PROCEEDINGS OF THE DIRECTOR OF AGRICULTURE , DIRECTORATE OF AGRICULTURE DEVELOPMENT AND FARMERS' WELFARE, VIKAS BHAVAN, THIRUVANANTHAPURAM

(Present : Dr.K.Vasuki IAS)

Sub: Annual Plan 2021-22 – **Scheme on Coconut Development** – Continuous Administrative sanction accorded – orders issued.

Read: (1) G.O. (Rt) No. 643/2017/AD dated.29.06.2017
(2) G.O.(Rt) No.251/2019 dated 08/3/2019
(3) Order no.TP(2)12924/19 dated 24.05.2019
(4) G.O(Rt)No.766/2019/AGRI dated 09.08.2019
(5)Order no.ADFW/470/2020-TP2 dated 10.06.2020
(6) Order no.ADFW/470/2020-TP dated 05.11.2020
(7) G.O.(Rt)No.633/2020/AGRI dated 02.07.2020
(8) Annual Plan 2021-22
(9) G.O.(Rt) No.393/2020/Agri dated.22/4/2020.

Order No. ADFW/3118/2021-TP2 **Dated: 23.04.2021.**

Government of Kerala, vide order read 1st above, accorded Administrative sanction for the implementation of the scheme, **Coconut Development** during the year 2017-18. During 2019-20, Administrative sanction for Green book components was accorded as per reference (2) cited. Continuous Administrative Sanction was accorded for the scheme components "Establishment of model HYV Dwarf/semi- tall Coconut Demonstration Farms" and "Pest and Disease Management in Coconut Gardens on a Campaign Basis" for an amount of Rs.298.30174 lakh during 2019-20. During 2020-21 Continuous Administrative Sanction was accorded for the scheme components "Keragramam" and "Development of Model HYV Dwarf/Semi-Tall Coconut Farms" alone vide references 4th and 5th cited above due to the shortage of funds available for scheme implementation after allotments made for encashment of pending bills of 2019-20 including Queue and WAMS clearance bills during 2020-21. Administrative sanction was also obtained for the component "Keragramam – third year assistance" vide reference 6th mentioned above.
During the financial year 2021-22, there is a budget provision of Rs.7547.00 lakh for the scheme 'Coconut Development' under head of account 2401-00-103-87 (P). The components included in Annual Plan 2021-22 are as follows:

Sl. No.	Component	Amount (Rs. in lakh)
1	Keragramam	4856.00
2	Development of Model HYV Dward/ Semi-Tall Coconut Farms	50.00
3	Pest and disease management in coconut gardens on a campaign basis	50.00
4	Rehabilitation and rejuvenation of coconut palms in Kerala as part of Coconut Mission – Coconut Council (3rd year activities)	2591.00
	TOTAL	7547.00

Continuous Administrative sanction is accorded for the following components to be implemented abiding by the norms and conditions of the Government Orders read above.

1) KERAGRAMAM

It is proposed to establish 84 new Keragramams covering a total area of 21000 hectare of Coconut garden under scientific cultivation during the year 2021-22 adopting integrated management practices for productivity improvement. It is proposed to converge various development activities for the integrated development of holdings which will be implemented on cluster basis.

Objectives

Major objectives of the scheme proposed are

- Increase production and productivity of coconut
- Integrated pests and disease management
- Integrated nutrient management
- Promotion of inter cultivation
- Promotion of inter cropping
- Improving irrigation facilities
- Ensure availability of quality planting materials
- Popularisation of climbing devices
- Promotion of value addition ventures
- Employment generation

Programme

Only a comprehensive massive movement involving removal of diseased and senile palms, replanting with high yielding productive coconut seedlings, scientific fertilizer application based on nutrient status, enriching organic status of soil, creation of irrigation facilities, additional income by raising intercrops and value addition to each and every product of coconut and better price to its products can help the farmers. Unless a holistic approach is taken in the management of coconut gardens, the desired results will not be forthcoming. Better management practices include inter cultivation, application of soil ameliorants, manures, chemical as well as biofertilizers, plant protection chemicals, biopesticides and biocontrol agents, inter-cropping, proper irrigation etc.

The following activities will be undertaken to increase production and productivity of coconut in the area under this scheme.

- Application of organic manure, fertilizers and adoption of cultural management practices.
- Implementation of pest and disease management programme including release of biocontrol agents.
- Inter-cropping /multi species cropping and mixed cropping.
- Establishment of Irrigation unit including Micro Irrigation. (digging open wells, installation of drip unit, pumpset and accessories).
- Establishment of Organic manure production units
- Distribution of coconut climbing device for clusters.
- Removing senile and diseased palms.
- Replanting with good quality seedlings.

Components sanctioned under the Scheme

I. Integrated Management of Coconut Gardens.

The major programme under Coconut Development Programme is Integrated Management of Coconut Gardens on cluster basis. The programme will be implemented in 84 Keragramams with a project area unit size of 250 ha each during 2021-22. Thus a total area of 21000 Hectare (@175 palms/Ha) is to be covered in the state under this programme.

The following activities will be undertaken under this programme.

a. Intercultural operations – opening of coconut basins, weeding, mulching etc.

The coconut basins are to be kept weed free by periodical weeding. Mulching is an effective method of conserving soil moisture. Mulching coconut basins with green/dry leaves at the end of north-east monsoon will add organic matter to the soil and reduce soil temperature. Opening of coconut basins will help to conserve moisture and facilitate maximum percolation of rainwater and water conservation. It is estimated that an amount of Rs.70/- is required for opening coconut basins and application of fertilizers and manures. An amount limited to **Rs.35/- per palm** as 50% subsidy is sanctioned for this purpose as financial assistance.

b. Coconut Husk burial for Moisture Conservation in Coconut garden.

For moisture retention, burying of fresh or dried husk around the palm is a desirable practice. The husks are placed in layers with concave surface facing upwards in trenches of 0.5 m width and depth taken around the palm at a distance of 2 meters away from the trunk. The benefit of moisture conservation will last for 5-7 years. It is estimated that an amount of Rs.100/- per palm is required for taking trench and burying coconut husks. An amount limited to **Rs. 50/- per palm** as 50% subsidy is sanctioned for this purpose as financial assistance.

c. Application of Soil ameliorants, Manures, Fertilizer and PP chemicals.

