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Farmers to work hand in hand with the central and state governments to bring in a new dawn in the country's economy:
Shri. Narendra Singh Tomar

Coconut Development Board implementing schemes worth Rs. 110.00 crore during 2022-23

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Coconut Development Board

The Coconut Development Board is a statutory body established by the Government of India for the integrated development of coconut cultivation and industry in the country. The Board which came into existence on 12th January, 1981, functions under the administrative control of the Ministry of Agriculture and Farmers Welfare, Government of India, with its headquarters at Kochi in Kerala State and Regional Offices at Bangalore, Chennai, Guwahati and Patna. There are five State Centres situated in the states of Orissa, West Bengal, Maharashtra and Andhra Pradesh and in the Union Territory of Andaman & Nicobar Islands. DSP Farms are located at Neriyamangalam (Kerala), Vegiwada (Andhra Pradesh), Kondagaon (Chhattisgarh), Madehpura (Bihar), Abhayapuri (Assam), Pitapalli (Orissa), Mandya (Karnataka), Palghar (Maharashtra), Dhali (Tamil Nadu), South Hichachara (Tripura) and Fulia (West Bengal) besides a Market Development cum Information Centre at Delhi. The Board has set up a Technology Development Centre at Vazhakulam near Aluva in Kerala.

Functions

❒ Adopting measures for the development of coconut industry. ❒ Recommending measures for improving marketing of coconut and its products. ❒ Imparting technical advice to those engaged in coconut cultivation and industry. ❒ Providing financial and other assistance for expansion of area under coconut. ❒ Encouraging adoption of modern technologies for processing of coconut and its products. ❒ Adopting measures to get incentive prices for coconut and its products. ❒ Recommending measures for regulating imports and exports of coconut and its products. ❒ Fixing grades, specifications and standards for coconut and its products. ❒ Financing suitable schemes to increase the production of coconut and to improve the quality and yield of coconut.

❒ Assisting, encouraging, promoting and financing agricultural, technological, industrial or economic research on coconut and its products. ❒ Financing suitable schemes where coconut is grown on large scale so as to increase the production of coconut and to improve its quality and yield and for this purpose evolving schemes for award of prizes or grant of incentives to growers of coconut and the manufacturers of its products and for providing marketing facilities for coconut and its products. ❒ Collecting statistics on production, processing and marketing of coconut and its products and publishing them. ❒ Undertaking publicity activities and publishing books and periodicals on coconut and its products.

The development programmes implemented by the Board under the project Integrated Development of Coconut Industry in India are- production and distribution of planting material, expansion of area under coconut, integrated farming for productivity improvement, technology demonstration, market promotion and Information and Information Technology. Under the Technology Mission on Coconut, the programmes implemented by the Board are development, demonstration and adoption of technologies for management of insect pest and disease affected coconut gardens, development and adoption of technologies for processing and product diversification and market research and promotion.

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Message

Dear Readers,

The World Food Day was observed on 16th October 2022 with the theme "Leave NO ONE behind". This comes at a time when agricultural production has been impacted world over by the challenges of climate change and the society has been crippled by the ongoing pandemic, conflicts and international tensions affecting food supply chains and reduction in incomes affecting the livelihood security and social security of communities. In Indian culture, coconut is a crop that contributes to providing food and nourishment; different myths are prevalent - coconut palm emerging during the churning of the ocean along with Kamadhenu, coconut palm created by Vishwamitra for the king ousted from heaven etc. In reality, coconut indeed provides food and nutrition which has been evident from the days of the Second World War when American soldiers who got stuck in the various Pacific islands survived by feeding on coconuts available around. Coconut water is known to have been intravenously fed during the war to soldiers. The service that coconut offered to the soldiers was placed on record by none other than Mr. John F Kennedy, the former US President. He had decorated his Presidential table with the coconut through which he sent SOS to the US army during the war when stuck in Solomon islands.

Though known traditionally as an oil crop, the diversification of the uses of coconut for various purposes also makes it a nutritive food. Coconut water and coconut milk are acknowledged across the globe as healthy beverages. Coconut water with nata de coco not only provides an energizing and refreshing drink but also pacifies hunger, is fibre rich and filling. Coconut neera is very nourishing and energizing; traditionally pregnant women and children used to consume the unfermented sap due to its rich mineral source, especially iron. Coconut oil is not only an edible oil, but a healthy oil rich in lauric acid which imparts immunity. This is made use of in making health and beauty care products with coconut oil or coconut milk as ingredient like hand and facial creams, cleansing lotions, oral rinses for dental care etc. Technologies are being developed across the globe to exploit the multifaceted potential of this crop in food; production of dietary fibre, coconut water capsules for rehydration etc are a few examples to cite.

With the need to provide food to all in this ongoing pandemic and the increasing advent of health consciousness in the community; coconut with varied health and nutritional benefits that have been established through conclusive research, could be a suited food product on the table in the journey towards the accomplishment of the theme "Leave NO ONE behind". Let us work together and make the most of this wonder crop which is aptly called the Tree of Life.

Editor

Centre will continue to support coconut farmers:
Shri. Narendra Singh Tomar

India is one of the global leaders in coconut production and the state of Tamil Nadu occupies a premium position in coconut production. Government of India is implementing several schemes for doubling the farmer's income, said Shri. Narendra Singh Tomar, Union Minister for Agriculture and Farmers Welfare, Government of India. He was delivering the inaugural address of the Farmers Meet held at Tamil Nadu Agricultural University on 14th October 2022 which was organized jointly by Coconut Development Board, ICAR-Sugar Cane Breeding Institute, Coimbatore & Tamil Nadu Agricultural University. He called upon the farmers to work hand in hand with the State and Central Governments to bring a new dawn in the country's economy. Shri Narendra Singh Tomar has said that the Centre will continue to provide all possible assistance to the farmers in the coastal states to promote coconut cultivation in the country. The efforts made in the field of research and development in the last few years have resulted in the development of new technologies in the field of farming and processing and further improved the available technologies. More than 1000 coconut farmers, sugar cane farmers, coconut based entrepreneurs participated in the meet.

Shri. Narendra Singh Tomar addressing the farmers

Address by Shri. Paneerselvam

Shri Tomar further said that he is happy to be among the coconut farmers and congratulated the Coconut Development Board and Sugarcane Breeding Institute for their initiatives towards the prosperity of the coconut grower's community. He said that the agriculture sector is the backbone of the country's economy, so it is the responsibility of the Central and State governments to strengthen it, promote it and ensure profitable farming for the farmers. Tamil Nadu contributes 21 percent of the area under coconut in the country and 26 percent of the production. He said that 4.44 lakh hectares was under coconut cultivation in the state with the productivity of 11,256 nuts per hectare which was higher than the national average of 9123 nuts per hectares. Tamil Nadu ranks first in coconut processing activities and Coimbatore is first in terms of area under coconut cultivation with an area of 88,467 hectares under coconut cultivation. Support has already been given to set up 537 new processing units in India with a processing capacity of 3,638 million coconuts per year under TMOC programme of Coconut Development Board. Out of these, 136 Units are from Tamil Nadu state itself. They are manufacturing activated carbon, virgin coconut oil, desiccated coconut powder, milk powder, packaged tender coconut water, frozen grated coconut etc which provides employment opportunities and also helping improve the financial condition of the farmers. Export of coconut products excluding coir products touched Rs. 3236.83 crores during last financial year registering 41% increase over the previous year.

He added that even during the COVID pandemic, when all other industries were financially affected, agriculture sector contributed more to the GDP due to the efforts of Hon'ble PM of India, realizing bumper harvests in several crops. Through PM Kisan Samman Nidhi', PM Phasal Bheema Yojna' and Sooshma Sinchaee Yojna' government is extending assistance

Exhibition

Shri. Narendra Singh Tomar inaugurating the exhibition at TNAU Campus

Shri. Narendra Singh Tomar visiting "Indian Coconut Products" a DC Manufacturing Unit at Pollachi, Coimbatore

The audience

Shri. Amman K. Arjun,
Hon'ble MLA, Coimbatore

Smt Vanathi Srinivasan,
Hon'ble MLA, Coimbatore

Shri.Pollachi K Jayaraman,
Hon'ble MLA, Pollachi

to farmers. He concluded that 697 coconut producer companies, 73 Coconut Producer Federations and 19 Coconut Producer Companies are functioning in Tamil Nadu to cater to the increasing demand for quality seed materials, nurseries, copra drying yards, coconut oil manufacturing units to improve the livelihood of coconut farmers. The Union Minister further distributed sanction orders under various welfare schemes of Govt. of India implemented through State Govt. to the beneficiaries.

Shri. M. R. K. Paneerselvam, Minister for Agriculture and Farmers Welfare, Government of Tamil Nadu in his special address said that the Government of Tamil Nadu is implementing several welfare schemes for the benefit of coconut farmers and a separate budget is allocated for the development of agriculture in the state during 2022-23. He said that the central Govt has permitted procurement of 50,000 tonnes of copra from Tamil Nadu farmers and out of which the state had so far procured at Rs. 105.90 per kg. The Minister informed that the state is ready to procure copra throughout the year provided the Union govt permits and it would enhance the procurement price to Rs 150 per Kg. The State Govt will study the demand of coconut farmers to supply coconut oil at PDS outlets, Shri Paneer Selvam said.

Dr. Prabhat Kumar, Horticulture Commissioner, Government of India who spoke on the occasion said that Coconut Development Board is working for culminating the vision of our Hon'ble Prime Minister for doubling the income of the farmers of the country. He informed that Coconut Board runs major 10 programmes to encourage value addition, quality seedling production, skill development etc. He requested the farmer representatives to avail the benefits of all CDB programmes being an active member in a Farmer Producer Organization.

Shri. Amman K. Arjun, Hon'ble MLA, Coimbatore North, Smt Vanathi Srinivasan, Hon'ble MLA, Coimbatore South and Shri. Pollachi Jayaraman, Hon'ble MLA, Pollachi, Thiru. Samayamoorthy

Shri Prabhat Kumar, Horticulture Commissioner, Govt of India

IAS, APC & Secretary to Govt. of TamilNadu also addressed the farmers. Thiru. C. Samayamoorthy IAS, APC and Secretary to Govt. of Tamil Nadu, Dr. G. S. Sameeran IAS, District Collector, Coimbatore, Board Members of CDB Thiru. S.V. Muthuramalingam & Thiru. R . Elango and Dr. B. Hanumanthe Gowda, Chief Coconut Development Officer, CDB were present on the occasion.

Dr. G. Hemaprabha, Director, ICAR-Sugarcane Breeding Institute, Coimbatore delivered the welcome address and Dr. V. Geethalakshmi, Vice-Chancellor, Tamil Nadu Agricultural University, Coimbatore proposed vote of thanks.

The minister also inaugurated the exhibition organized at TNAU campus. The minister enquired about the array of value added products & technology related to various crops displayed at the stalls of Tamil Nadu Agricultural University, ICAR-Sugar cane Breeding Institute, State Agriculture Dept & Coconut Development Board.

The Hon'ble Union Agriculture Minister visited M/s. Indian Coconut Products,a desiccated coconut product manufacturing unit at Pollachi, Coimbatore who had availed assistance under TMOC project of CDB. The total project cost of the unit is 314.56 lakhs having processing capacity of 1,10,000 nuts/day.

Report prepared by Mini Mathew, Asst. Director, Publicity & Public Relations, CDB. ■

Media Coverage
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Coconut Development Board implementing schemes worth Rs. 110.00 crore during 2022-23

Pramod P Kurian* & Kumaravel S**,
*Asst. Director, **Development Officer,
Coconut Development Board, Kochi -11

Coconut Development Board (CDB) is a statutory body established by an Act of Parliament of India, which came into existence on 12th January 1981, that functions under the administrative control of the Ministry of Agriculture & Farmers Welfare, Government of India with its Headquarters at Kochi in Kerala. The mandated objective of CDB is the integrated development of coconut production and utilization in the country with focus on productivity increase and product diversification.

India is the largest coconut producing country in the world, with 30.93 % share. As per the 2nd Advance All India estimate for the year 2021-22, coconut is cultivated in 21.09 lakh hectares with a production of 1924.72 crore nuts covering 23 States and Union Territories.

CDB implements various schemes like extending technical and financial assistance for various production and productivity improvement programmes and processing for value addition in coconut with supporting nursery, marketing and exports, publicity and extension programmes through its Regional Offices, State Centres and Demonstration cum Seed Production (DSP) Farms located in various States of the country. The programmes are implemented in association with the State Agriculture/ Horticulture Departments, Agriculture/ Horticulture Universities, research institutes, KVKs, farmers' collectives, other related Departments and agencies.

The CDB schemes are implemented as subscheme with 100 % central assistance under the Mission for Integrated Development of Horticulture (MIDH) which is a Centrally Sponsored Scheme under the Ministry of Agriculture and Farmers Welfare, Govt. of India for the holistic growth of the horticulture sector covering fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.

The major programme that are being implemented by the Board are in Table-1. For the year 2022-23, a total amount of Rs. 110.00 Crore has been allocated by the Ministry for the implementation of various CDB schemes under the MIDH. The schemwise physical and financial allocations under different schemes for the year 2022-23 are in Table-2.

