kuppanur Post, Coimbatore – 641010, Tamilnadu
8	Protocol for arecanut tissue culture	13-12-2017	2,50,000	M/s SPIC Agro Biotech Centre, Pooluvapatti – PO, Coimbatore – 641101, Tamil Nadu
		Total	**6,80,000**	

DISTINGUISHED VISITORS

Visit of QRT of AICRP on PHT

The Quinquennial Review Team (QRT) meeting of AICRP on PHET, CRP on Health Foods, CRP on Secondary Agriculture was held during 16th to 17th November, 2017 at ICAR- CPCRI, Kasaragod. Dr. P. Chowdappa, Director, ICAR-CPCRI, in his inaugural address emphasized the importance and need for post harvest technologies in coconut. Dr. R.K Gupta, Director, ICAR-CIPHET, Ludhiana pointed out opportunities of coconut value addition. Dr. Nawab Ali, Former DDG (Engg), ICAR was the Chairman, QRT and

Inauguration of meeting of the Quinquennial Review Team of the AICRP on PHT at ICAR-CPCRI, Kasaragod

Dr. D.N. Yadav, Principal Scientist, CIPHET, Ludhiana, was the Secretary, QRT. The members include, Padma Shree Dr. Brahma Singh (Renowned Horticulturalist), Dr. P.K. Srivastava (Former Dean, AMU, Aligarh), Dr. D.C. Joshi, (Dean, CAET, AAU, Anand, Gujarat) and Dr. S.K. Dash (Dean, CAET, OUAT, Bhubaneshwar).

PARTICIPATION IN SEMINARS/SYMPOSIA/CONFERENCES/WORKSHOPS

Name & designation	Title	Place and date
Dr. (Mrs.) Alpana Das, Senior Scientist	State Level Workshop on Prospects of coconut production and value addition in coconut	Guwahati 11th December, 2017
Dr. S. Kalavathi, Principal Scientist, Dr. M. Shareefa and Mrs. Jilu V.S. Scientists	27th Swadeshi Science Congress	Amrita School of Engineering, Kollam, Kerala. 7th-9th November, 2017
Dr. Jeena Mathew, Scientist	7th International Conference on Silicon in Agriculture	Bangalore 24th to 28th October, 2017
Dr. P. Anithakumari, Principal Scientist and Dr. Merin Babu, Scientist	National Workshop on Farmer's Feedback on Doubling Farm Income by 2022	ICAR-NAARM, Hyderabad, 22nd-23rd December, 2017
Dr. P. Anithakumari, Principal Scientist, Dr. Neema M. and Dr. Shareefa M. Scientists	Woman Scientist & Enterpreneurs conclave as a part of India International Science Festival -2017	Anna University, Chennai, 5th-16th October, 2017
Dr. Merin Babu and Dr. Diwakar Y. Scientists	Sensitizing Youth to Flagship Programmes of Government (SYPOG)- Young Scientists Conclave as a part of India International Science Festival -2017	Anna University, Chennai, October 14th-16th, 2017

CELEBRATION

Science Promotion Week

ICAR-CPCRI, Regional Station Kayamkulam organized an Open Day Programme '*Sastra jalalakom*' as part of the 'Science Promotion Week - 2017, commemorating the birth of Sir C.V. Raman, Madam Marie Curie and Pandit Jawaharlal Nehru on 14th November 2017. The programme included an orientation session for the students of VHSC for sensitizing them in science with special emphasis to agriculture and eco-friendly farming. Dr. S. Kalavathi, Head (i/c) inaugurated the function and motivated the participants in keeping a scientific temper in routine life, in her address. The technical sessions were handled by Dr. Joseph Rajkumar, Principal Scientist and Mrs. Daliyamol, Scientist. Dr. K.M. Anes, Scientist coordinated the programme.