Coconut plantations which are not properly managed are to be supplemented with soil ameliorants, organic manures and chemical fertilizers in order to revive their production and productivity.

(1) *Soil Ameliorants*: Soil acidity is a major problem in Kerala. Application of liming materials like lime / dolomite /gypsum/ powdered lime improves the soil condition and accelerates uptake of nutrients and thereby increase the yield of the crop. 75 % subsidy towards the cost of lime limited to **Rs.9/- per palm/Kg** is sanctioned.

(2) *Fertilizers*: The general recommendation for coconut palms under average management is 0.34: 0.17: 0.68 Kg of N P & K per palm per year. 50% subsidy limited to **Rs.20/- per palm** is sanctioned as financial assistance.

(3) *Magnesium Sulphate*: In areas where yellowing of coconut is predominant, application of Magnesium sulphate is inevitable at the recommended dose of 0.5 Kg / palm/year. For this 50% of the total cost limited to **Rs.3.75/- per palm** is sanctioned as subsidy.

(4) *Organic Manure*: 50 % of the cost of organic manures/Farm yard manure / Compost limited to **Rs.25/- per palm** per year is sanctioned as assistance.

(5) *PP Chemicals*: For under taking PP operations, including prophylactic spraying, 50 % subsidy limited to **Rs.10/-per palm** is sanctioned as assistance.

d. Application of Biofertilizers/ Bio-pesticides and Bio-control agents.

To limit the excess use of Chemical fertilizers and Plant Protection chemicals, use of bio-fertilizers / bio-pesticides and bio-control agents are given thrust, considering the environment and health aspects of the society. 50% subsidy limited to **Rs.25/-** per **palm** is sanctioned as assistance for the use of Bio fertilizer, Bio Pesticide and Bio control agents.

For the release of Bio-control agents, services of the **State Biocontrol Laboratory, Mannuthy and Parasite Breeding Stations** of the Agricultural Department will be availed.

Sanction is also accorded to provide 50 % assistance for the labour charge for climbing palm limited to **Rs 50/- per palm** for the release of bio control agents.

For the purpose of PPC operations and application of Biofertilisers/ Bio-pesticides and Bio-control agents, the hot spot area should be completely treated irrespective of the small and marginal farmer category, so as to eradicate the source of infestation completely. The large farmer category restriction is waived for this purpose only.

e. Cut and removal of disease affected, old and senile palms.

An amount of **Rs.1000/palm** limited to **Rs.10,000/ha** is sanctioned as assistance for cut and removal of disease affected, old and senile palms @ 10 palms per hectare.

f. Replanting with good quality coconut seedlings.

The cut and removal of diseased, old and senile palms will be followed up immediately by a systematic replanting programme. 50 % of the disease affected palms cut will be replanted with disease tolerant seedlings to standardize the density of population to nearly 175 palms/ha. 50 % subsidy limited to **Rs.60/- per seedling** is sanctioned as assistance.

g. Intercropping in Coconut garden.

To ensure better land utilization, harvesting of solar energy, efficient water use, better utilization of soil nutrient resource and for more returns, inter cropping with banana, tuber crops, ginger, turmeric etc. can be taken up in coconut gardens. An assistance of 50 % subsidy of the total cost of cultivation limited to **Rs. 6000/- per ha** is sanctioned.

Labour component for inter-cultural operations, application of inputs and plant protection activities can be met from MNREGS by placing appropriate proposals to the local self government. Service of Karshika karma sena and Agro service centres also to be be utilized for this purpose.

Subsidy to the components (a) to (g) is limited to Rs.15200/-per ha under the state plan share, for covering an area of 21000 ha at the rate Rs.250 Ha/ Keragramam. An amount of Rs.3192.00 lakh is set apart for the above 7 sub components (a to g) under Integrated Management of Coconut Gardens under the state plan share , for 84 no.s of Keragramams.

The assistance under the integrated management component can be extended upto Rs 25000/- per ha integrating the resources from the 'Janakeeyasoothranam' funds of the respective local bodies, to undertake more components from the enlisted activities following the stipulated subsidy norms limiting to Rs 9800/- per hectare .

Additional Components proposed on need based manner:-

II. Installation of Irrigation components including micro irrigation

It is proposed to bring an additional minimum area of 20 ha. in each Keragramam under irrigation through this programme. Assistance will be provided for digging new wells, ponds and installing pumpsets and for installation of pumpset alone if there is an existing water source. Assistance will be provided at 50% subsidy limited to a maximum of **Rs10000/- per unit** of well or pumpset with accessories for small and marginal farmers with a minimum area of 0.12 ha. Drip/Sprinkler irrigation units can also be installed availing assistance from this scheme or can be linked with any other micro irrigation schemes like that of **State Horticulture Mission.** The valuation can be done either by the concerned Assistant Executive Engineer(Agri), LSGD Engineer or by the concerned Agricultural Officer who is also a competent authority. **The maximum assistance for irrigation component selected under this scheme is proposed to be limited to Rs.25000/- per ha.** An amount of **Rs.420.00 lakh** is sanctioned for this component, for covering an area of 1680 ha in 84 Keragramams. More area, if necessary, can be brought under the irrigation component utilizing the savings from items I to IV.
The irrigation component can also be integrated with the CSS scheme PMKSY, low cost eco-friendly water harvesting structures including those models developed by KAU can be constructed in the cluster area utilizing the fund provisions available, as per the approved district irrigation plan and eligible assistance as per approved cost norms can be extended from appropriate State/ Central schemes. Size of the pond in the cluster area can be determined based on the water requirement.

III. Coconut Climbing Equipments for Clusters.

Coconut climbing devices are to be supplied at subsidized rate of Rs.2000/unit to small and marginal farmers in the selected panchayats through Krishi Bhavans. The equipments are to be purchased from KAICO/RAIDCO. Total amount of **Rs.102.48 lakh** is proposed to set apart for this component. More climbing devices can be distributed if necessary utilizing the savings from items I to IV.