Table 1: Major programmes implemented by CDB		
Production and distribution of quality planting material		https://coconutboard.gov.in/Scheme.aspx#Production
A.. Planting material production	a) DSP Farms	
	b) Establishment of Regional Coconut nurseries	
	c) Establishment of Nucleus Coconut Seed Garden	
	d) Establishment of Small Coconut nursery	
B. Production & productivity of coconut	2. Expansion of area under coconut	https://coconutboard.gov.in/Scheme.aspx#Expansion
	3. Integrated farming for productivity improvement	https://coconutboard.gov.in/Scheme.aspx#IntegratedFarming
	a) Laying out of Demonstration Plots (LoDP)	
	b) Organic Manure Units (OMU)	
	4. Replanting and Rejuvenation of Coconut garden	https://coconutboard.gov.in/Scheme.aspx#Rejuvenation
C. Value addition, Marketing, etc.	5. Technology Mission on Coconut	https://coconutboard.gov.in/Scheme.aspx#TMoC
	6. Marketing, Market Intelligence services, Statistics and strengthening of Export Promotion Council (EPC)	https://coconutboard.gov.in/Scheme.aspx#Market
	7. Technology Demonstration/ Quality Testing Laboratory	https://coconutboard.gov.in/Scheme.aspx#Technology
D. Publicity, Extension, skill development	8. Information & Information Technology	https://coconutboard.gov.in/Scheme.aspx#InformationTechnology
E. Insurance – Palms & Climbers	9. Coconut Palm Insurance Scheme	https://coconutboard.gov.in/Scheme.aspx#Insurance
	10. Kera Suraksha Insurance Scheme	https://coconutboard.gov.in/Scheme.aspx#suraksha
F. Others	11. Infrastructure, Administration & Tech. Services, Project Management	https://coconutboard.gov.in/Scheme.aspx#Administration

Table 2: Schemewise allocation for 2022-23			
S. No.	**Scheme**	**Physical**	**Financial (Rs. in lakh)**
1	Production and distribution of quality planting materials		
a	Demonstration cum Seed Production (DSP) Farms	Maintenance of 11 existing farms	297.00
b	Establishment of Regional Coconut Nurseries	Production of 30.81 lakh seedlings	493.00
c	Establishment of Nucleus Coconut Seed Gardens	3 new units & maintenance installments for 4 units	15.00
d	Establishment of Small Coconut Nurseries	45 new units & maintenance installment for 50 units	63.00
	Sub Total		868.00
2	Expansion of Area under Coconut	6380 ha new & maintenance installment for 5793.34 ha	450.00
3	Integrated Farming for productivity improvement		
a	Laying out of Demonstration Plots	128.90 ha new & maintenance installment for 372.15 ha	80.00
b	Organic Manure Units	27 no.	10.80
	Sub total	90.80	
4	Technology Demonstration/ Quality Testing Laboratory	Need basis	100.00
5	Marketing, Market Intelligence Services, Statistics & Strengthening of Export Promotion Council (EPC)	Need basis	260.00
6	Information & Information Technology	Need basis	500.00
7	Technical Service & Project Management including Infrastructure & Administration	-	3671.20
8	Technology Mission on Coconut	Project basis	1300.00
9	Replanting and Rejuvenation of old coconut garden	6180.55 ha new & maintenance installment for 10676.59 ha	3700.00
10	Coconut Palm Insurance Scheme	2.86 lakh palms	20.00
11	Kera Suraksha Insurance Scheme	9797 climbers	40.00
	Total		11000.00

The provisions under these programmes are briefed below.

A. PLANTING MATERIAL PRODUCTION

▶ *1. Production and Distribution of Quality Planting Materials*

The objective of the programme is to enhance the production and supply of good quality planting materials through the following component programmes.

i. Establishment of Demonstration cum Seed Production (DSP) Farms is undertaken directly by the Board in different parts of the country for creating infrastructure facilities for production of quality planting materials besides demonstrating the scientific coconut cultivation to various stake holders in those regions. The Board has so far established 11 DSP Farms, one each in the states of Andhra

Pradesh (Vegiwada, Eluru Dist.), Assam (Abhayapuri, Bongaigaon Dist.), Bihar (Singheshwar, Madhepura Dist.), Chhattisgarh (Kondagaon, Kondagaon Dist.), Karnataka (Loksara, Mandya Dist.), Kerala (Neriamangalam, Ernakulam Dist.), Maharashtra (Dapoli, Palghar Dist.), Odisha (Pitapally, Khurda Dist.), Tamil Nadu (Dhali, Tiruppur Dist.), Tripura (Hichachara, South Tripura Dist.) and West Bengal (Fulia, Nadia Dist.) in a total area of 362 ha. Budget support of Rs. 27 lakh for maintenance of these farms and Rs. 25 lakh in the first year of a new farm are extended annually for meeting farm operational expenses.

▶ *ii. Establishment of Regional Coconut Nursery:*

This scheme is implemented with the objective of supplementing the coconut nursery programmes of the State Governments. The State Govt. will procure quality seednuts and raise Nursery with the existing infrastructure facility available with the Department. The Staff component and infrastructure facility for establishing the nursery are entirely to be borne by the State Govt. From the year 2022-23, assistance is also extended to SAU/KVK and other PSUs.

50% of the operational expenditure will be

extended as Board's share to a maximum of @ Rs.16/- per seedling.

▶ *iii. Establishment of Nucleus Coconut Seed Gardens:*

The scheme is implemented to establish nucleus seed gardens of selected cultivars to meet the future demand of quality coconut seedlings. Individual farmers, Cooperative Societies, NGOs, KVKs and other Government/ Quasi Government organizations having suitable land to establish the seed garden are

eligible for availing financial assistance under this programme.

Financial assistance @ 25% of the total expenditure incurred limited to a maximum of Rs. Six lakh will be extended by the Board for maximum of four ha. over a period of three years. A detailed project showing the item of expenditure proposed for various fixed maintenance cost of the unit will be prepared by the beneficiary in consultation with the officers of the Board and furnished along with the application for availing assistance under this scheme.

▶ *iv. Establishment of Small Coconut Nursery:*

The scheme is implemented to encourage private sector and other agencies in seedlings production by providing financial assistance for establishing coconut nurseries.

Financial assistance is limited to 25 % of the project cost or Rs.two lakh, whichever is less, per unit of 0.4 ha (100% of the cost of seed nut and transport, maintenance of the nursery and other infrastructure facilities, etc.) with a production capacity of 25,000 certified seedlings per annum.

Minimum subsidy of Rs. 50,000/ for unit of 0.10 ha with production capacity of 6,250 seedlings per year is also considered. The area requirements and production capacity in respect of North and Northeastern region is 12.5 cents for production of 3125 seedlings with an eligible financial assistance of Rs. 25,000/-. The eligible subsidy is released in two installments.

B. PRODUCTION AND PRODUCTIVITY OF COCONUT:

2. Expansion of area under coconut:

Under the Scheme 'Expansion of area under coconut', financial assistance to the tune of Rs. 6,500/- to Rs. 15,000/- per ha is extended depending on the variety and location, for planting

coconut seedlings, with a view to increase the area under coconut and production. The subsidy is extended for a maximum of 4 ha per beneficiary, in two equal annual installments, as detailed below.

Item	Cost norms	Pattern of assistance
a) Normal area		
i) Tall varieties	Rs. 26,000/ha	25% of cost for a maximum of 4 ha per beneficiary, in two equal installments.
ii). Hybrid varieties	Rs. 27,000/ha	
iii) Dwarf varieties	Rs. 30,000/ha	
b) Hilly & Scheduled areas		
i) Tall varieties	Rs. 55,000 / ha	25% of cost for a maximum of 4 ha per beneficiary, in two equal installments.
ii). Hybrid varieties	Rs. 55,000 / ha	
iii) Dwarf varieties	Rs. 60,000 / ha	

As per the operational guidelines of Mission for Integrated Development of Horticulture (MIDH), Govt. of India, Hilly Areas include those areas covered under Hill Area Development Programme and Western Ghat Development Programme. Scheduled Areas include those areas notified by Govt. of India and State Governments.

3. Integrated farming in coconut holdings for productivity improvement:

The objective of the programme is to improve production and productivity of the coconut holdings through an integrated approach and thereby increasing the net income from unit holdings with the following component programmes.

The scheme components 'Laying out of Demonstration Plots' and 'Establishment of Organic Manure Units' under 'Integrated Farming' are being implemented in Public Sector Farms.

i) Laying out of Demonstration Plots:

Under this programme, financial assistance is limited to Rs.35,000/- per ha in two equal annual installments depending on the activities undertaken in the coconut gardens with a view to demonstrate the possibility of improving the productivity and income through Integrated farming, with all possible convergence with other suitable schemes, which in turn may create visible impact in the farming community.

ii) Establishment of Organic Manure Unit:

Under this scheme, financial assistance to a maximum of Rs.60,000/- is extended to popularize the use of organic manure in coconut holdings in Public Sector. The total financial target has been worked out @ Rs.40,000/- average per unit.

Vermicompost units: Maximum assistance is Rs.60,000/- towards 100% of the cost for unit of size 1200 cubic ft (dimension of tank 60 ft x 8 ft x 2.5 ft or two units of 30 ft x 8 ft x 2.5 ft) with production capacity of 80 tons per year in 4 cycles and of permanent structure and to be administered on pro-rata basis. Smaller units are also promoted and the minimum volume shall be 150 cubic feet (dimension of tank15ft x 5ft x 2 ft) with production capacity of 10 tons/ year in 4 cycles and financial assistance may be reduced accordingly.

Coir pith compost units with concrete floor of size 5 m x 3 m each (40 units maximum) with a capacity to produce 80 tons/ year are also eligible for subsidy to a maximum of Rs.60,000/- under this scheme. Financial assistance is also extended upto minimum 5 floors of size 5 m x 3 m each with a capacity of 10 tons/ year, on pro-rata basis.

Roof of convenient sizes are also required for both the above types of organic manure units.

4. Replanting and Rejuvenation of Coconut Gardens:

The key objective of the scheme is to enhance the productivity and production of coconut by removal of disease advanced, unproductive, old and senile palms; replanting with quality seedlings; and rejuvenating the remaining palms through integrated package of practices.

Financial assistance is extended under three components as below:

(i) Cutting and removal of old, senile, unproductive and disease advanced palms Subsidy @ Rs.1000 per palm, subject to a maximum of Rs.32,000/ ha extended during the first year

(ii) Replanting Subsidy of Rs.40/- per seedling subject to a maximum of Rs.4,000/ ha extended during the first year

(iii) Rejuvenation of the existing coconut palms by integrated management. Subsidy of Rs.17,500 / ha extended in two annual installments of Rs.8,750/- each.

The scheme is implemented on project basis based on State specific problems through State Agri./ Hort. Department as well as directly by the Board. The project shall clearly indicate the action plan and calendar of operation along with location, number of palms to be removed, area to be rejuvenated and number of seedlings to be replanted, etc. based on the baseline survey. The project is considered after issue of State Level Administrative Approval.

Guidelines for implementation of R&R at https://coconutboard.gov.in/docs/r-n-r.pdf

Baseline Survey format at https://coconutboard.gov.in/docs/r-n-r-survey.pdf

C. VALUE ADDITION, MARKETING etc.

5. Technology Mission on Coconut

The Scheme Technology Mission on Coconut (TMoC) was sanctioned during the financial year 2001-02 with the objectives of (a) developing new value added coconut products and by-products by research, bringing these value added product to commercial production by assistance to promising entrepreneurs adopting these technologies, (b) providing assistance for the control of specific disease/pest in any specific area including development of technology for controlling of such diseases/pests to ensure undisrupted supply of raw materials to the coconut industry for the production of value added products and by-products (c) developing and promoting market for such newly developed value added products and by-products including traditional products (ball copra, copra and oil) by research, surveys and brand promotion. The implementation of this scheme is on time bound project basis.

- TMoC scheme provides financial assistance to entrepreneurs/ farmers for setting up of coconut based industries (other than coir based industries).
- TMoC scheme mainly focuses on Research and Development on Post-harvest Processing, Product diversification, Value addition and management of pest and diseases to support coconut cultivation and industry.
- Through this scheme, CDB provides assistance to Research institutes for development and demonstration of technologies in the fields of processing and product diversification & management of pest and diseases.
- Details of Technology Mission on Coconut covering four major components are given below:-

(1) Management of insect, pests and disease affected gardens:		
Scheme	Scale of assistance	Remarks
a) Development of technologies	100 % (Max. Rs. 50 lakh/ project)	for ICAR (CPCRI)/ SAU/ State Deptt. and co-op. sector
	50 % (Max. Rs.25 lakh/ project)	for NGO's and other organizations
b) Demonstration of technologies	100 % (Max. Rs. 25 lakh/ project)	for ICAR (CPCRI)/ SAU/ State Dept. / Other PSU/ Regd. Co-op. societies
	50 % (Max. Rs.10 lakh/ project)	for individuals / group of farmers/ NGO's, private companies
c) Adoption of technologies	25% of cost of technology adoption	for group of farmers/ NGO's /other organisations
(2) Processing and product diversification:		
Scheme	Scale of assistance	Remarks
a) Development of technologies	100 % (Max. Rs.75 lakh/ project)	For Govt. institutions/ PSUs and co-op. societies
	75 % (Max. Rs.35 lakh/ project)	For NGOs, Individual entrepreneurs & other research organizations
b) Acquisition,training,		
Demonstration of technologies	100 % (Max. Rs.25 lakh/ project	For ICAR (CPCRI)/ SAU/ State Dept. / other related PSUs/ registered co-op. societies
	50 % (Max. Rs.10 lakh/ project)	For Individual entrepreneurs, NGO's and other organizations
c) Adoption of technologies	25% (Max. Rs. 50 lakh per project)	for group of farmers/ NGOs/ individual entrepreneurs/ other organisations
	33.3% (Max. Rs. 50 lakh per project)	for SC/ST women farmers
	50% (Max. Rs. 50 lakh per project)	in case of high value agriculture in UTs of Andaman & Nicobar Islands and Lakshadweep
(3) Market research and Promotion:		
Scheme	Scale of assistance	Remarks
(a) Market research	100 % (Max. Rs.25 lakh/ project)	For Govt. agencies & Co-op. Societies
	50 % (Max. Rs.12.50 lakh/ project)	For individuals, NGOs &other organizations
(b) Market Promotion - Brand building	100 % (Max. Rs.25 lakh/ project)	For Govt. agencies & Co-op. Societies
	50 % (Max. Rs.6 lakh/ project)	For Federation of CPSs (FPOs)
	50 % (Max. Rs.15 lakh/ project)	for NGO's and private institutes
(4) Technical Support, External Evaluation and Emergent Requirement:-		
Support is extended on need basis as decided by the Project Approval Committee of TMOC.		
Detailed information on TMoC is at https://coconutboard.gov.in/Technology-Mission.aspx		

6. Marketing, Market Intelligent Services, Statistics and Strengthening of Export Promotion Council

The Board undertakes market promotion activities for the development of the coconut sector in the country. The major activities comprises of Market Promotion, Market Intelligence, Market Research, Market Development, facilitating Farmers' Collectives and performing the responsibilities of Export Promotion Council and other enabling policies.