Children participants of Science Week at ICAR-CPCRI, RS, Kayamkulam

Jai Kisan - Jai Vigyan farmer-scientist interface

ICAR-CPCRI, Regional Station, Kayamkulam convened *Jai Kisan Jai Vigyan* programme as part of *Mera Gaon Mera Gaurav* Farmer-Scientist interface on 29th December, 2017. About 50 farmers from 17 adopted villages by the scientists participated in the programme. The theme for the year is "Doubling Farmers Income through Innovative Coconut Farming". Dr. V. Krishnakumar, Head


Inauguration of Jai Kisan – Jai Vigyan programme at ICAR-CPCRI, RS, Kayamkulam

inaugurated the programme. A pamphlet on "An epilogue of salient accomplishments of *Mera Gaon Mera Gaurav* activities for the period 2016-17" was released on the occasion.

National Agricultural Education Day

National Agricultural Education Day was observed to commemorate the birth anniversary of Dr. Rajendra Prasad, on 4th December, 2017 at ICAR-Central Plantation Crops Research Institute, Kasaragod. Dr. R. Muralidhara Prasad, Formerly Director of Extension, Kerala Agricultural University was the chief guest. While interacting with the students from various schools in the district, he expressed that "Pursuing agricultural sciences for a career is most rewarding". Importance of agriculture for nation's economy and food security was highlighted by Dr. Ravi Bhat, Director i/c in his presidential address. Over 150 students from different schools participated in the programme. Students were also provided an opportunity to visit experimental fields and laboratories of the Institute.

Vigilance Awareness Week

The Vigilance Awareness Week programmes and Integrity Pledge by all employees in Headquarters and Regional Stations was held on 30th October, 2017. All employees, contractual staff, contractors and general public visited the Institute/Regional Stations were encouraged to take the e-pledge. The message of vigilance awareness was brought to the notice of public by displaying banners in a total of 10 locations. Quiz programme of CVC and RTI was conducted in three schools in Kasaragod district. A painting competition was also conducted in one school. An essay writing competition was held at Government College, Kasaragod. A quiz completion and a workshop on 'preventive vigilance' were conducted for the staff. Shri T. A. Shafi, President, Press Club, Kasaragod delivered the valedictory address.

In addition to the oath undertaken by all staff of RS, Kayamkulam, during the Vigilance Awareness Week-2017, Dr. A. Joseph Rajkumar, Pr. Scientist spoke on the theme "My Vision-Corruption free India" to accomplish New India by 2022.

Shri T.A. Shafi, President, Press Club, Kasaragod addressing the staff at ICAR-CPCRI, Kasaragod

Valedictory function of Hindi Chetana Mas

Valedictory function of Hindi Chethana Mas celebration was held on 25th October, 2017 under the chairmanship of Dr. P. Chowdappa, Director, ICAR-CPCRI. He urged the officials to do maximum official work in Hindi. Dr. (Smt.) Sudha Balakrishnan, Head (Hindi and Comparative Literature), Central University of Kerala was the chief guest, who delivered a lecture on the importance of Hindi Language. Prizes were distributed to winners of the different competitions conducted during the Chethana Mas celebrations.

Dr. Sudha Balakrishnan, Professor (Hindi), Central University of Kerala addressing the gathering at ICAR-CPCRI, Kasaragod

Mahila Kisan Divas

As part of the nationwide celebration of 'Mahila Kisan Divas', one day programme was organized by ICAR-KVK-Alappuzha on 19th October, 2017 with the participation of more than 100 selected woman farmers of the district. The programme was inaugurated by Smt. Rajani Jayadev, Presedent, Bharanikkavu Block Panchayath. Five woman farmers were honoured for their significant contributions in the field of Crop production, IFS, Dairy Farming, Mushroom cultivation and Value addition. Competion has been conducted on 'payasam' preparation and quiz


Mahila Kisan Diwas- Inauguration by Mrs. Rajani Jayadev, Block Panchayath president

competition was also held as part of the celebration. An exhibition of value added products from different entrepreneurs trained and supported by the KVK was arranged on the occasion.

OTHER INFORMATION

Institute Biosafety Committee Meeting

Institute Biosafety Committee meeting was held under the chairmanship of Dr. P. Chowdappa, Director at ICAR-CPCRI on 15th December, 2017. Dr. George Thomas, Scientist 'F', RGCB, Thiruvananthapuram, Dr. Rekha Rai, Professor, Dept. of Microbiology, KSHEMA, Mangalore and Dr. Ginny Antony, Asst. Professor, Central University of Kerala, Kasaragod were present. Issues related to the various projects undertaken and the biosafety measures were discussed.