IV. Establishing Organic Manure Production units

Organic farming is an emerging area in the country and the export potential of organic products is increasing across the world. With the rising demand for organic products, organic manure production also has to be enhanced. To promote the production of organic manure by vermi-composting or coir pith composting, and to make use of the unused organic waste as a part of in situ waste management, financial assistance to the tune of **Rs. 10,000/- per unit** is sanctioned to the beneficiary for establishing compost unit of 7.2 x1.2 x 0.6 meter size and material cost of inputs aiding in composting. It is proposed to establish 672 nos. of organic manure production units in 84 Keragramam @ 8 nos. per Keragramam. Assistance can be proportionately given to units of smaller size also. An amount of **Rs.67.20 lakh** is proposed to set apart for this component. More units can be established if necessary utilizing the savings from items I to IV.

The components I to IV above are inter changeable as per local requirements without exceeding financial limits subject to the approval of the technical resource group.

V. Operational cost to Krishi Bhavans.

It is proposed to provide an enhanced amount as operational cost @ Rs 15000/- per Krishi Bhavan for taking up activities like conduct of trainings, meetings, cluster formation and other unforeseen

related items. An amount of **Rs 12.60 lakh @Rs.15,000/- per Krishi Bhavan/Keragramam** is earmarked for the component.

VI. Assistance for Panchayat level Kera Samithies /Societies'.

(a) An amount of Rs. 75.00 lakhs is earmarked to provide assistance to 15 no.s of Kera Samithies /Societies formed in each Keragramams at the rate of Rs 5.0 lakh per Kera samithy / Society for their establishment and to organise activities on a group approach for cultural operations, application of manures and fertilizers, plant protection, and other unforeseen expenses. Action plan/Projects for the group activities should be prepared by the concerned Agricultural Officers and implemented with the approval of the Block level Assistant Director of Agriculture. The expenditure for registration of new samithies, campaigns, trainings, meetings, survey and other related expenditure can also be met from this component. However purchase of computer and accessories, office furniture etc should not be met from this component. The amount will also be utilised for undertaking activities related to coconut husk procurement and working capital to establish a coir processing unit in the cluster, at the rate of Rs 2.0 lakhs per Kera samithy / Society. The assistance can be extended to a group/ society or an SHG willing to undertake this activity. This activity can be linked with the schemes of the Coir Development Department and can avail the subsidy from that Department also. Any savings from this component can be utilized to organise activities on a group approach mentioned as per **VI (a)** or as a working capital for value addition and agro processing units mentioned in **VI (b)** below.

(b) Value addition and agro processing are regarded as sunrise sector of Kerala economy in view of its large potential for economic growth. Consequent on the declaration of 1193 Chingam 1 to 1194 Chingam 1 as Coconut Year, Government of Kerala have announced to support value addition projects giving thrust to coconut. **Small Farmers Agri Business Consortium (SFAC)** has been identified as the implementing agency of the scheme. To take up common activities like value addition, agro processing units (virgin coconut oil, coconut milk cream, coconut palm jaggery, shell charcoal, shell powder, vinegar, handy crafts etc) and its marketing, an amount of **Rs.2100.00 lakh @Rs 25.00 lakhs per Keragramam** will be provided as project based back ended subsidy by SFAC subject to the conditions and guide lines laid down by SFAC. Viable projects by Clusters, SHGs, NGOs, Partnership firms, FPOs and individual entrepreneurs availing loan from any nationalized / scheduled /co-operative / Regional Rural Banks/ other non banking financial institutions will be considered under this scheme.

Stake holders of the project

Stake holders of the project proposed are

a) Department of Agriculture
b) Local Self Governments
c) Coir Development Department
d) Agricultural Research institutions
e) State Horticulture Mission
f) Small Farmers Agri Business Consortium
g) MGNREGS work force
h) Agro Service centres / Karshika Karma Senas

Abstract of the project proposal (Table I)

Sl. No.	Components and rates of assistance	Physical		Financial (in lakhs)	
		one Keragramam	Total	one Keragramam	Total
	No. of Keragramams	1 no	84 no.s	50.17	4214.28 limited to **4212.10**
	Area / Keragramam	250 ha	21000 ha		
	Palms / keragramam @ 175 palm /ha	43750 palms	36.75 lakh palms		
I	**Integrated management of Coconut gardens**				
a)	Intercultural Operations- opening of coconut basins, weeding, mulching etc (50% subsidy @ Rs 35/palm)			15.3125	1286.25
b)	Coconut husk burial for moisture conservation (50% subsidy @ Rs 50/palm)			21.875	1837.5
c)	**Application of Soil ameliorants, manures, fertilizer and PPC**				
	1) Soil ameliorants (Lime/ Dolomite) (75% subsidy @ Rs 9/palm)			3.9375	330.75
	2) Fertilizers (50% subsidy @ Rs 20/palm)			8.75	735
	3) Magnesium sulphate (50% subsidy @ Rs 3.75/palm)			1.64	137.76
	4) Organic manure (50% subsidy @ Rs 25/palm)			10.9375	918.75
	5) PPC operation (50% subsidy @ Rs 10/palm)			4.375	367.5
d)	Appln of Bio-fertilizers / Bio-pesticides & Bio-control agents (50% subsidy @ Rs 25/palm & Rs 50/palm as labour charges)			32.8125	2756.25
e)	Cut & removal of disease affected,old and senile palms (@ Rs 1000/palm limited to Rs 10000/ha)			25.00	2100