The Department of Commerce, Ministry of Commerce and Industry, Government of India has notified Coconut Development Board as an Export Promotion Council (EPC) for all coconut products other than those made from coconut husk and fiber, on 1st April 2009 vide Public Notice No.169 (RE-2008)/2004-2009.

CDB issues Registration cum Membership Certificate (RCMC) from the Export Promotion Council (which is mandatory for exporters) to enable exporters to avail various benefits under the Foreign Trade Policy viz., Remissions of Duties and Taxes on Exported Products (RoDTEP) and duty neutralization schemes of the Ministry of Commerce and Industry, Govt. of India. CDB as EPC provides services such as securing benefits under different incentive schemes for products from the coconut sector, facilitating participation of exporters from coconut sector in International Trade Fairs, disseminating important trade information, providing commercially useful information and assistance to exporters in developing and increasing their exports, organizing seminars, conferences and buyer seller meets, Exporter Excellence Award etc.

Financial assistance for establishment of Procurement Centres by Farmers' Collectives in coconut sector, scheme for Skilled Manpower Development for Processing, Assistance to entrepreneurs/ Coconut Producer Companies to participate in domestic trade fairs/ exhibitions, Assistance for Quality Certification, etc. are also extended under the scheme. Support for setting up of Sales Outlets for coconut products and 'Brand Building for coconut products' are also extended under the scheme 'Technology Mission on Coconut (TMoC)'.

Websites links of various schemes of the Board	
Links for Financial Assistance for establishment of Procurement Centres by FCs/ Scheme for Skilled Manpower Development for Processing	***https://coconutboard.gov.in/docs/Skilled-Manpower-Development-%20Processing.pdf***
Assistance to exporters for participation in International Exhibitions/ Trade Fairs/ Buyer Seller Meets	***https://coconutboard.gov.in/docs/Assistance-participation-international-exhibitions.pdf***
Assistance to entrepreneurs/ Coconut Producer Companies to participate in domestic trade fairs/ exhibitions	***https://coconutboard.gov.in/docs/domesticexhibition-assistance.pdf***
Assistance for Quality Certification	***https://coconutboard.gov.in/docs/assistance-foor-quality-certification.pdf***
Infrastructure support for setting up of sales outlets or kiosks for value added coconut products	***https://coconutboard.gov.in/docs/Assistance-settingup-salesoutlets.pdf***
Brand Building support' under TMoC	***https://coconutboard.gov.in/docs/brand-promotion.pdf***
Registration cum Membership Certificate (RCMC) Online application	***https://www.dgft.gov.in/CP/***

Collection, classification, compilation, analysis and interpretation of primary as well as secondary data pertaining to area and production of coconut, market price, import and export of coconut products, etc. and dissemination of information in Board's website as well as through Board's publications, etc. are also being undertaken regularly as part of Statistics related to coconut, apart from other statistical studies.

7. Technology Demonstration/ Quality Testing Laboratory

The scheme is implemented by two establishments of the Board viz., CIT, Aluva, Kerala and Regional Office, Guhwahati, Assam.

The CDB Institute of Technology (CIT) at Aluva, Ernakulam District in Kerala is continuously engaged in developing and standardizing new value added coconut products and to demonstrate the same to entrepreneurs. It also houses the Quality Testing Laboratory (QTL) and Pilot Testing Plant integrating technology, entrepreneurship and quality management. CIT offers various services and training programmes to individuals, Farmers' Collectives /SHGs/Women groups, private entrepreneurs and Vocational Higher Secondary, UG & PG students

(Food Science/ Food Technology/ Food Engineering/ Agriculture).

Details of the training programmes in CIT, Aluva is available at ***https://coconutboard.gov.in/CDBInstitute.aspx#Training***

A fullfledged NABL accredited Quality Testing Laboratory (QTL) is operating at the Institute in accordance with ISO/IEC 17025:2017 in the disciplines of chemical and biological analysis. The laboratory is equipped with advanced analytical instruments and modern facilities as per NABL requirements to carry out chemical/ microbiological tests of coconut based products, other food products and fertilizers. Details of trainings conducted by CIT is detailed in Table 3.

Analytical Charges for Chemical and Microbiological Parameters in CIT is available at https://coconutboard.gov.in/CDBInstitute.aspx#Charges.

Training programmes on 4-day 'Preparation of coconut based convenient foods' is also being organized by Board's Regional Office located at Guwahati, Assam.

D. PUBLICITY, EXTENSION AND SKILL DEVELOPMENT

8. Information and Information Technology

The Board organizes training and awareness programmes at Panchayat, block, district, state and national levels for farmers and other stakeholders on various topics related to coconut for enhancing awareness about the programmes of the Board. The Board is undertaking several programmes under Information and Information Technology with a view to disseminate information on various aspects

Table 3. Trainings offered by CDB Institute of Technology

Sl. No.	Name of training programme	Duration	Fees	Topics/ Products covered	Targeted participants	Minimum participants needed for a batch	Facilities offered
1	Coconut Convenience Foods-1 day-Demonstration only	1 day	Rs.500/- per head	Coconut chips, Chocolate, Cookies, Lemonade (squash), Pickle- 5 products, Theory sessions on value addition, packaging & Hygiene.	Kudmbasree units, other Self Help Groups, FPOs(CPS, CPF,CPC), Individuals	5	Tea& snacks, Lunch
2	Coconut Convenience Foods-4 Days	4 days	Rs.2000/- per head	Coconut chips, Chocolate, Cookies, Lemonade, Pickle, Chutney Powder, Coconut ladoo, Tender Coconut Spread, Coconut candy, Coconut Jelly, Virgin Coconut Oil(hot process)-Theory sessions on value addition, packaging& Hygiene.	Kudmbasree units, Individuals, Other Self Help Groups, FPOs	5	Tea& snacks, Lunch
3	Coconut Vinegar from coconut water by slow process/ Nata de coco.	1 day	Rs.1000/- per person	Coconut Vinegar	Basic science knowledge Kudmbasree units, Individuals, other groups, FPOs	5	Tea& snacks, Lunch
4	Training on Chemical analysis.	1 week	Rs.2500/- per person	Chemical analysis of coconut products	Minimum qualification-Graduation in Chemistry/ Biochemistry/ Food chemistry/ Food Technology	1	Nil
5	Training on Microbiological analysis	2 weeks	Rs.5000/- per person	Microbiological analysis	Minimum Qualification – Graduation in Microbiology/other life sciences with microbiology as one of the subjects	1	Nil
6	Entrepreneurship Development Programme	5 days	Nil	Sessions on Entrepreneurship, value additon, Food safety, Quality aspects, Marketing strategies, Schemes of CDB etc.	Farmer groups/Self Help Groups etc.	20	Food & Accommodation

of coconut cultivation and industry through Board's in-house periodical magazines in various languages viz, monthly (English and Malayalam), quarterly (Tamil, Kannada and Hindi) and biannual (Marathi and Telugu), various print, electronic & social media, organizing/ participation in exhibitions & fairs at national and international levels, production & screening of promotional video films, documentation of success stories, etc.

CDB has instituted the biennial scheme of National Awards in coconut cultivation, product development, product improvement, quality upgradation, product diversification, craftsmanship, extension activities and Farmers' collectives.

The Board implements skill development programmes on 'plant protection aspects on coconut including harvesting using palm climbing device', 'coconut based handicraft making' and 'neera technician' for the benefit of the coconut community as a whole. The expenses including accommodation for these programmes are fully borne by the Board.

The Board also maintains a well equipped Library, with IT support.

Links for the details of the components & application form

Skill development – FoCT/ Handicraft training/ Neera Technician	*https://coconutboard.gov.in/docs/ FoCT-Guidelines.pdf*
	https://coconutboard.gov.in/docs/ neera-technician-guideline.pdf
	https://coconutboard.gov.in/docs/ Handicraft-Training.pdf
Details of Awareness programmes/ Field Day/ etc.	https://coconutboard.gov.in/docs/ awareness-seminar-webinar.pdf
	https://coconutboard.gov.in/docs/ Awareness-Training-Programmes.pdf
Exhibitions/ Fairs proforma	https://coconutboard.gov.in/docs/ Participation-Exhibition.pdf
Subscription for Magazines	https://coconutboard.gov.in/docs/ Publications.pdf

E. INSURANCE – PALMS & HARVESTERS

9. Coconut Palm Insurance Scheme

Coconut Palm Insurance Scheme (CPIS) is being implemented with the objective of insuring coconut palms against natural calamities, climatic risks, pests, diseases and other perils. Under this scheme, all healthy nut bearing coconut palms in the age group from 4 to 60 years in a contiguous area (Mono / mixed) can be insured against natural perils leading to death/ loss of palm/ becoming unproductive. 50% of the premium is borne by the Board and balance is shared between the State Govt. and Farmer @ 25% each, as below.

Age group of Palms	Premium (Rs.)	Board's share (Rs.) (50%)	State Govt.'s Share (Rs.) (25%)	Farmer's share (Rs.) (25%)	Sum Assured (Rs.)
4-15 years	9.00	4.50	2.25	2.25	900/-
16-60 years	14.00	7.00	3.50	3.50	1,750/-

Insurance is for individual palms and not area based. Partial insurance of plantation is not allowed. Minimum five healthy nut bearing palms is the criterion to come under the insurance scheme. The scheme is being implemented in all coconut growing States through Agriculture Insurance Company and implementing State Governments.

Detailed scheme guidelines is available at *https://coconutboard.gov.in/docs/cpis-guidelines.pdf*

10. Kera Suraksha Insurance Scheme

The Kera Suraksha Insurance scheme for Coconut Tree Climbers (CTC)/ Neera Technicians/ Coconut Harvesters is being implemented in association with

M/s Oriental Insurance Company Ltd. The scheme is implemented in all coconut growing States.

The provisions under the scheme have been modified with increased benefits under all the components of the policy. The sum assured revised under the policy is Rs. five lakhs against 24 hours accident related risk including death.

Annual premium under the policy is Rs. 398.65/-, out of which Board's share of premium is Rs. 299.65 and balance Rs. 99/- is the beneficiary's share. Beneficiary has the option of paying his/ her share of premium of Rs. 99/- through DD or online mode.

Detailed guidelines of the scheme is available at https://coconutboard.gov.in/docs/kesri-guidelines-.pdf and application form at https://coconutboard.gov.in/ApplicationForms.aspx#suraksha

F. OTHERS

11. Technical Service, Project Management including Infrastructure and Administration

The expenses towards the technical services, major infrastructure developments and establishment are met from this scheme.