Members of Biosafety Committee taking stock of the programmes undertaken at ICAR-CPCRI

Swachh Bharat Programme

All staff members participated in the cleaning and weed clearing operations in the Institute premises *viz*., by the side of main road and highway adjoining the Institute, back side of Recreation Club room and Bio Control Laboratory, area adjacent to art and photography, area adjacent to Hostel and SRA Premises ICAR-CPCRI, Regional Station, Kayamkulam, in the experimental area in Vittal, Kahikuchi, Kidu and Mohitnagar. The waste materials, weeds etc., were cleared from these areas.

Staff actively involved in Swachh Bharat activities at (a) ICAR-CPCRI Kasaragod, (b) ICAR-CPCRI, RS, Kayamkulam

MERA GAON MERA GAURAV

Training programmes, demonstration on improved practices, farm advisory visits, mobile advisory services were organized in collaboration with other stakeholders viz., Department of Agriculture, Krishi Vigyan Kendra, Grama Panchayat, input dealers, progressive farmers, SHGs etc. in the selected villages under Mera Gaon Mera Gaurav programme. A total of seventy villages were adopted and activities were undertaken for the overall development of the villages.

Activities	Farmers benefitted
Field visits/Gosthies	465
Facilitation of Technologies	162
Mobile advisories	467
Literature support	522
General Awareness	298
Linkages	835

Soil samples were collected from selected five gardens from each village and soil health cards were distributed to 250 farmers on 5th December 2017 on the occasion of World Soil Day celebrations conducted at the Institute.

Meetings/Gosthis were organized on various subjects like, planting of seedlings and maintenance of juvenile palms, pest surveillance, Impact of coconut varieties, Biomanagement of pests of vegetables, etc. Mobile based advisory services were also offered to public. In addition, Facilitation for Trichoderma mass multiplication, quality planting materials of cocoa and coconut, and mobilization of plant protection groups benefitting 95 farmers were also carried out. Linkages with agencies, viz. Department of Agriculture and Horticulture in different states, ATMA, producer federations, and grama panchayaths were also carried out during the period benefitting around 835 farmers. Literature support were also provide for 522 beneficiaries on various topics.

Latest production technologies for the accomplishment of doubling farm income, planting high yielding and pest tolerant varieties, adoption of scientific production techniques, need based plant protection strategies and thrust on values addition of produce were the hallmark strategies projected to attain the projected target. Timely disposal of produces at competitive price with market intelligence were also passed to the farming community. Attracting and retaining youth in farming and infusing farming instincts among school children could also be focused in the MGMG activities.



Glimpses of Mera Gaon - Mera Gaurav activities carried out from ICAR-CPCRI, RS, Kayamkulam

Interaction with school students on organic farming at Kopparath High School, Alappuzha, Kerala

Mixed farming with cows and goat under arecanut based cropping system

Differential spacing of arecanut (4 ft x 14 ft) for mechanization and application of manure + irrigation with narrow tubes

Pruning guidance for cocoa cropping under arecanut based cropping system

Arecanut + cocoa + banana + pepper multi species cropping system

Neem cake application in arecanut based multi species cropping system at Palthady, Puttur Tk.

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद
Agrisearch with a human touch

KALPA

Published by: Dr. P. Chowdappa, Director
Compiled and edited by: Dr. P. Chowdappa, Shri H. Muralikrishna and Dr. M.K. Rajesh
Photo credits: Shri K. Shyama Prasad and Shri E.R. Asokan
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: chowdappa.p@icar.gov.in, cpcrinews@gmail.com
Website: www.cpcri.gov.in; Facebook: cpcrikasaragod.kerala
Printed at: Niseema Printers, South Kalamassery, Kochi - 683109, Ph: 0484 2550849

Readers of this publication may understand that all material contained in this is for knowledge-sharing purposes only and does not represent ICAR's authority or endorsement. The contents of this publication is for non-commercial purpose only. ICAR-CPCRI may not be held liable for any of the contents of this publication.