f)	Replanting with good quality seedlings (50% subsidy limited to Rs 60/ seedling for 7 palms /ha)			1.05	88.2
g)	Intercropping in coconut garden (50% subsidy limited to Rs 6000/ha)			15.00	1260
	Total			140.69	11817.96
	SUB TOTAL I (A) Limited to Rs 25000/ha ie 62.5 lakhs /Keragramam (38 lakhs from state annual plan and 24.5 lakhs as LSGD share under Janakeeyasoothranam)		Plan Share	38.00	3192.00
			LSGD Share	24.50	2058.00
			Sub Total	**62.50**	**5250.00**
II.	Installation of irrigation components including micro irrigation (50% subsidy limited to Rs 25000/ha) @ 20 ha/ keragramam	20 ha	1680 ha	5.00	420.00
III.	Coconut climbing equipment for clusters (subsidy @ Rs. 2000/unit) @ 61 units \ Keragramam	61 no.s	5124 no.s	1.22	102.48
IV.	Est: of Organic manure production units (subsidy @ Rs 10000/unit) @ 8 units / Keragramam	8 no.s	672 units	0.80	67.20
V.	Operational support @ Rs 15000/ KB/KG			0.15	12.60
VI. (a)	Assistance for panchayat level kerasamithies/ societies @Rs.5.00 lakh/unit (including assistance for coconut husk procurement and mini coir processing units	1 no	15 no.	5.00	420.00
(b)	Assistance for coconut based value added enterprises (assistance from SFAC) – Project	1 no	15 no.	25.00	2100.00

	based support				
	SUB TOTAL II to VI (B)			**37.17**	**3122.28**
		State Plan Share		**12.17**	**1022.28**
		SFAC Share		**25.00**	**2100.00**
	TOTAL (A+B)			**99.67 (62.50+37.17)**	**8372.28**
	State Plan share			**50.17 (38+12.17)**	**4214.28**
	SFAC share				**2100.00**
	LSGD share				**2058.00**
	GRAND TOTAL				**8372.28**

(State plan share is limited to Rs.4212.00 lakh)

Cafeteria of Activities

A cafeteria of activities is proposed in the project. The farmers have to take up mandatory activities such as Inter cultural operations, Integrated nutrient management & Integrated pest and disease management practices. Other activities are optional and according to the location specific need the panchayat level technical resource group can decide the optional activities to be taken up in the panchayath.

Cafeteria of activities proposed are as below. In the case of additional activities, assistance as per existing norms from the ongoing schemes concerned. The support from LSGs and special development fund of MLAs can be pooled and linked with these in extending maximum assistance to the farmers in taking up common activities.

Project Area

The programme will be implemented in selected **84 Keragramams,** each having not less than **250 ha** area under coconut. As far as possible, panchayats having more than 250 ha under coconut may be selected. If 250 ha coconut area is not available in a Panchayat, adjacent one or more panchayats may also be considered and grouped for Keragramam during 2021-22.

Criteria to be followed for the selection of grama panchayats are

- Panchayat having maximum area under Coconut should be given preference for selection.
- Panchayats that undergo all activities for enhancing production and productivity for the crop improvement, value addition and marketing should be ensured for selection.
- Local self governments ensuring all support in taking up additional schemes approved in their plan schemes to fill up the gaps for the successful implementation during the year and willing to continue the similar activities in the subsequent years shall be given preference. MLA fund can also be utilized.
- Preference should be given for areas with high incidence of pests and diseases/senile palms.

II year assistance for 'Keragramams'

From 2019-20 onwards, financial assistance is provided @ Rs.20.0085 lakh as II year assistance for

Keragramams established during previous year. As such, 15 no. of keragramams newly established during 2020-21 is eligible for II year assistance during 2021-22.

The assistance will be provided for the following components:

Table II

Sl. No.	Component	Rate of assistance proposed/keragramam (Rs. in lakhs)	No. of Keragramams	Total amount (Rs. In lakhs)
1	Integrated management of coconut gardens	19.75	15	296.25
2	Assistance to panchayat level Kerasamithy	0.20	15	3.00
3	Operational support to Krishibhavan/Keragramam	0.05850 (Rs.5850)	15	0.8775
	Total	**20.0085 rounded to 20.01**		**300.1275 rounded off to 300.15**

Mode of implementation

The following guidelines should be followed for the implementation of integrated farming in coconut holdings for productivity improvement.

- A compact area approach with an extent of **250 ha** shall be selected for the implementation of the scheme. All small and marginal farmers coming under the selected project area should be included as beneficiaries of the programme based on the suitability of the coconut gardens irrespective of their land holding size to the maximum possible extent.
- Cluster formed at panchayat level should have a technical resource group for monitoring the implementation of the different components of the programme with Panchayat President as the Chairperson and Agricultural Officer as the convener. The resource groups should consist of the field level functionaries of the Department of Agriculture, Kerala Agricultural University, CDB officials and scientists from Research Stations and DDA (YP) as members.
- The President, Vice President, Standing committee Chairman (Development) of the LSGD and Agricultural Officer should be included as the ex-officio members of the Panchayat level Kerasamithy/Society.
- A visit schedule of Agricultural Assistants should be prepared to ensure regular field visit to the cluster areas in a month.
- Assistance of Multi Disciplinary Diagnostic Team can be availed, if situation warrants, in consultation with the district officer concerned.
- The Panchayath Resource Group should prepare and finalize a plan of action for taking up the intercultural, manurial application and plant protection activities in a group approach. Accordingly arrangement for required inputs should be made and an operational chart should be prepared so as to ensure the timely availability of MGNREGS workforce and skilled labourers of Agro Service Centre / Karshika Karma Sena.
- Assistance on a pro rata basis, as per holding size, will be utilized for this group activity through the cluster and remaining eligible assistance will be released to the farmers concerned through e-payment.
- The Agricultural Officer of Krishibhavans will be responsible for effective implementation of the scheme at Panchayat level. The Assistant Director of Agriculture will monitor the scheme at block level and Deputy Director of Agriculture(YP) at district level. Principal Agricultural

Officer will supervise and evaluate the scheme at the district level and the Additional Director of Agriculture(CP) will monitor and evaluate the scheme at State level.

III year assistance for 'Keragramams'

Financial assistance was provided @ Rs.6.25 lakh as III year assistance for Keragramams established during 2018-19 was provided from 2020-21 onwards vide GO mentioned as reference 7th above. As such, 55 no. of Keragramams established during 2019-20 are eligible for III year assistance during 2021-22.