For availing the benefits under various schemes or for further information one can contact the offices of the Board located in various parts of the country. **https://coconutboard.gov.in/CDBOffices.aspx)**

S. No.	Region	Unit Office(s) of the Board situated	State(s)/ UT(s) covered for implementation of schemes
1.	Kochi, Kerala	Head Office, Kochi, Kerala	Kerala & Lakshadweep Islands
		DSP Farm, Neriamangalam, Kerala	
		Technology Dev. Centre, Aluva, Kerala	
		Field Office, Trivandrum, Kerala	
2.	Bangalore, Karnataka	Regional Office, Bangalore, Karnataka	Karnataka & Goa
		DSP Farm, Mandya, Karnataka	
		State Centre, Thane, Maharashtra	Maharashtra
		DSP Farm, Palghar, Maharashtra	
3.	Chennai, Tamil Nadu	Regional Office, Chennai, Tamil Nadu	Tamil Nadu, Puducherry
		DSP Farm, Dhali, Tamil Nadu	
		State Centre, Vijayawada, AP	Andhra Pradesh, Telangana
		DSP Farm, Vegiwada, AP	
		State Centre, Port Blair, ANI	Andaman & Nicobar Islands
4.	Patna, Bihar	Regional Office, Patna, Bihar	Bihar, Jharkhand
		DSP Farm, Madhepura, Bihar	
		State Centre, Kolkata, West Bengal	West Bengal
		DSP Farm, Fulia, West Bengal	
		State Centre, Pitapalli, Odisha	Odisha
		DSP Farm, Pitapalli, Odisha	
		MDIC, Delhi	Gujarat, Delhi, Uttar Pradesh, Rajasthan, Haryana, Uttarakhand, Himachal Pradesh, Punjab, Jammu & Kashmir, Ladakh, Chandigarh, DNHDD
		State Centre, Junagadh, Gujarat	Gujarat
		DSP Farm, Kondagaon, Chhattisgarh	Chhattisgarh, Madhya Pradesh
5.	Guwahati, Assam	Regional Office, Guwahati, Assam	All North Eastern States
		DSP Farm, Abhayapuri, Assam	
		DSP Farm, Hichachara, Tripura	

Further, as the Board's programmes are implemented in close coordination with the State Departments, the nearest offices of the Agriculture/ Horticulture Department of the State/ UT may also be contacted. ■

Re-emergence of lethal wilt disease in east coast regions of Tamil Nadu

Merin Babu[1], Josephrajkumar, A[1], Anes K.M.[1],. Thangeswari, S[3], Surulirajan, M[4].and Vinayaka Hegde[2]

Coconut (*Cocos nucifera Linn*.) is one of the versatile plantation crops that provides livelihood security to more than 12 million farm families worldwide. Coconut has been extensively cultivated in the east coast regions of Tamil Nadu and forms the backbone of the agrarian economy in this tract. The coconut farmers faced a severe setback due to the Gaja cyclone in 2018 that ravaged the coconut plantations in this region. Farmers are slowly limping back to normalcy with planting of new coconut seedlings. Amidst such a situation of crop loss and recovery thereafter, we report herewith the re-occurrence of the lethal wilt disease of coconut in Thanjavur district during February -March 2022. This disease was first reported from this region during 2007 as a disease of unknown etiology and later named as lethal wilt disease (LWD) in 2021 after characterizing the phytoplasmal pathogen associated with it. Being a region endemic to basal stem rot disease (Thanjavur wil t), farmers are hereby sensitized about the re-emergence of LWD and symptoms of these two diseases for better clarity, understanding and for further timely follow-up.

Lethal wilt disease (LWD)

As the name indicates, this is a lethal disease that kills the palm. This disease is associated with phytoplasma belonging to *'Candidatus phytoplasma asteris'(16SrI-B)*, a prokaryotic phytopathogenic bacteria. Phytoplasmas are usually restricted to phloem of palms arresting the translocation of photosynthates. Abnormal and sudden nut fall including buttons is the first characteristic symptom of LWD. Inflorescence necrosis and shedding of male flowers will be immediately followed. Yellowing and bronzing of leaves progresses from the outer whorls to spear leaf. The dried leaves remain hanging on the crown (skirting of leaves around the trunk) for a few days before detachment from trunk. As disease advances, necrosis and rotting of spear leaves and death of growing point occurs (Fig.1). Eventually, the entire crown perishes leaving a bare trunk. Affected palms die within 3-5 months after the appearance of the initial nut fall symptom. The rapid death of palms is definitely a matter of concern to the farmers of the region.

Occurrence of LWD affected palms is seen in leaps and jumps typical to vector transmission. Phytoplasma disease is usually transmitted by auchenorhynchan hemipteran insects which has not been established in the case of LWD so far. LWD is normally noticed during December to June, with a peak during summer phase (February - May). This may be due to the active prevalence of the vectors during summer months.The transmission rate is quite slow in the region.

Re-emergence of LWD

After the first report during 2007, the disease incidence was gradually progressing in east coast of Tamil Nadu. During 2016-2018, LWD was rampant in Thanjavur, Thiruvarur and Pudukottai districts of Tamil Nadu killing more than 300 palms. In November 2018, Gaja cyclone has devastated coconut plantations in the LWD endemic tracts. As majority of the adult

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Fig. 1 Symptoms of lethal wilt disease

yielding palms were uprooted and destroyed by the cyclone, there was no report on the occurrence of LWD in the three subsequent years. But during February -March, 2022, farmers and agricultural department officials from Enathi and Seruvaviduthi villages (Pattukottai Taluk) in Thanjavur district reported the occurrence of palms showing typical symptoms of LWD. The inflorescence and spear leaf samples collected from a symptomatic palm in Seruvaviduthi tested positive for LWD phytoplasma in polymerase chain reaction test using phytoplasma specific primers. Based on the nucleotide sequences of 16S rRNA region and virtual RFLP the association of LWD phytoplasma Candidatus phytoplasma asteris was identified, confirming the re-emergence of the LWD in east coast of Tamil Nadu after Gaja cyclone

▶ *Management*

- Periodic surveillance in plantations in disease endemic tracts
- Immediate uprooting and destruction of palms after diagnosis of typical symptoms.
- Regular removal of weeds in the system to avoid harbouring of pathogens.
- In order to de-risk farmers compatible intercrops are advised in the coconut plantations for steady and continuous income.

Basal stem rot (BSR) disease (Thanjavur wilt)

This is a fungal disease caused by the soil-borne Ganoderma spp..Being a debilitating disease, it affects the palm health significantly.In India, severe incidence of the disease was first reported from Thanjavur District of Tamil Nadu during 1950s and hence the disease is commonly known as Thanjavur wilt. The infection starts from roots and symptoms are seen in the crown as yellowing and wilting of leaflets during the initial stages, often confused with the symptoms of severe drought. The dried fronds of the lower whorls droop down from their point of attachment and hang vertically downwards to form a skirt around the trunk apex. The drooped

Fig. 2. Symptoms of basal stem rot disease

leaves fall off one by one leaving only a few leaves at the apex. As the disease progresses normal development of flowers and bunches is arrested. Nut yield is considerably reduced over a period of time.In course of time, the apex of the trunk shows tapering with the advancement of the disease, and bleeding symptoms may appear on the bole region. Initially these bleeding patches appear on several places as parallel vertical streaks. They soon coalesce, forming a discoloured band around the trunk(Fig 2). These brownish patches may extend up to 1 m from ground level. Emergence of fungal brackets are observed in certain cases, mostly after the death of the palm. In severe cases, the crown is easily blown off by wind, leaving only the decapitated stem.Occasionally, some infected palms do not show bleeding patches.

▶ *Management*

Basal stem rot disease is found contiguous and in patches in a locality. Such palms sustain for a long period of time if adequate management options are undertaken. integrated disease management practices involving following components are recommended

- Removal of dead palms and palms in advanced stage of the disease and destruction of the boles and root bits of the diseased palms
- Isolation of neighbouring healthy palms by digging isolation trenches around the affected palm
- Application ofTrichoderma enriched neem cake (5 kg per palm at six monthly interval)
- Intercropping with banana
- Treat severely infected palms by root feeding of hexaconazole @ 2%(100 ml solution per palm) and soil drenching with 0.1 % hexaconazole or with 40 litre of 1 % Bordeaux mixture in the coconut basin.
- Application of neem cake (5 kg) fortified with Trichoderma harzianum (CPTD 28)talc formulation (50 g)per palm per year at six monthly intervals helped in reduction in the incidence and recovery of the affected palm.
- Avoid flood irrigation.Excessive irrigation and submergence of palm basin with water aggravates the disease spread
- Soil-test based palm nutrient application for regaining the health of the palms

How to differentiate between BSR and LWD symptoms ?

Both LWD and BSR are present in the Thanjavur, Tiruvarur and Pudukottai districts of Tamil Nadu and have some of the symptoms like foliar yellowing, skirting of dried leaves around the trunk etc in common. This may cause confusion among farmers in the identification of the disease. Based on the distinct and characteristic symptoms, the disease can be diagnosed appropriately and proper management is to be undertaken at the earliest.

Secretary, Agriculture, GoI reviews the programmes of Coconut Development Board

Shri. Manoj Ahuja IAS , Secretary (Agriculture) and Shri Sanjiv Kumar IAS Additional Secretary & F.A, Ministry of Agriculture and Farmers welfare, Government of India visited Coconut Development Board, Kera Bhavan , Kochi on 19th October 2022 and reviewed the activities of Coconut Development Board and the Directorate of Cashew and Cocoa Development. Dr. Venkatesh.N.Hubballi, Director, DCCD and Shri. Pramod P Kurian, Assistant Director, CDB presented the schemes of the respective organizations and updated various activities and programmes.

Secretary, Agriculture offered all possible cooperation for the smooth functioning of the organizations and called upon the employees to work earnestly for the welfare of the farming sector.

Basal Stem Rot	Lethal Wilt Disease
Nut yield reduced	Abnormal nut fall and shedding of buttons
Yellowing , drying and drooping of older leaves that progresses very slowly	Bronzing and yellowing of older leaves and proceeds to spear leaf within 2-3 weeks
Bleeding patches on the base of the trunk	Bleeding patches absent
Slow weakening of palms	Rapid death of palms in 3-4 months
Disease incidence in patches	Disease incidence in random

In case of LWD, surveillance for identification of diseased palms and timely uprooting / destruction of affected palms are very crucial to arrest the spread of the disease. Farmers need not panic but correct understanding of symptoms and adoption of recommended management practices are effective for successful management of BSR. Evolving emergency preparedness module to tackle LWD is the need of the hour. Strengthening quarantine and timely diagnosis are very important to halt biosecurity threats looming into the country. ■

Agri and Horti Expo 2022

Coconut Development Board, MDIC, New Delhi participated in Agri and Horti Expo-2022 held at Pitampura Dilli Haat, New Delhi from 14th to 16 October, 2022.The expo showcased advancements in horticulture and agriculture , land development for better cultivation , protective cultivation, green house/poly house technology production and post harvest management of horticultural crops etc. CDB displayed value added coconut products and informative literature on coconut and its products and publications of the Board in the exhibition

Farmer Producer Organizations in Coconut Sector: Status and strategies for sustainability

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A Producer Organisation (PO) is defined as a legal entity formed by primary producers. The major share of producer organizations across the globe involves members drawn from farmers, milk producers, fishermen, artisans, etc. The producer organization can be organised and structured as associations, societies, cooperatives, farmers' groups, unions, federations, or even firms. They exist to promote the interests of farmers and to work for their economic and social benefit. Most producer organisations provide services that directly or indirectly support agricultural production (Rondot and Collion 2001, Bijman and Wollni 2008).

A PO can be a producer company, a cooperative society or any other legal form which provides for sharing of benefits among the members. Farmer Producer companies form a sub-sect of producer companies, where the members are farmers. The legal sanctity of these organizations and their institutional acceptability vary widely across the nations. However, the evidences for beneficial nature of these farmer producer organizations are now widely accepted among policy makers and farmer members alike.

The name Farmer Producer Company is an accepted nomenclature in India denoting a producer organization usually involved in agricultural production, processing and marketing. The terms used to designate closely related institutions and farmer collectives vary across the countries. Farmer Based Organizations (FBO), Community Based Organizations (CBO), Farmer Collectives (FC), Farmer Producer Companies (FPC) and Farmer Cooperatives (FC) are some of the names which are commonly used. Whatever be the nomenclature, essentially, the FPO carries out similar functions in most of the countries. The farmer producer organizations, as a new form of farmer collective combining the elements of cooperation and commercial companies, is being promoted aggressively as a means to address

the challenges faced by small holder producers.The functional presence of producer organizations is considered to be critical for small holders, to achieve competitiveness and ultimately improve their welfare(World Bank, 2008). In fact, primary producer organisations or collectives are being viewed as the only institutions which can protect small farmers from ill-effects of globalization or make them participate successfully in modern competitive markets (Trebbin and Hassler, 2012).

Evolution of Farmer Producer Organizations: Rationale

Aggregation and collectivisation is a tried and tested strategy which has benefitted many farming communities involved in cultivation of plantation crops including coconut across the world. It helps in realizing economies of scale, reduce the input costs while enhancing the bargaining power of the primary producers, especially the small holder producers. It has also played a significant role in reducing the risk in agriculture and strengthening the livelihoods of small and marginal farmers. By organizing themselves into farmer groups and FPOs, farmers have better capacity for and access to technical know-how on crop planning and management, inputs (including seed production), credit, post-harvest management. The membership in FPO's also enhance the capability of primary producers with regard to primary processing, value addition and marketing infrastructure. These collectives also provide better market linkages for their farmer members. .

The most common form of collectivisation that farmers have adopted across geographies involves some form of cooperative institutions and self-help mechanisms and Joint Liability Groups (JLG's). The Producer Companies or more specifically Farmer Producer Companies/Farmer Producer Organizations are of much recent vintage which evolved out of some short comings in the earlier institutional arrangements for collectivization.These farmer collectives were designed to address the constraints faced by small holder producers which arose from both the nature of agricultural production and the size of their holding. Some of the constraints which are of specific significance to small farmers include

- Structural challenges which acts as a barrier between farmers and the market hindering their growth and market viability.
- Poor market infrastructure, non-availability of credit from formal sources,market information asymmetries, inefficiencies of factor markets and output market etc.
- Lower bargaining power and holding capacity arising from insignificant individual production volume and disaggregate nature of agricultural production.
- Higher input costs arising from purchase of inputs in retail market, low volume transactions, inability to forecast requirements and lack of technical expertise in input management and decision making.