The existing rate of assistance is @Rs.8.75 lakh/Keragramam for the sub component 'Application of fertilizers' under the component 'Integrated management of coconut gardens' (Rs.20 per palm for 43750 palms in one Keragramam). This is proposed to be limited to Rs.6.25 lakh/ Keragramam. The total funds earmarked as IIIrd year assistance amounts to Rs.343.75 lakh. The assistance will be provided through Krishi Bhavans.

Table III

Sl.No.	Component for which assistance recommended	Rate of assistance (Rs. in lakh)	No. of Keragramams established during 2019-20	Total amount required (Rs. In lakh)
1	'Application of fertilizers' under the component 'Integrated management of coconut gardens'	Rs.6.25 lakh/ keragramam.	55 no.	343.75
	Total		55	343.75

ABSTRACT of Table I, II and III

Sl. No.	Item	No. of Keragramams	Amount proposed (Rs. in lakhs)
1	Assistance for I year	84	4212.10
2	Assistance for II year	15	300.15
3	Assistance for III year	55	343.75
	Total		**4856.00**

(Rupees Forty eight crore and fifty six lakh only)

II) DEVELOPMENT OF MODEL HYV DWARF/SEMI- TALL COCONUT FARMS INCLUDING TECHNOLOGY SUPPORT

There are only two distinct varieties of coconut, the Tall and the Dwarf. The Tall cultivars that are extensively grown are the West Coast Tall and East Coast Tall. The dwarf variety is shorter in stature and its life span is short as compared to the tall. Tall x Dwarf (TxD), Dwarf x Tall (DxT) are the two important hybrids.

The traditional method of harvesting coconut from trees is to climb the trees one by one and pluck the ripe coconuts. The need for specific manual skills is creating problems in the coconut industry. Most of the time Kerala state is finding it difficult to find tree climbers, dehuskers and deshellers. Plucking coconut by climbing is a skilled job. The entire job is a hazardous one, particularly so during rainy days. Kerala continues to face a shortage of coconut tree climbers, the search often ending with migrant, often untrained, workers. The solution for this is to have coconut palms of a low stature for the easy access to nuts for harvesting. There are many dwarf varieties available for cultivation but the extent of adoption by the farmers is very low. The main reasons attributed for this is the non availability of planting material and lack of awareness among them. These trees have the potential to bring in a revolution in just over three years, as each tree can fetch the farmer 10,000 to 15,000 per annum, several times more than the traditional variety.
In this context, it is important to make the farmers think that they should go for local Dwarfs mainly Chowghat Green Dwarf and Chowghat Orange Dwarf and other exotic ones like Ganga Bondam, Malayan Green Dwarf and other dwarf hybrids, which may be planted for addressing the labour issues in harvesting the nuts.

Nucleus gardens of coconut with dwarf varieties will be established in farmers' fields with most modern technology of crop production. This will help to create awareness among the farmers about the use of dwarf varieties in addressing labour shortage in harvesting of nuts, generate income, popularise tender coconut production and also in evaluating the performance of some varieties which are claimed to be the super performing varieties as claimed by their producers.

Technical programme

Varieties
The main institutions producing dwarf varieties are CPCRI, Kerala Agricultural University and Tamil Nadu Agricultural University. The main varieties available are listed below.

Kalpa Raksha
This is a semi tall variety with sweet tender nut water and with higher resistance to root (wilt) disease of coconut. It comes to flowering by 54 months from planting. Its annual yield is 87 nuts/palm, 16.38 kg copra/palm and 10.65 kg oil/palm. In root (wilt) disease affected tracts, it gives an annual yield 65 nuts/palm. The quantity of tender nut water is 290ml. This is released as a variety for tender nut and for cultivation in root (wilt) prevalent areas of Kerala and developed by CPCRI.

Chowghat Orange Dwarf (COD)
This is an early flowering cultivar and takes about 3-4 years for initial flowering. The average annual yield is 63 nuts/palm/year. It is best suited for tender nut water. This cultivar was released by CPCRI in 1991 for large scale cultivation as tender nut variety.

Kalpa Sree
Kalpasree has superior quality of coconut oil, very sweet tender nut water and meat and is resistant to root (wilt) disease. This is the earliest flowering cultivar and takes about 2.5 to 3 years for flowering. It is found to be resistant to root (wilt) disease. The mean annual yield is 90 nuts/palm with a copra content of 96.3g. This variety, developed by CPCRI, is released for root (wilt) prevalent areas of Kerala.

Kalpa Jyothi
Dwarf variety with yellow fruits, higher average yield of 114 nuts per palm per year under rainfed conditions with estimated copra yield of over 16 kg per palm per year. Recommended for cultivation in Kerala and Karnataka for tender nut purpose. Developed by CPCRI.

Kalpa Surya
Dwarf with Orange fruits recommended for cultivation in Kerala, Karnataka and Tamil Nadu for tender nut purpose. The average yield is 123 nuts per palm per year under irrigated conditions with estimated copra out turn of 23 kg per palm per year. Developed by CPCRI.

Kalpa Sreshta (MYD x TPT)
The mean yield is 167 nuts/palm/year, with estimated high copra out turn of 35.9 kg/palm/year or 6.28t/ha copra. The hybrid is suitable for tender nut purpose. This hybrid is recommended for cultivation in Kerala and Karnataka States. Developed by CPCRI.

Chandra Sankara (COD x WCT)
The palms come to bearing early when compared to tall palms. It is a heavy yielder and produces 116 nuts/palm with a range of 100-150 nuts. The copra content in nut is 160-230 g. It is susceptible to drought and hence irrigation is required during summer months. Chandrasankara was released by CPCRI in 1985 for cultivation in Kerala and Karnataka.

Kera Sankara (WCT X COD)
The palm comes to bearing by the fourth year of planting. The mean annual yield of nuts is 108 with a range of 70-130 nuts. The copra content is 187g/nut. This hybrid was released by CPCRI in 1991, for large scale cultivation in Kerala, coastal Andhra Pradesh and coastal Maharashtra.