Though the farmer collectives like cooperatives had many lofty ideals, over time these ideals got diluted and a sense of lethargy crept in. The cooperatives and other forms of traditional farmer collectives alike failed due to problems like political interference and poor management. The efforts to provide stability and support to these traditional institutions often resulted in excessive bureaucratic control in day-to-day functioning and resulted in a lack of clear focus and vision about their institutional raison d'être. The constant quest for creating an institutional structure that can withstand these challenges and constraints while maintaining the ethos of cooperation for farmers' collectivisation saw many experiments in collectivizing the farmers. The Farmer Producer Companies or the Farmer Producer Organizations are one of the most promising of these innovative farmer collectives.

Though farmer cooperatives, which have a long history of existence, could be viewed as a crude form of farmer producer organization, its scope and functioning has significant drawbacks. Some of the major drawbacks of small farmer cooperatives/ farmer collectives arise from capital constraints, corruption, free rider problems, political interference and lack of autonomy (Singh and Singh, 2013). As a viable policy intervention for strengthening and revitalizing farmer collective organizations, it now considered that a change in organizational and operational environment of farmer collectives/ cooperatives more congruent with professionallyrun companies will be highly transformative in effect. The enhanced freedom, unshackling of collective power and stakeholder involvement in professionally runbusiness operations was expected to make farmer collectives profitable businessentities in a competitive market.

Types of Farmer Producer Organizations

Broadly Farmer Producer Organizations can be categorised into four broadcategories(Thompson et al. 2009):

- Market-oriented
- Input-oriented
- Extension-oriented and
- Policy and advocacy oriented

These categories are useful for mapping the terrain, but most producer organisations are a mixture of some or all of these functions. The identity of a producer organisation will vary according to its origins and context, be shaped by economic change and policy trends, and may well shift during the lifetime of the organisation.

Evolution of FPOs in India

Framing of a legislation that would enable incorporation of cooperatives as companies was one of the key policy initiatives under consideration during the early part of this millennium. The conversion of existing cooperatives into companies while ensuring the retention of the unique elements of cooperative business with a regulatory framework similar to that of companies was envisaged through changes in the Companies Act (GoI, 2013). On the recommendations of an expert panel ledby Y.K. Alagh, Government of India amended the extant Indian Companies Act,

1956, in 2002-03 to provide for "producer companies". The amendments ensured the establishment provisions for creation of producer companies or more specifically Farmer Producer Companies in agriculture sector as a hybrid between cooperative societies and private limited companies. The policy initiative through the amendment of Companies Act, 1956 effected through "The Companies(Amendment) Act, 2002" saw the emergence of the new generation Farmer Producer Organizations, more identified with companies in functioning and scope than with the cooperatives.In any agrarian economy dominated by the prevalence of small holder production system there exists a strong economic rationale and sound logic for a demand forsuch farmer producer organizations. Over a short span of time,FPOs have emerged as an alternative institutional arrangement, across several cropsectors including coconut, to promote small holder aggregation and address production, processing and marketing constraints faced by them. The concept behind Farmer Producer Organizations is that farmers, who are the producers of agricultural products, can form groups and register themselves under the Indian Companies Act. The aim is to enhance farmers competitiveness and increase their advantage in emerging market opportunities.

A Farmer Producer Company can be formed by any 10 or more primary producers or by two or more producer institutions, or by a contribution of both. They can undertake activities related to production, harvesting, procurement, grading, pooling, marketing, processing, etc., of agricultural produce. Several well documented success stories of Farmer producer companies in the country, over the short span of its existence in plantation crop sector, have proven that the entire gamut of activities related to production, processing, value addition, marketing and trade are well within the ambit of its capability.

FPOs in coconut sector–genesis and priorities

In India, coconut is cultivated in 18 states and 3 Union Territories and supports the livelihood of over twelve million people. It is of greater importance in the agrarian economy of the four southern states of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh, which account for 90% of the coconut cultivation in India. Coconut cultivation in the country has also spread in non-traditional tracts like Bihar, Chhattisgarh, Gujarat, West Bengal and North Eastern states. Island territories like Lakshadweep Islands and Andaman & Nicobar Islands have coconut as the major crop. The economic growth and prosperity of coconut growing regions in the country is highly dependent upon the stability of the coconut industry. Coconut is predominantly cultivated in small and marginal holdings. Most of these holdings neither provide gainful employment opportunities for the family labour throughout the year nor generate sufficient income to meet the family requirement. Presently coconut growers are more exposed to economic risks and uncertainties owing to the high degree of price fluctuations.

Organizing the unorganized coconut sector through farmer's collectives was one of the important activities of Coconut Development Board (CDB) during the twelfth five-year plan. Since then, CDB has been facilitating formation and hand holding of FPOs in coconut sector. The primary objective of mobilizing farmers into member-owned producer organizations is to enhance production, productivity and promote economically desirable processing, marketing and to enhance profitability of coconut farming, especially

among small and marginal farmers in the country. The participant farmers will be given the necessary support to identify appropriate production and protection technologies for increasing production by optimum use of inputs, cultivation of intercrops suitable to their coconut garden, facilitating access to modern technologies through participatory extension initiatives, capacity building programmes etc. The producer's collectives will have to be strengthened and they will be facilitated to access forward linkages with regard to technology for enhanced productivity, value addition of feasible products and market tie-ups. Coconut farmers are organized into small neighbourhood informal groups at grass root level as Coconut Producers Societies (CPS) and 10-12 CPS federated in to Federations at middle level and 10-12 federations to form producer companies at top level. Like co-operative system three tire coconut farmers collectives was formed which would be supported under the programme to form associations/organizations relevant to their context including confederating them into FPOs for improved input and output market access as well as negotiating power.

CDB initiated formation of Farmer Producers Organization (FPO) forming coconut producers' collectives at grass root level called Coconut Producers Societies (CPS) in 2009-10 in Kerala and 112 CPS formed during the year. Subsequently CPS formation was scaled up to all districts of Kerala. In 2012-13 scaling up of CPS formation in Tamil Nadu, Karnataka and Andhra Pradesh and integration of CPS to form CPF in Kerala was started. Formation of Coconut Producer Companies was also initiated in 2013-14. So far 9788 CPSs, 747 CPFs and 69 CPCs have been registered across the country.The progress of CPS, CPF and CPC formation so far is summarised in table 1.

Table 1. Progress of Coconut Producers' Society, Federation and Company formation

S No	States	No. of CPS registered	No. of CPF registered	No. of CPC registered
1	Kerala	7231	467	29
2	Tamil Nadu	697	73	19
3	Karnataka	401	125	13
4	Andhra Pradesh	1157	82	8
5	West Bengal	218	0	0
6	Odisha	40	0	0
7	Assam	29	0	0
8	Gujarat	14	0	0
9	Maharashtra	1	0	0
	TOTAL	9788	747	69

(Source: Coconut Development Board http://coconutboard.nic.in/ProducerSocieties.aspx accessed on 25 October 2022)

Rationale and organizational structure of FPOs in coconut sector

Farmer Producer Organizations in coconut sector are formed with the main objective of socio-economic development of farmers through productivity improvement, cost reduction, efficient aggregation, processing for value addition, better by-product utilization and efficient marketing of the produce. It aims at providing a fair, steady and reasonable income to farmers by organizing the unorganized coconut sector through farmer collectives.

True empowerment happens only when farmers are involved in all stages of value addition supply chain, such as, production, aggregation, processing, marketing, distribution and sales. Only when farmers start an enterprise of their own, they will learn to plan, collaborate, work in a team, take decisions and risks, interact with people from other spheres and sectors, thus learning and growing with the enterprise. This helps in inducing self-confidence within the farmers thus enabling their overall development.

The name 'Producer Company' is provided in order to indicate that the members have to necessarily be a primary producer. A new Part IXA, sections 581(A) to 581(ZT) of Indian Companies Act 1956 provide the features of a Producer Company. It is a hybrid between a Private limited Company and a Cooperative society as it minimizes interference from other external bodies thus ensuring that the real power rests with members of the company itself. Such a company functions like any other private limited company with only difference being that the profit incurred flows back to farmers who own the company.

Initially coconut farmers were apprehensive about putting back hard-earned surplus to agriculture sector, even not very confident regarding attempting to run their affairs of their own. Secondly, they needed assesses to technology, training on management of organisations, pathway for getting into existing market network with new found collective bargaining power. Coconut Development Board may play a strong and proactive role in facilitating emergence of FPOs in coconut sector.

Primary need was to bring together small coconut farmers into member-based farmers collectives.

But it was noticed that small farmers require an external agent to organise them into a group and then federate number of such groups to federations. Thirdly, bring together federations to form Coconut Producer Companies so that institutions would operate in a self-sustaining manner (Nair,2013). Realising this need, CDB came forward to facilitate formation of three tier coconut farmers' collectives.

Coconut Producer Societies (CPS)

CDB conceptualized a systematic method for the aggregation of coconut farmers. A three tier system of farmer collectives federated at secondary and tertiary level was envisaged. CPS forms the foundation for the three-tier network of farmer collectives conceived by CDB. Grass root level collectives comprising of 40-100 coconut farmers formed the basic unit of aggregation. The rationale behind this was that small groups would increase cohesivity. Any farmer who has a minimum of 10 bearing coconut palms is eligible to become a member of the farmer collective. These farmers cultivating in contiguous areas will have a minimum of 4000-6000 coconut palms which provide them with adequate marketable surplus to initiate a marketing or processing endeavour. The farmer collectives were registered under the Indian Societies Act, 1860 or Travancore Cochin Literary, Scientific and Charitable Societies Act, 1955 and were named Coconut Producer Societies (CPS). The CDB developed a common byelaw for the CPS. The objective is socio economic development of the farmers through productivity improvement, cost reduction, efficient aggregation, marketing and processing for value addition and by product utilization.

The CPS functions on the concept of inclusive growth. The group is formed on a basis of a knowledge based, farmer centric, non-subsidized approach and advocates a group approach in crop production, post-harvest handling, processing, value addition and marketing. The CPS is first facilitated to develop a database on the extent of coconut cultivation in its area of operation including details of bearing palms, non-bearing palms, varieties grown etc. This database will provide the necessary information for planning the activities of the CPS towards ensuring an enhanced and sustained income. The CPS is facilitated to conduct regular group meetings and undertake proactive measures towards increasing productivity through synchronized cultural operations, rejuvenation of gardens through systematic replanting, timely harvest of produce by effective utilization of Friends of Coconut Tree and collective marketing. CDB extends support to CPS for establishment of nurseries to cater to the demand for seedlings among the member farmers.

Coconut Producers Federation (CPF)

The CPS are further federated to form Coconut Producers Federations (CPF) by integrating 15-25 CPS. The federation will be having around 1 lakh coconut palms in its area of operation which will provide adequate raw material for the initiation of a coconut processing unit. The federations can also undertake efficient by-product utilization for increased returns. On the production front, CPFs can embark on R&D activities in coconut farming with the association of research institutes thereby enabling demonstration of already developed technology and also development of innovative technology in a participatory and need based manner. Federations can identify good mother palms in the area and enter into seedling production for ensuring good planting material supply. Federations can aggregate coconut for collective marketing either for domestic market or export and also for processing activities. CPFs can take a lead role in ensuring adequate and timely credit to the coconut farmers through Kisan Credit Cards (KCC). CPFs can empower the member farmers and undertake processing of coconut and production of various products from coconut. Monitoring of the activities of the member CPS and engineering the formation of new CPS in potential areas was also one of the key responsibilities of the CPF. Enterprises like coconut chips production, tender coconut parlours, minimal processing of tender coconut, copra production etc were the activities commonly undertaken by CPF.

Coconut Producers Company (CPC)

Around 8-10 CPFs would join together to form a CPC. A CPC would consist of around 10,00,000 yielding palms. This company would be registered under section 581B of Indian Companies Act of 1956. The Producer Company is wholly and fully owned by the farmers.Sometimes when CPSs have large number of members and having almost one lakh bearing coconut palms, such CPSs are considered equivalent of CPFs and ten such CPSs may come together to form a CPC in two tier structure. The total number of bearing coconut palms owned by the member farmers was considered as the most important factor in the formation of an FPO.

Coconut farmers' collectives under 'Keragramam' project

Apart from the three-tier FPO structure formed under CDB other types of farmers' collectives are also functioning in coconut sector, out of which the prominent one is the collectives facilitated under Keragramam project implemented by State Department of Agriculture, Government of Kerala.

State Department of Agriculture Development and Farmers' Welfare, Government of Kerala has been implementing Keragramam, a project for integrated management of coconut gardens on cluster basissince 2012. The project is implemented in an area of 100 ha for a consecutive period of three years in each the selected coconut growing gramapanchayats in the state. Every year the project is extended to new gramapanchayats. During the year 2022-23 it is proposed to implement the Kera gramam project in 100 grama panchayats thus covering a total area of 10,000 ha. Financial incentives are provided to take up timely adoption of scientific crop management practices such as opening palm basins, weeding, mulching, coconut husk burial for moisture conservation, intercropping in coconut garden, soil test based nutrient management including application of soil ameliorants, fertilizers/ biofertilizers, magnesium sulphate/secondary nutrients/micronutrients, organic manure, integrated pest and disease management, removal of senile unproductive palms and replanting with good quality seedlings. Incentives are also provided for installation of irrigation facility including micro-irrigation. Under the project assistance is also provided for purchasing coconut climbing devices and establishing organic manure production units.Viable proposals by farmer clusters, SHGs, NGOs and FPOs to start enterprises on coconut processing and value addition will also be supported under the project.