Chandra Laksha (LCT X COD)
The hybrid palm comes to bearing in about 4-5 years after planting. The annual yield is 109 nuts/ palm with a copra content of 150-210g/nut. The hybrid was released by CPCRI.

Kalpa Samrudhi (MYDxWCT)
The mean annual yield is 117 nuts per palm. The copra yield is 4.38 t/ha and oil is 3.04 t/ha. The hybrid is suitable for tender nut purpose. This hybrid was recommended for cultivation in Kerala, and Assam. Developed by CPCRI.

Kalpa Sankara (CGDxWCT)
The mean annual yield is 85 nuts per palm. The copra yield is 2.5 t/ha and oil is 1.69 t/ha. This hybrid was recommended for cultivation in root (wilt) disease prevalent tracts of Kerala. Developed by CPCRI.

Establishment of the garden
The proposed garden (demonstration farm) will be established in farmers fields in unit size 0.2 ha either new fields or cleared existing plantation with low yield and difficulty in harvesting. A total of 67 such gardens (primary plots) are expected in this programme. Farmers with the interest and resources to accommodate one more such unit (additional plot) may be sanctioned the same. In that case, another unit of 0.2 ha., can also be established and a total 9 additional units are planned. Thus 76 plots covering a total area of 15.20 ha (76 x 0.20 ha.) of garden land will be brought under this programme.

Selection of planting material
Select seedlings, which have 6-8 leaves and 10-12 cm collar girth when they are 9-12 month old. Early splitting of leaves is another criteria in the selection of coconut seedling. Seedlings which are available in the farms under the Department of Agriculture/Kerala Agriculture university/TNAU/CPCRI will be used for this purpose.

Site Selection
Shallow soils with underlying hard rock, low lying areas subject to water stagnation and clayey soils are to be avoided. Proper supply of moisture either through well distributed rainfall or through irrigation should be ensured before planting.

Preparation of Land and Planting
On slopes and in areas of undulating terrain, prepare the land by contour terracing or bunding. In low-lying areas mounds are to be formed at planting site to a height of at least 1m above water level. In reclaimed 'kayal' areas, seedlings are planted on field bunds. In loamy soils with low water table, a pit size of 1mx1mx1m is recommended. In laterite soils with underlying rocks, take larger pits of size 1.2m x 1.2m x 1.2m. In sandy soils the size need not exceed 0.75m x 0.75m x 0.75 m.

Spacing and Systems of Planting
Spacing depends upon the planting system, soil type etc. In general a spacing of 7.6 x 7.6 m is recommended for this project purpose which will accommodate 35 numbers of palms in 0.2 ha.

Time of Planting
Seedlings can be transplanted in the beginning of the south west monsoon. If irrigation facilities are available, it is advisable to take up planting at least a month before the onset of the monsoon so that the seedlings get well established before heavy rains. Planting can also be taken up before the onset of the North-East monsoon. In low-lying areas subject to inundation during monsoon period, transplanting may be done after the cessation of the monsoon.

Planting
Before planting the pits are filled up with top soil and powdered cow dung / compost up to a depth of 50 to 60 cm. Then take a small pit inside this, so as to accommodate the nut attached to the seedling. Plant the seedling inside this pit and fill up with soil. Press the soil well so as to avoid water stagnation. If there is chance for white-ant attack apply Cartap 5g inside the small pit before planting.
In laterite areas apply 2 kg common salt per pit for improving the physical condition of the soil. Burying 25 to 30 coconut husks per pit in layers will be useful for moisture conservation.

After care
The young seedlings are prone to attack by termites, red palm weevil and rhinoceros beetle. Place 2-3 naphthalene balls in the leaf axils along with sand and beetles and bugs. For the prevention of bud rot, application of Hexaconazole 3 ml mixed with 300 ml of water and poured in to the fronts twice a year is found to be effective.

The transplanted seedlings should be shaded and irrigated adequately during the summer months. Also provide staking so that winds may not uproot the young seedlings. For the first two years after planting, irrigate the seedling twice a week during the dry summer months. Shading is a must to the transplanted seedlings.

Irrigation
Soil moisture very often limits coconut production in those areas where long spell of dry weather prevail or where the rainfall is scanty and ill-distributed. So irrigate the palms during summer months in basins around the palm. The irrigation requirement varies according to the soil type and climatic condition. Generally, an adult palm requires 600 to 800 litres of water once in four to seven days. Irrigate in basins of 1.8m radius and 10-20 cm depth. In coastal sandy soils, sea water can be used for irrigating adult palms. Do not irrigate seedlings and very young palms upto 2 year with sea water. In irrigated gardens interruption of irrigation would lead to serious set-back in yield and general condition of palms. Hence, when once started irrigation should be continued regularly and

systematically. Drip irrigation is the best suited method of irrigation for coconut. It saves water, labour and energy.

Financial outlay of the programme

The critical components with their pattern of assistance and financial assistance limits are described as follows.

Sl. No	Activities / inputs needed	Rate per tree or rate per unit at the current rates	Percentage of assistance	Amount of assistance per unit (Rs.)	Ceiling proposed per unit of 0.2 ha. (Rs.)
1	Land development (Clearing, removing the existing plants, levelling and other soil conservation measures if necessary, etc.)	Rs. 750/-per cent of land	35	250/cent of land	12500
2	Pitting with the recommended specifications	Rs. 30/- per pit	50	15 per pit	525
3	Cost of dwarf seedlings	Rs. 200/- per seedling	100	200 per seedling	7000
4	Irrigation A. Drip system including cost of pump	Rs.35000/- per unit of 0.20 ha.	75	26250/- per unit of 0.20 ha.	26250
	B. farmers with more than one unit of nucleus garden (cost of pump is excluded)(Additional plot)	Rs. 30000/- per additional unit of 0.20 ha.	60	18000/- per additional unit of 0.20 ha.	18000
5	Cost of plant protection activities	Rs. 40 per palm per year	20	8 per palm per year	280
6	Cost of manure and fertilisers	Rs. 30 per palm per year	50	15 per palm per year	525
*	Total for the primary plot with item 4 A				47080
**	Total for the Subsequent plot with item 4 B				38830

* For the first plot with a pumpset for irrigation

** If the farmer has the resource of next 0.2 ha. of land which is adjacent or if the beneficiary already owns a pumpset

If he has another unit 0.2 ha., 4A will be applicable as the irrigation system would be independent. Details of farmer demonstration plots proposed throughout the state is presented below.