A compact area approach with an extent of 100 ha is adopted for implementation of Keragramam project. All small and marginal framers coming under the selected project area will be included as beneficiaries of the project based on the suitability of the coconut gardens, irrespective of their land holding size. It is envisaged to facilitate formation of ward level/panchayat level Kera samithy (coconut society) to organise activities under Keragramam project on a group approach for taking up cultural operations, application of manures and fertilizers and plant protection in coconut gardens. Kera samithy has to be registered under the Charitable Societies Act. Cluster formed at panchayat level should have a technical resource group for monitoring the implementation of the different components of the project with Grama Panchayat President as the Chairperson and Agricultural Officer as the Convener. The resource group will have field level functionaries of Department of Agriculture, representatives of KAU, CDB and scientists from research stations as members.

Other types of farmer collectives in coconut sector

Apart from the FPOs supported by CDB and Department of Agriculture as discussed above, various other collectives of farmers including Farmer Producer Companies, farmers' groups supported by co-operatives, credit institutions, NGOs etc also facilitate group approach for implementation of interventions pertaining to integrated development of coconut sector.

Government support for FPOs

Government can facilitate the development and strengthening of FPOs by creating a suitable legal and regulatory framework, developing policies that provide a framework for active and meaningful engagement and cooperation with FPOs, creating laws and policies that seek to establish a balance between severalstakeholders with divergent interest, providing an enabling environment to accesspublic incentive programmes and other resources, providing opportunities for FPOs to participate in policy development, supporting and facilitating capacity-building of FPOs, promoting equitable distribution of access to government services and raising public awareness about the role and relevance of the FPOs in its domain.

As a policy initiative to support farming community, FPOs bring a clutch of benefits for the government. It is in the interest of a benevolent government to develop a collaborative partnership with the FPO sector. Encouraging the establishment and successful development of FPOs should be a priority for governments wishing to promote sustainable development ofcoconut sector since the stakeholder involvement through FPOs innurturing the coconut economy will ensure incorporation of sustainability principles in all activities. The establishment of FPOs strengthens market forces and enhances better and fair access to markets for all stakeholders. The enhanced market efficiency, while enhancing government revenues, is helpful

for optimizing resource allocation across crops and commodities.

The establishment of FPOs can reduce the need for government expenditure and involvement in provision of support services, especially extension services and other technical guidance services. This can free up government resources for other priority sectors in the country while making services available to farmers at a lower cost and with more effectiveness than is often possible by government. Governments should encourage the development of FPOs as they can improve the process of policy making by proposing supportive policies and providing coherent assessments of policy impacts from the perspectives of actual stakeholders.

During the last few decades, a wide range of FPOs have emerged with the support of state and central governments and their number is on the rise. A central sector scheme for formation and promotion of 10,000 FPOs is being currently implemented by the Ministry of Agriculture & Farmers Welfare under which financial assistance and other incentives are provided to FPOs.

Issues and challenges facing FPOs in coconut sector

There is a broad consensus that concerted efforts need to be made to promote and nurture producer companies and further legislation need to be made to make these companies more attractive for investors. The rapid growth and development of FPO sector not with standing, this relatively new institutional mechanism has thrown up several issues. The restriction on trading of shares of FPOs which limits the exit options for investors, the exclusion on non-producers and the low level of institutional support from commercial financial institutions are some of the persistent issues. This shows that there is scope for improving the existing way of functioning and the need for policy makers to guard against complacency with respect to their approach to FPOs in policy matters. Facilitating the formation of new FPOs is extremely relevant if the interests of the millions of small and marginal farmers in our country are to be protected. But it is also equally important to analyse the performance of existing FPOs so that the nature and extent of problems they experience can be figured out, and viable strategies and interventions can be formulated and implemented to sustain their activities.

ICAR-Central Plantation Crops Research Institute (ICAR-CPCRI), one of the national institutes under ICAR having the mandate for research on coconut, arecanut and cocoa, has been actively promoting farmer collectives as part of project implementation pertaining to transfer of technologies, especially in the coconut sector. As part of supporting the activities of FPOs in coconut sector CPCRI has been conducting studies on performance of FPOs, constraints they experience and strategies for strengthening them (Thamban et al. 2020). Besides, interface programmes and workshops involving FPOs, scientists and other stakeholders are also being conducted by the institute with the aim of revitalising the activities of FPOs. A Scientist-FPOs interface programme on 'FPOs in coconut sector-Status and challenges' was organised by CPCRI during 2021 at Kozhikode. National Mentoring Workshop for Strengthening Farmer Producer Organisations, was held in August 2022 at the ICAR-CPCRI Regional Station, Kayamkulam, as part of the Platinum Jubilee celebration of the Regional Station. Studies conducted by CPCRI and the interactions in the interface programmes and workshops conducted have brought out various issues and challenges faced by the FPOs in coconut sector.

Key issues, challenges and strategies.

• Lack of working capital is a major problem experienced by FPOs in coconut sector. The low level of awareness about the functional and operational structure of FPOs among financial institutions makes them reluctant to provide term loans and working capital loans to producer companies. Therefore, creation of awareness among financial institutions needs to be accorded priority. Provision of interest free revolving funds or loans need to be considered to support FPOs.A corpus fund may be raised with government support for generating sufficient working capital for coconut FPOs.

• Though agricultural income is exempted from income tax, the same benefit is not available to Farmer Producer Companies. Equal tax treatment on par with agriculture need to be extended to FPOs in coconut sector also.

• Lack of professional leadership adversely affects the FPOs in coconut sector and many of the FPOs have become defunct due to this problem. Capacity building programmes to nurture leadership traits among FPO representatives are to be conducted regularly to support them.

• Many FPOs failed in their objectives due to

lack of administrative capacity resulting in poor management of record keeping/account books which leads to issues with accountability and transparency. These factors also stand in the way of their accessing finance from banks.

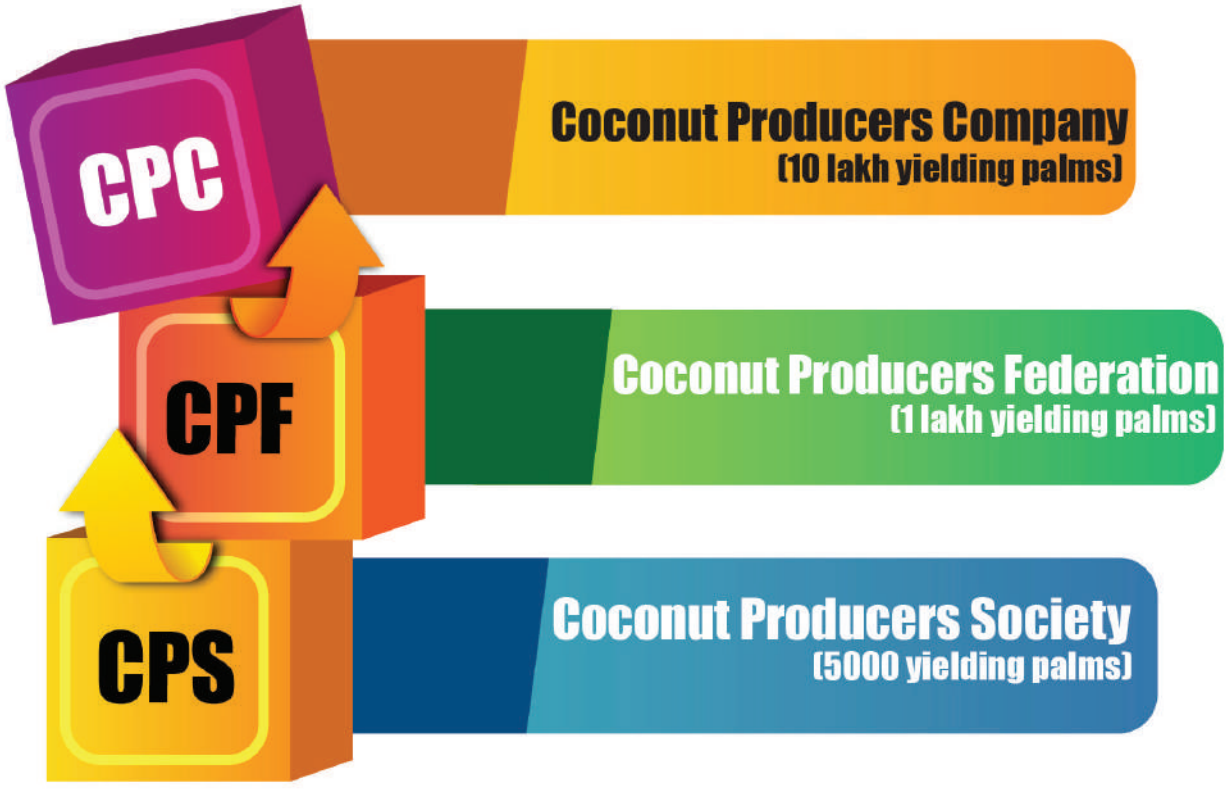
• Only very few FPOs in coconut sector have explored the options for getting premium pricing through certification strategies and providing traceability of its produce. This results both from a lack of capacity and lack of awareness. This situation needs to be addressed.

• The role of professional extension services is underutilized during the initial stages of formation of FPOs. These services can be used in locating farming community, awareness creation, community mobilisation, organising community meetings through local leaders, social capital formation, facilitating formation of core group, capacity building of farmers etc.

• A major difficulty for sustaining activities as perceived by FPOs in coconut sector is that they do not get enough support from government agencies except for the formation of FPOs and initial activities. The fact is that many FPOs are dependent on grant-in-aid and subsidies provided through various government and non-governmental sources. This undermines an assessment of their actual commercial viability and makes them fragile as an institution. The FPOs need to be trained to become self-sufficient and weaned off external support within a short span of time. However, FPOs need support for their sustenance and also subsequently for diversifying/ strengthening their activities for which incentives can be provided based on their performance and achievements.

• Most of the FPOs in operation focus on increasing the output volumes alone with a hazy focus on profitability. The FPOs should focus on productivity enhancement per unit of land and reorient their present focus on production to a focus on market-oriented production. The focus on productivity and profitability can be embedded in crop planning, rotation and shifting patterns of crops and development of value chains to reduce the transaction cost.

• Majority of FPOs in coconut sector experience various constraints in marketing and also they mostly fail in brand building which adversely affect their performance and viability. Hence, it is necessary to facilitate formation of a consortium of FPOs in coconut sector and common branding for the coconut value added products produced and marketed by coconut FPOs.



• The network of CPS/CPFs may be utilised by government for procurement of coconut from coconut growers and primary processing of nuts facilitated by the formation of a nodal agency for the collection of copra, and a central facility for safe storage/warehousing. Rate of fees charged for technology transfer related to value added coconut products and machineries and other services provided to FPOs in coconut sector need to be made more affordable.

• Local Self Governments (LSGs) can play an important role in supporting FPOs in coconut sector by involving them in the implementation of the decentralised planning initiative. However, most of the LSGs do not realise the potential of linking decentralised planning in agriculture sector and FPOs. They recommended that specific norms be fixed and necessary guidelines issued to LSGs for supporting FPOs through decentralised planning. Interventions on production and supply of good quality coconut seedlings, customised fertilizers, inputs for organic agriculture, interventions to provide support to growers by making available skilled labour, especially palm climbers, and farm equipment and machinery, etc., can be included in the decentralised planning and linked to the FPOs for implementation.

Way forward

Collectivization of producers, especially small and marginal farmers into farmer producer organisations has emerged as one of the most effective means of addressing the challenges faced by agriculture sector. Though India has witnessed the emergence and establishment of numerous farmer collectives in the coconut sector, policy incentives to support these FPOs with a specific focus on facilitating improved access to investments, technology inputs and markets need to be implemented. The network of FPOs in coconut sector and the available evidence clearly indicate the importance of handholding institutional services in development of FPOs. The organizational, financial and commercial sustainability of FPOs can be further enhanced by leveraging the strengths and addressing the constraints through pragmatic policies and there is a need for government support to create a FPO nurturing ecosystem for revitalising the FPOs in coconut sector.

References

Bijman, J. and Wollni, M. 2008. Producer organizations and vertical coordination: An economic organization theory perspective. Paper presented at the International Conference on Cooperative Studies, 7–9 October, Köln, Germany. Available: http://coqa.nl/wp-content/images/bijmanwollni_ producer organisation_ and vertical coordination _20082.pdf

CDB (2007) http://coconutboard.nic.in/docs/FPO-short-concept-note.pdf

Chand, Ramesh., Prasanna, Lakshmi P.A. and Singh, Aruna (2011) Farm Size and Productivity: Understanding the Strengths of Smallholders and Improving Their Livelihoods. Economic and Political Weekly, June 25 2011. XLVI (26&27):5-11.

Nair, Deepthi, (2013), Producer companies: the new outlook in the global world, Indian Coconut Journal, 56(5) 15-16.

Government of India (2011) Final Report of Twelfth plan working group ondisadvantaged farmers, including women, Planning Commission, Government ofIndia available at http://indiagovernance.gov.in/files/working_group-reportfarmers.pdf

Government of India (2013). Policy and process guidelines for farmer producerorganizations in India, Department of Agriculture and Cooperation, Ministry ofAgriculture, GoI, 92p.

Government of Kerala (2016) An analytical study of Agriculture in Kerala.Directorate of Agriculture, Government of Kerala. 339 p.

Mahesh, R. (2000) Farm Size - Productivity Relationship: Some evidence fromKerala. Working Paper 2, Kerala Institute for Environment and Development(KIED), Thiruvananthapuram.

Rondot, P. and Collion, M. H. 2001. Agricultural producer organizations: Theircontribution to rural capacity building and poverty reduction. Report of a Workshop,28–30 June 1999. Washington, DC: The World Bank. Available:http://info.worldbank.org/etools/docs/library/51025/ZipAgExtension1/agextension1/ Materials/ additional/ AgProdOrg-Proceedings-en.pdf

Rubber Board (2016). http://rubberboard.org.in/ManageScheme.asp?Id=45

Singh, S. and Singh, T. (2013) Producer Companies in India: A study oforganization and performance, Centre for Management in Agriculture,IndianInstitute Management, Ahmedabad, 126 p.

Tagat, Venkatesh (2016) Financing for Farmer Producer Organisations (FPOs) –Focus on Transforming Agricultural Lending, NABARD knowledge series-3,National bank for Agriculture and Rural Development, Mumbai. 68 p.

Thamban C, Jayasekhar S, Chandran KP and Rajesh M.K. 2020. Sustainability of Farmer Producer Organisations - The case of producer organisations involved in the production and marketing of 'neera' in the coconut sector in Kerala, India. Journal of Plantation Crops 48(2):150-159.

Thompson, J., Teshome, A., Hughes, D., Chirwa, E. and Omiti, J. 2009. Challengesand opportunities for strengthening farmers' organisations in Africa: Lessons fromEthiopia, Kenya and Malawi. FAC Policy Brief 31. Brighton: Future AgriculturesConsortium.

Trebbin A and M Hassler 2012. Farmers' producer companies in India: a newconcept for collective action?. Environment and Planning 44(2):411- 427.

World Bank (2008) World Development Report 2007: Agriculture forDevelopment, The World Bank, Washington DC.

Parachute Kalpavriksha Foundation: Enhancing Productivity of Indian Farmers

Aravind G.S, Parachute Kalpavriksha Foundation, Coimbatore

Parachute Kalpavriksha Foundation, a CSR initiative from Marico, a leading FMCG company in the country and producer of one of the most popular coconut oil brands "Parachute" aims at enhancing climate resilience through sustainable agriculture, community sustenance and livelihood empowerment-based initiatives. Launched in 2017, the key objectives of the Kalpavriksha Foundation are to capacitate farmers on scientific and innovative agricultural practices that improve productivity and optimize the use of natural resources thereby generating better income for farmers. Aligning goals with CDB's mission of promoting coconut cultivation, the Kalpavriksha Foundation has undertaken many initiatives for supporting farmers across the country. A few of them include the productivity improvement program, water stewardship initiatives, digital initiatives, establishing agri business centres, disaster relief activities, and Kalpavriksha Knowledge Centre.

The Foundation follows a model of learning, enabling, training, and transforming. The cycle starts by learning from industry bodies like CDB and agriculture experts.

"As an initiative working towards the welfare of farmers, it is critical for us to keep learning and stay updated on what's happening in the sector. We are regular readers of industry journals, Agri magazines, and other sources of expert information. It's important that we learn from industry bodies, take inspiration from them, and do our part to make a difference in the lives of farmers in India" – Amit Bhasin, Chief Legal Officer & Group General Counsel and Secretary, CSR Committee, Marico Limited.

The key goal of the Kalpavriksha program is to equip farmers to have increased sustainable crop yield leading to enhanced income generation opportunities as well as train farmers on scientific and climate-resilient agricultural practices. The program train farmers on the topics of pest & disease, nutrient, soil, afforestation, and water management. The activity is performed through field personnel who interact with farmers, train them on farming practices, and help them with on-field support. The final goal is to transform myths-based farming into scientific-based farming methods.

Kalpavriksha currently has more than 100 field personnel who visit farmers monthly and provide support. Over the last 5 years, 60,000 farmers are

enrolled, covering 2.5 lakh acres of farms in the program which has helped in making an impact of 15% improvement in productivity. To amplify this training, the Foundation has also developed a library of 30+ videos explaining the critical topics in multiple vernacular languages.

The field personnel are entrusted with a planned schedule for visiting the farms and providing one-to-one consultation to the farmers. They visit specific routes and farms on the planned day of visit. Over time, we realized that more farmers were looking for help. To serve farmers seeking instant support, we have built a care centre (toll-free number) that farmers can reach out to. This helped the Foundation to assist more than 70,000 farmers to date. This service is available in 5 different languages.

As part of digital outreach program, the

"My name is Annadurai, I am from Tensengupalayam. Duraisamy from Kalpavriksha team has been coming to my farm every month for the past 3 years. I used to face issues like stem bleeding, pest attack, and root damage in my farm. Kalpavriksha team helped me tackle these issues. They also helped provide root feeding treatment to trees. As there was low labour availability, Duraisamy brought the labours and helped complete the process. The quality and quantity of nuts have improved now. After the intervention, the trees are looking healthy. Earlier I was harvesting 6 loads, now I am harvesting 9 to 10 loads."

"I am Satheesh Kumar, and I am from Kuruvayakoundan palayam. I own 12 acres of farm in Coimbatore. Water availability has always been a problem in my farm, & I wasn't aware of the benefits of farm ponds initially. Once I came to know of its advantages, we contacted Parachute Kalpavriksha Foundation for constructing a farm pond.

Post construction, we now have good water storage facility. Our farm pond is 8 feet deep and has 1000 cubic metre capacity. Earlier we used borewells at 700 – 800 ft levels. Now, water is stored in the ponds. Post constructing the farm pond, water storage is good, button formation has improved, and shedding is not much seen.

Water is crucial for agriculture. Due to low availability of water, we have suffered a lot. Now this issue has been resolved for us by the Kalpavriksha team. I request them to bring more schemes like this in the future."

Foundation has ensured social media presence through Facebook, Instagram, and YouTube. The digital impact of the Foundation includes more than 1.7 lakh Facebook page followers and over 80 lakh views on YouTube.

Managing 100+ field personnel came with its challenges. Using the help of technology, a robust management system was put in place for recruiting, training, and engaging the field force. Moreover, Kalpavriksha mobile app was released last year through which the farmers can stay updated about market prices, use fertilizer calculators, read blog content, etc. More than 20,000 people have downloaded the app.

Kalpavriksha Foundation also played a helpful part in mitigating the aftermath of Gaja Cyclone that severely impacted the coconut farmers in the Thanjavur delta region. The Foundation has donated more than One Lakh coconut saplings and 40,000 banana saplings as an intercrop for immediate income. The Foundation also undertook rejuvenation activities to improve the yield of impacted trees.

The Foundation has also worked on water stewardship activities by partnering with farmers and building farm ponds to enhance natural water conservation potential. To date, more than 90 crore litres of water conservation potential have been generated through this program, contributing significantly to Marico's cumulative water conservation potential of 263 crore litres across the country. Water being one of the crucial inputs

for improving yield, this initiative has helped build 600+ farm ponds across Tamil Nadu. Apart from farm ponds, the Foundation also undertake building trenches, bunds, mulching, etc.

Demonstrations are one of the most effective ways to inspire action. To enable farmers to act on pests, diseases, and nutrient management, Parachute Kalpavriksha Foundation has set up a demonstration farm to showcase the variation in yields with varying inputs. The farm consists of six tree varieties divided into three panels based on the inputs provided.

Started as a pilot program in Thanjavur district of Tamil Nadu, Kalpavriksha has touched the lives of over 60 thousand farmers and now supports farmers in the states of Karnataka, Kerala, and Andhra Pradesh as well.

The initiatives undertaken by the Parachute Kalpavriksha Foundation form an integral part of Marico's ESG 2030 roadmap. Under the Sustainable Coconut program, Marico aims to empower approximately more than one lakh farmers about sustainable practices and develop a Sustainable Coconut standard that provides recommendations to offset the crop's carbon footprint across its entire lifecycle. These measures are aimed at improving productivity and enhancing climate resilience, as well as offsetting carbon impact through afforestation programmes, across coconut plantations. The program aims to enrol 4+ Lakh acres of coconut plantation by 2025 and achieve a cumulative productivity improvement rate of 16%.

According to Bipin Odhekar, Head- Operations Excellence, Marico "As a leading organization in the foods and wellness industry, it is important for the Foundation to ensure sustainable practices and work towards the growth and welfare of farmers. A flagship CSR initiative, the Parachute Kalpavriksha Foundation, was set up to advance this cause. The Foundation has already impacted the lives of more than 60,000 farmers. And the Foundation aim to support 1 lakh farmers by 2025".

For farmers seeking support, Kalpavriksha Foundation can be reached through the following channels: *Toll-Free No: 1800 266 4646 Website: www.parachutekalpavriksha.org* ■

Cultivation practices for coconut
November

Irrigation for seedlings

- Seedlings are to be given irrigation either through drip or basin method. If drip irrigation is adopted provide on an average 10 litres of water per seedling per day. Through other methods like basin irrigation 40 litres of water once in four days is sufficient.

Irrigation for adult palms

- Irrigation can be started in coconut gardens, except in localities which receive rain through north east monsoon. Even in localities where rainfall through north east monsoon is not received in adequate quantity (rainless period extending for more than 10 days) irrigation has to be provided to the palms.
- If basin irrigation method is adopted, provide irrigation once in four days @ 200 litres per palm.
- Drip irrigation is the ideal method of irrigation for coconut. Small pits of 1'x 1' 1' size should be taken 1 m away from the tree trunk at four equidistant points within the basin. The pits are to be filled with coir pith. The drippers/microtubes are to be placed sub surface in these pits through a polythene conduit pipe. The number of dripping points should be six for sandy soils and four for other soil types. 30-45 litres of water per palm per day is to be provided through drip irrigation system.

Drainage

- Ensure adequate drainage facilities in coconut gardens in localities which receive rain through north east monsoon. Depending up on the soil type and water table drainage channels of appropriate size, minimum of 50 cm depth and width, can be taken either manually or mechanically. Drainage channels are to be constructed for every two rows of palms.

Manuring

- Drip fertigation may be started for coconut palms. Water soluble fertilizers like urea and Muriate of potash can be given along with drip irrigation system. For the coconut palms, these fertilizers as per the general recommendation (50% of the recommended dose ie 545 g urea and 1000 g of Muriate of potash per palm per year) can be given in equal splits through monthly fertigation schedule. However, quantity of chemical fertilizers is to be worked out based on soil test results and yield targeted.
- Wherever Boron deficiency is noticed 100 g Borax may be applied in the basin.

- For coconut palms showing yellowing of leaves due to Magnesium deficiency, 0.5 kg of magnesium sulphate can be applied in the basins.

Green manuring

- In regions benefitted by north east monsoon like Tamil Nadu, the green manure plants can be ploughed back in to the interspace of coconut garden if the plants have attained 50 percent flowering. Similarly, green manure plants grown in the coconut basins also can be incorporated into the soil.

Mother palm selection

- Select mother palms for seed nut collection to raise quality planting material.
- In tall varieties, seed nuts should be collected

- from mother palms which should have attained an age of 20 years, yielding constantly more than 80 and 120 nuts per palm per year for rain fed and irrigated conditions respectively with nut weight more than 600 g and copra weight of 150 g and above. Further, the palm should have a minimum of 30 leaves and free of any disease. The trees should have short and strong petioles with wide leaf base firmly attached to the stem. The bunch stalk should be short, stout, strong and should not show any tendency to droop down or buckle. Palms which produce barren nuts or those shedding large number of immature nuts should be discarded. Very old age palms i.e., above 60 years may be avoided and growing in very favourable conditions e.g. trees near manure pits are to be avoided. Palms showing alternate bearing tendency also should be avoided. In dwarf varieties seed nuts can be collected from mother palms which have attained an age of 12 years or more and yielding more than 60 and 100 nuts per year for rain fed and irrigated condition, respectively. Further it should have a minimum of 30 leaves with nut weight more than 400 g.

Nursery management

- Weeding should be done in the nursery.
- Five month old ungerminated nuts and dead sprouts should be removed from the nursery.
- Mulching with coconut leaves or dried grass or live mulch by raising green manure crops can be done in the nursery
- Provide irrigation
- Need based plant protection measures against pests and diseases are to be undertaken. Soil drenching of chlorpyriphos @ 2ml/litre is to be done in the nursery, if termite infestation is

observed. Spraying of water on the leaves can be done against white fly infestation in the coconut nursery.

Mulching

- Mulching of palm basins can be undertaken if not done earlier. Fallen dried coconut leaves available in the coconut garden can be used for mulching. In the non traditional areas like Bihar, Madhya Pradesh, Chhattisgarh and North Eastern states, ensure thick mulching in the basin to regulate soil temperature. Irrigation can be started to negate the effect of low temperature in such areas.

Plant protection

Currently, a drastic shift in pest damage level on coconut is being experienced in the event of unprecedented weather vagaries. Gradient outbreak of the invasive rugose spiralling whitefly (*Aleurodicus rugioperculatus* Martin) in Peninsular and North-East India, black headed caterpillar (*Opisina arenosella* Walker) in Karnataka and slug caterpillar (*Darna nararia* Moore) in Andhra Pradesh and Karnataka are classical examples to support this phenomenon. Rhinoceros beetle (*Oryctes rhinoceros* Linn.) and red palm weevil (*Rhynchophorus ferrugineus* Olivier) are cosmopolitan pests recorded predominantly in monsoon and post-monsoon periods in Peninsular India. The most unnoticed and a serious sucking pest observed during North-East monsoon phase is the attack by coreid bug (*Paradasynus rostratus* Distant). At least 2-3 bunches would be affected with complete button shedding leading to barren bunches. Incidence of bud rot disease, nut fall, leaf rot, stem bleeding and Basal Stem Rot/*Ganoderma* wilt also cause damage to coconut. Under the changing weather conditions systematic monitoring is very crucial to suppress outbreaks of pests and diseases in coconut.