Sl: No	Type of gardens to be established	Quantity (no.s)	Area covered (ha)	Rate per unit (Rs)	Amount (Rs in lakh)
1.	Primary plots	67	13.4	47080	31.54360
2.	Additional plots (secondary plots)	9	1.8	38830	3.49470 **limited to 3.4564**
	Total	76	15.2		35.00000

The total financial requirement for establishing these gardens in farmers' fields works out to Rs.35.00 lakh. An amount of Rs.10.00 lakh is set apart as TE and an amount of Rs.5.00 lakh is set apart as POL.

Abstract of the programme is as follows.

Sl: No	Type of gardens to be established	Quantity (no.s)	Area covered (ha)	Rate per unit (Rs)	Amount (Rs in lakhs)
1.	Primary plots	67	13.4	47080	31.54360
2.	Additional / secondary plots	9	1.8	38830	3.45640
	TE				10.00000
	POL				5.00000
	Total	76	15.2		50.00000

III. Pest and Disease Management in Coconut Gardens on a Campaign Basis.

The major pests affecting the coconut palm are rhinoceros beetle, the red palm weevil and cockchafer beetle. These pests are generally found throughout the state. The rhinocerous beetle attacked palms are prone to red palm weevil attack and if control measures are not adopted at the appropriate time, it may lead to complete loss of palm. Besides, diseases like bud rot, leaf rot, stem bleeding etc are also seen associated in the palms attacked by the beetles. All these problems may lead to noticeable yield reduction of the crop. Taking into account the above facts, this component is implemented so that the crop can be protected from major pest and diseases of coconut by adopting suitable "Integrated Pest Management" practices as per the Package of Practices Recommendation of KAU and recommendations of CPCRI and CDB.

Programme

- Identification of hotspots of pest/disease attack in each panchayat based on surveillance data.
- Preparation of action plan for implementing the eradication programme and arranging campaign with the active participation of local self government departments, farmer groups, Agro Service Centres/Karshika Karmasena, research institutions (KAU, CPCRI) and all other stake holders.
- Providing training and awareness to the stake holders and department officials
- Providing infrastructures like sprayers chemicals, bio control agents etc to the Plant Protection surveillance groups.
- Field level implementation in a campaign mode.
- Appraisal and monitoring in a quarterly basis by a monitoring committee at Panchayat, Block, District and State level.

Project components

a) Workshop for identification of hotspots

Workshops will be organized for identifying the hotspots in selected panchayats where Keragramam scheme is being implemented and plant protection operations are to be given thrust. An amount of Rs.10,000/- can be utilized for one workshop. It is proposed to conduct 7 such workshops for which an amount of Rs.0.70 lakh is set apart.

b) Block level training to Plant Protection groups in Integrated Pest Management

Block level training should be imparted to the plant protection groups comprising of Karshika Karmasena/farmer groups covering the different methods of plant protection to be adopted

including IPM as per Package of Practices recommendation of KAU and recommendations of CPCRI/CDB. The group should be made aware of safe handling and use of plant protection equipments, and chemicals. An amount of Rs.25000/- is proposed for one training. It is proposed to conduct 7 such trainings for which an amount of Rs.1.75 lakh is earmarked.

c) Cost of Inputs

An amount of Rs.100/- per palm is proposed for purchase of plant protection inputs for applying in the pest/disease infested palms in the hotspots identified and the labour charge for its application. Thus Rs.17500/ per ha. is proposed @175 palms/ha. Total area proposed to be covered is 270 ha and the total amount proposed is Rs.47.25 lakh. Additional fund, if required, are to be mobilized by submitting projects to LSGD.

Plant protection equipments available in the Krishi Bhavans, Agro Service Centres, Plant Health Clinics etc. can be made use for the campaign.

d) Implementation

Suitable proposals for the management of major pests/ diseases of coconut (rhinoceros beetle, red palm weevil, bud rot, stem bleeding etc) on a contiguous area should be prepared at district level. For projects amounting upto Rs.10.00 lakhs, approval can be given by district level committees (with Principal Agricultural Officer, Deputy Director of Agriculture (YP) & Assistant Director of Agriculture concerned) and approved projects should be submitted to the Directorate for the release of funds. Project proposals exceeding Rs.10.00 lakh should be submitted to the Directorate for approval and release of funds.

Pest/ disease affected zones should be identified at district level workshops and detailed action plan should be prepared based on the number of palms to be treated / sprayed for implementing the programme.

The inputs required viz. Plant protection chemicals, equipments, labour etc. can be mobilised through Service Co-operative banks / Karshika Karmasena / Agro Service centres/ Krishi bhavans by the Agricultural officers & Assistant Director of Agriculture concerned.

Wide publicity for the programme should be given through various print and electronic media and through Farm Information Bureau.

The programme will be implemented in a campaign mode with the active participation of local self government departments, farmer groups, Agro Service Centres/Karmasena, research institutions (KAU, CPCRI) and all other stake holders. All the activities of the plant protection group should be strictly monitored and supervised by the staff of Krishi Bhavan and respective ADA's with the active participation of LSGD. The ATMA staff/group, Crop Health Management (Pest scout) etc should also extend their support and participation in this regard, Principal Agricultural Officers and Project Director ATMA, should co-ordinate the activities of the programme in each district ensuring the full involvement of the concerned (DDA (YP). All the activities under the programme shall be properly documented.

e) Monitoring and supervision

Appraisal and monitoring of the scheme which will be implemented in a campaign mode should be done by a monitoring committee. The monitoring committee is to be formed at Panchayat, Block, District and State level involving and the progress of the campaign evaluated and reported to the Directorate in a quarterly basis.