Regular observation and monitoring should be done in the coconut garden to identify incidence of pests and diseases and need based and appropriate plant protection measures are to be adopted to avoid crop loss. Recommendations for the management of pests and diseases in coconut for the month of November are furnished below.

Integrated Pest Management

▶ *Rhinoceros beetle*

- Adopt mechanical method of control by extracting beetles with beetle hooks, without causing further injury to the growing point of the palm
- The top most leaf axils may be filled with powdered neem cake/marotti cake (*Hydrocarpus sp/* pongamia) @ 250 g + fine sand (250g) per palm as a prophylactic measure
- Filling the innermost three leaf axils with 4 g each of naphthalene balls covered with sand (12 g/ palm) for juvenile palms
- Placement of two perforated sachets containing chlorantraniliprole a.i. 0.4% (5 g) or fipronil (3 g) or one botanical cake (2 g) developed by ICAR-CPCRI
- Incorporation of the biomass of weed plant *Clerodendron infortunatum* Linn. in the cow dung/ compost pit
- The breeding sites may be treated with green muscardine fungus (*Metarhizium anisopliae*)

▶ *Red Palm Weevil*

- Avoid causing injury to the palms, as they would attract the weevil to lay eggs. Mechanical injury if any, caused should be treated with coal tar
- While cutting fronds, petiole to a length of 120 cm is to be left on the trunk to prevent the entry of weevils into the trunk
- Removal and burning of palm at advanced stage of infestation would aid in destruction of various stages of the pest harboured in the trunk
- Prophylactic leaf axil filling suggested for rhinoceros beetle is very essential as this pest pave way for red palm weevil
- If damage occurs in the crown, the damaged tissue has to be removed and insecticide suspension, imidacloprid (0.02%) @1 ml/L of water may be poured in. In case of entry of weevil through the trunk, the hole in trunk may be plugged with cement/tar and the top most hole is made slanting with the aid of an auger and the insecticide solution is poured through this hole with funnel

▶ *Leaf eating caterpillar*

- Cutting and burning the heavily infested and dried outer most 2 - 3 leaves helps to prevent the spread of the pest.
- Improving soil and infested palm health through balanced dose of chemical fertilizers and organic manures.
- Since a very rich natural enemy fauna is associated with the pest in the field, chemicals are generally not encouraged for management of *O. arenosella.* As this pest is subject to parasitism by a good number of indigenous larval and pupal parasitoids, biological suppression is a feasible and viable approach. Augmentative release of stage specific parasitoids viz., the larval parasitoids *Goniozus nephantidis* (Bethylidae) @ 20 parasitoids/palm, *Bracon brevicornis* (Braconidae) @ 20 parasitoids/ palm, the prepupal parasitoid, *Elasmus nephantidis* (Elasmidae) @49/100 pre-pupae, and the pupal parasitoid *Brachymeria nosatoi* (Chalcididae) @32/100 pupae at the appropriate time was found effective in the sustainable management of the pest. Combined release of the parasitoids is required in multi-stage prevalence of the pest in the field. Conditioning of parasitoids on larval frass before release enhanced the field level parasitism.

▶ *Eriophyid mite*

- Spraying on the terminal five pollinated coconut bunches with neem oil garlic soap mixture @ 2 per cent concentration (neem oil 200 ml, soap 50 g and garlic 200 g mixed in 10 litres of water)
- or spraying neem formulations containing 1 per cent azadirachtin @ 4 ml per litre of water
- or spraying palm oil (200 ml) and sulphur (5g) emulsion in 800 ml of water
- Root feeding azadirachtin 10,000ppm @ 10 ml + 10 ml water is also effective
- Along with the recommended dose of manures and fertilizers, 5 kg neem cake should be applied

▶ *Coreid bug*

- Spraying of neem oil-soap emulsion (0.5%) on the pollinated bunches. The emulsion can be prepared by adding 5 ml neem oil and 8 g bar soap in one litre water.

▶ *Rugose Spiralling Whitefly*

- No chemical insecticide should be sprayed on leaves

- Application of 1% starch solution on leaflets to flake out the sooty moulds.
- In severe case, spray neem oil 0.5% and no insecticide is recommended.
- Installation of yellow sticky traps on the palm trunk to trap adult whiteflies.
- Encourage build up of parasitoids (*Encarsia guadeloupae*) and re-introduce parasitized pupae to emerging zones of whitefly outbreak.
- *In situ* habitat conservation of the sooty mould scavenger beetle, *Leiochrinus. nilgirianus.*

Integrated Disease Management

▶ *Bud rot*

- Remove the infected tissues of the spindle completely. Two or three healthy leaves adjacent to the spindle may have to be removed, if necessary, for easy removal of all rotten portions and thorough cleaning. After removing the affected tissues apply 10% Bordeaux paste and cover the wound with a polythene sheet to prevent entry of rain water. The protective covering has to be retained till normal shoot emerges.
- Destroy the infected tissues removed by burning or deep burying in the soil
- Spray 1% Bordeaux mixture to the surrounding palms

▶ *Stem bleeding*

- Avoid burning of trashes near the tree trunk
- Avoid injury to the tree trunk
- The affected tissues should be completely removed using a chisel and smear the wound with 5% hexaconazole (5 ml in 100 ml of water) and drench the basins @ 25 lit. of 0.1% solution
- Smearing paste of talc based formulation of *Trichoderma harzianum* on the bleeding patches on the stem (The paste can be prepared by adding 50 g of *Trichoderma* formulation in 25 ml of water)
- Soil application of *Trichoderma harzianum* enriched neem cake @ 5kg per palm and adopt recommended irrigation/moisture conservation practices.

▶ *Leaf rot*

- Remove rotten portion of the spindle leaf and 2-3 successive leaves and pour fungicide solution containing 2 ml hexaconazole 5 EC in 300 ml water/ palm or talc based formulation of *Pseudomonas fluorescens* or *Bacillus subtilis* @ 50 g in 500 ml water/palm into the well around the base of the spindle leaf
- Undertake prophylactic measures to prevent rhinoceros beetle attack

▶ *Basal Stem Rot/Ganoderma wilt*

- Removal of dead palms, palms in advanced stages of the disease and destruction of the bole and root bits of these palms
- Isolation of diseased palms from healthy palms by digging isolation trenches of 2 feet depth and one feet width around the basin
- Avoiding flood irrigation or ploughing in infected gardens to prevent spread of the inoculum.
- Addition of 50 kg of farmyard manure or green leaves per palm per year.
- Application of *Trichoderma harzianum* enriched neem cake@ 5 kg per palm and irrigating the palm once in 4 days and mulching around the basin
- Raising banana as intercrop wherever irrigation is possible
- Root feeding of hexaconazole @ 2% (100 ml solution per palm) or soil drenching with 0.2% hexaconazole / 1 % Bordeaux mixture @ 40 litre solution per palm. ■

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Market Review – September 2022

Domestic Price

Coconut Oil

During the month of September 2022, the price of coconut oil opened at Rs. 14200 per quintal at Kochi and Alappuzha market and Rs. 14450 per quintal at Kozhikode market. The price closed with a net loss of Rs. 600 per quintal at Kochi and Rs. 500 per quintal at Alappuzha market and Rs.550 per quintal at Kozhikode market.

During the month, the price of coconut oil at Kangayam market opened at Rs. 11533 per quintal and closed at Rs. 10533 per quintal.

Weekly price of coconut oil at major markets Rs/Quintal)				
	Kochi	Alappuzha	Kozhikode	Kangayam
01.09.2022	14200	14200	14450	11533
03.09.2022	14200	14200	14350	11400
10.09.2022	14200	14200	14350	11200
17.09.2022	14000	14000	14300	10933
24.09.2022	13900	13900	14200	10867
30.09.2022	13600	13700	13900	10533

Milling copra

During the month, the price of milling copra opened at Rs.8300 per quintal at Kochi and Rs.8250 per quintal at Alappuzha and Rs.8550 per quintal at Kozhikode market.

The prices of milling copra closed at Rs. 7700 per quintal at Kochi market, Rs. 7750 per quintal at Alappuzha market and Rs. 8000 per quintal at Kozhikode market with a net loss of Rs.600 at Kochi market and Rs.500 at Alappuzha market and Rs. 550 per quintal at Kozhikode markets.

NR-Not reported

During the month, the price of milling copra at Kangayam market opened at Rs.7700 and closed at Rs. 7400 per quintal with a net loss of Rs. 300 per quintal.

Weekly price of Milling Copra at major markets (Rs/Quintal)				
	Kochi	Alappuzha	Kozhikode	Kangayam
01.09.2022	8300	8250	8550	7700
03.09.2022	8300	8250	8400	7600
10.09.2022	8300	8250	8300	7700
17.09.2022	8100	8050	8250	7500
24.09.2022	8000	7950	8150	7600
30.09.2022	7700	7750	8000	7400

Edible copra

During the month the price of Rajpur copra at Kozhikode market opened at Rs. 13100 per quintal and closed at Rs. 13500 per quintal with a net gain of Rs. 400 per quintal.

Weekly price of edible copra at Kozhikode market (Rs/Quintal)	
01.09.2022	13100
03.09.2022	13300
10.09.2022	13000
17.09.2022	13600
24.09.2022	14200
30.09.2022	13500

Ball copra

The price of ball copra at Tiptur market opened at Rs. 13600 per quintal and closed at Rs.13300 per quintal with a net loss of Rs.300 per quintal.

Weekly price of Ball copra at major markets in Karnataka (Rs/Quintal) (Sorce: Krishimarata vahini)	
01.09.2022	13600
03.09.2022	13800
10.09.2022	13500
17.09.2022	13500
24.09.2022	14000
30.09.2022	13300

Dry coconut

At Kozhikode market, the price of dry coconut opened and at Rs. 10750 per quintal and closed at the same price during the month.

Weekly price of Dry Coconut at Kozhikode market (Rs/Quintal)	
01.09.2022	10750
03.09.2022	10750
10.09.2022	10750
17.09.2022	10750
24.09.2022	10750
30.09.2022	10750

Coconut

At Nedumangad market in Kerala, the price of coconut opened at Rs. 13000 per thousand nuts and closed at the same price during the month.

At Pollachi market in Tamilnadu, the price of coconut opened Rs. 21500 per ton and closed at the same price during the month.

At Bangalore market in Karnataka, the price of coconut opened at Rs. 17000 per thousand nuts and closed at Rs.20000 per thousand nuts with a net gain of Rs.3000 per thousand nuts during the month.

At Mangalore market in Karnataka, the price of coconut opened Rs. 26000 per ton and closed at Rs. 23000 per ton during the month with a net loss of Rs. 3000 per ton.

Weekly price of coconut at major markets				
	Nedumangad (Rs./1000 coconuts)#	Pollachi (Rs./MT) ##	Bangalore Grade-1 coconut,(Rs./ 1000 coconuts) ##	Mangalore Black coconut (1 tonne) ##
01.09.2022	13000	21500	17000	26000
03.09.2022	13000	21500	17000	26000
10.09.2022	13000	21500	17000	24000
17.09.2022	13000	21500	20000	23000
24.09.2022	13000	21500	20000	23000
30.09.2022	13000	21500	20000	23000

International price

Coconut

The price of coconut quoted at different domestic markets in Philippines, Indonesia, Srilanka and India are given below.

Weekly price of dehusked coconut with water				
Date	Domestic Price (US$/MT)			
	Philippines	Indonesia	Srilanka	India*
03.09.2022	136	154	175	264
10.09.2022	134	148	169	264
17.09.2022	134	144	161	264
24.09.2022	133	143	158	264
				*Pollachi market

Coconut Oil

International price as well as domestic price of coconut oil in major coconut grown countries expressed a downward trend during the month.

International price and domestic price of coconut oil at different international/ domestic markets are given below.

Weekly price of coconut oil in major coconut oil producing countries					
	International Price(US$/MT)	Domestic Price(US$/MT)			
	Philippines/ Indonesia (CIF Europe)	Philippines	Indonesia	Sri lanka	India*
03.09.2022	1322	1227	NR	1819	1398
10.09.2022	1275	1218	NR	1746	1373
17.09.2022	1270	1201	NR	1736	1341
24.09.2022	1179	1163	NR	1681	1333
					*Kangayam

Copra

The price of copra quoted at different domestic markets in Philippines, Srilanka, Indonesia, and India expressed a downward trend during the month.

The price of copra quoted at different domestic markets in Philippines, Indonesia, and India are given below.

Weekly International price of copra in major copra producing countries				
Date	Domestic Price (US$/MT)			
	Philippines	Indonesia	Srilanka	India* * Kangayam
03.09.2022	679	588	927	932
10.09.2022	660	567	966	944
17.09.2022	660	531	854	920
24.09.2022	647	486	799	932
				* Kangayam

#(Source: Epaper,Kerala Kaumudi), ##(Source: Star market bulletin)

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