Abstract of the component is given below.

Sl. No	Item	Rate (Rs.)	Target	
			Physical	Amount (Rs in lakhs)
1	Conduct of workshops	10000/-	7 nos	0.70
2	Training to Plant Protection Groups	25000/-	7 nos	1.75
3	Plant protection operations @ Rs.100/- per palm including cost of PPC and labour	17500/- per ha	270 ha	47.25
4	Unforeseen expenses (for State and District level meetings etc.)			0.30
	TOTAL			**50.00**

IV. 'Rehabilitation and rejuvenation of coconut palms in Kerala as part of Coconut Mission – Coconut Council (3rd year activities)'
- Seednut procurement and nursery charges – Rs.1359.10 lakh.

As per reference mentioned 4th above, Administrative Sanction was obtained for the scheme component "Kerasamrudhi". As per the Annual Plan 2021-22, it is proposed to converge the activities of Kerasamrudhi project for the production and distribution of quality coconut seedlings with the production of coconut seedlings under Coconut Mission.

It is proposed to procure 12.00 lakh seednuts of variety WCT, 1.00 lakh Dwarf seed nuts and 3.00 lakh hybrid seednuts from December 2021 onwards from selected mother palms in accordance with coconut seednut procurement process being carried out by the Department every year, for which an amount of **Rs.1135.00 lakh** is provided. The present cost of seed nuts fixed is Rs.70/nut for WCT and Dwarf varieties and Rs.75/nut for hybrid varieties. Assistance for transportation will also be provided. An amount of **Rs.60.00 lakh** is set apart for transportation of seednuts within the district and also inter district which will be carried out through tender process.

Coconut is a cross pollinated crop and hence the the characteristics and vigour seedlings produced from the seed nuts collected from mother palms will vary from that of mother palms. In order to produce good quality seedlings, hybridization is carried out wherein pollination is done manually following prescribed scientific procedure. Hybrid coconut seedlings have a crucial role in stepping up the production and productivity of the crop in the State as they are capable of breaking the yield barrier in productivity. They are both high yielding and early bearing and grow up to medium stature. Hybridization works are carried out at 3 stations under the Agriculture Development and Farmers Welfare Department, viz. 2 Seed Development units each at Chavakkad in Thrissur district and Vadakara in Kozhikode district and also at TXD pollination unit at Chalode in Kannur district.

An amount of **Rs.75.00 lakh** is earmarked for meeting the **operational expenses of Seed Development Units (SDU) and Pollination unit**.

An amount of **Rs.30.00 lakh** is provided for meeting expenses for tagging of coconut seedlings for traceability and other miscellaneous activities.

An amount of **Rs.59.10 lakh** is earmarked for department farms for coconut seedling production and nursery management expenses.

Abstract of components

Sl. No	Item	Amount proposed (Rs. In lakh)
1	Seednut procurement and nursery charges	1359.10
a	Procurement of seed nuts	1135.00
b	Transportation cost	60.00
c	Operational expenses in connection with seed nut procurement, pollination activities etc of Seed Development Units	75.00
d	Tags and other miscellaneous expenses	30.00
e	Nursery expenses for coconut seedling production	59.10
	Total	**1359.10**

(Rupees Thirteen crore fifty nine lakh and ten thousand only)

Abstract of components included:

Sl. No.	Component	Physical target	Rate of assistance (Rs. In lakh)	Amount proposed (Rs. in lakhs)
I	Keragramam			
	I year	84 no.s	50.17	4212.10
	II year	15 no.s	20.01	300.15
	III year	55 no.s	6.25	343.75
	Sub-Total			**4856.00**
II (a)	Development of Model HYV Dwarf/Semi- Tall Coconut Farms including Technology support Primary plots	67 units	0.47080	31.5436
(b)	Secondary plots	9 units	0.38830	3.4564
	TE			10.00
	POL			5.00
	Sub-Total			**50.00**
III	Pest and Disease management in Coconut gardens on a campaign basis			50.00
IV	Rehabilitation and rejuvenation of			

	coconut palms in Kerala as part of Coconut Mission – Coconut Council 3rd year activities - Seedling procurement and nursery charges			1359.10
	Total			**6315.10**

(Rupees Sixty three crore fifteen lakh and ten thousand only)

Financial Outlay

In the Annual Plan 2021-22, an amount of Rs.7547.00 lakh has been set apart for the scheme 'Coconut Development' under head of account 2401-00-103-87 (P), out of which, components as shown in the abstract above for an amount of Rs.6315.10 lakh is continuing during the current financial year also.

In the circumstances mentioned above, continuous administrative sanction is hereby issued for implementation of ongoing components of the scheme 'Coconut Development' during 2021-22 for an amount of **Rs.6315.10 lakh (Rupees Sixty three crore fifteen lakh and ten thousand only)**, as per the above statement, debiting expenditure to head of account **2401-00-103-87 (Plan)** from current years' budget provision of Rs.7547.00 lakh. The scheme shall be implemented abiding by the terms and conditions stipulated in the Government Orders read above.

As per G.O read as reference (9) above, fund allocation for schemes have to be provided AEU wise. Accordingly, implementing sections at the Directorate of Agriculture will provide AEU wise fund allocation while issuing working instructions for the scheme.

Monthly progress report should invariably contain component wise physical and financial targets and achievements and the stage of implementation of each component. Since the Government is giving emphasis to women participation and gender budgeting, maximum efforts have to be made to include women beneficiaries in the scheme. The number of women beneficiaries and the amount utilized for such beneficiaries (component wise) should also be separately shown in the monthly progress report.

Sd/-

DR. K. VASUKI IAS

DIRECTOR

To:

TB and TH sections of HQ for issue of detailed working instructions

Deputy Director of Agriculture (Plg)
Directorate of Agriculture
Thiruvananthapuram

Copy to:

TA to Director of Agriculture

CA to all Additional Directors of Agriculture at HQ

SAE and SFO of HQ for information

IT Cell section of HQ for posting on website