

CDB farm, Neriamangalam – catering to the demand for quality coconut seedlings in Kerala

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Introduction

Considering the need for demonstrating scientific coconut cultivation and to ensure supply of quality coconut seedlings to farmers in Kerala, the Demonstration cum Seed production (DSP) Farm of Coconut Development Board (CDB) was established in Neriamangalam during the year 1991 which is about 70 kms from Kochi, Kerala. The farm is positioned in a beautiful valley, which marks the beginning of high range tract enroute Munnar, a tourist destination in Kerala. The farm area is located in the 20 ha. of land which is leased out to Coconut Development Board by Government of Kerala in 1991. Out of this land area, 14.95 ha. is fully developed into farm area and the remaining 5 ha. is rocky forest area. The farm is planted with different coconut cultivars and other suitable annual and perennial crops. The farm also produces quality seedlings of various varieties for supply to farmers and other agencies at reasonable rates.

The present palm population of the farm is 1542

coconut palms with 752 tall, 593 dwarf and 157 hybrid palms. Blocks two and five are in replanting phase after the removal of the aged palms. 1158 palms are in the bearing stage and 334 palms are mother palms for hybridization purpose.

Soil & Climate

Being a tropical palm, coconut palm thrives well in the climatic conditions in Kerala. The farm area is having favourable sandy loam, lateritic and red soil. Neriamangalam gets one of the highest average rainfall in the state of Kerala. So this place is aptly hailed as 'The Cherrapunjee of Kerala. Even though Neriamangalam was considered a high rainfall area, number of heavy rainfall days shows a significant decreasing trend in Ernakulam district. (IMD Study -Observed Rainfall Variability and Changes over Kerala State). The soil ph ranges between 5 and 6 on an average, rain falls for 256.6 days in an year and collects up to 1696 mm (66.77") of precipitation. The temperature ranges between 20°C and 32.8°C.



Table 1 COCONUT PLANT POPULATION (September 2021)						
Block No.	Variety	Year of Planting	System of Planting	Area (Ha.)	Spacing	No. of Bearing Palms
I	D x T (CGD x WCT)	2017	Square	0.926	8m x 8m	75
IA	C O D	1994	Square	0.200	7m x 7m	15
	D X T	1994	Square	0.005	7m x 7m	2
	W C T	Old		0.001		2
II				0.400		Replanting in progress
III	C D G	1994	Square	1.200	7m x 7m	192
IV	L O & D X T	1994		0.005		7
V				0.930		Replanting in progress
VII	Exotic	1993	Square	0.900	8m x 8m	121
	L. Micro	1993	Square	0.080	8m x 8m	10
	T T	1993	Square	0.250	8m x 8m	34
	E C T	1993	Square	0.200	8m x 8m	29
VIII	W C T	1993	Double Plantation	0.900	15m x 15m	56
IX	W C T	1994	Rectangular	0.650	9m x 8m	27
X	W C T	1999	Rectangular	0.610	9m x 8m	66
	C O D	1999	Rectangular	0.400	9m x 8m	45
XA	M G D	2008	Rectangular	0.500	9m x 8m	30
XI	W C T	1999	Rectangular	0.600	9m x 8m	68
	C D G	1999	Rectangular	0.300	9m x 8m	20
XII	W C T	1997	Round	1.250		33
	CDG	1997	Round	0.025		6
	D X T	1997	Round	0.010		4
XIII	C D G	1997	Square	0.500	7m x 7m	71
XIV	W C T	1997	Triangular	1.500	7.6m x 7.6m	186
XV	Ganga Bondam	2014	Rectangular	0.610	8m x 7m	39
				12.952		1138



The details of cultivars planted in the farm are shown in Table 1.

Details of Plantation

The farm is at present divided into 15 blocks which has been developed over the years with different coconut varieties in different planting systems, depending on the land topography of the land in Neriambangalam. The major varieties planted are West Coast Tall, Chowghat Green Dwarf (CGD), Chowghat Orange Dwarf (COD), Exotic varieties and Hybrids. As per recommendations of CPCRI committee visit on October, 2016, the 1st block is replanted with 150 superior Hybrid seedlings –“Kalpasankara” (CGD X WCT), which is reported to be tolerant to Root wilt disease. The hybrid block has started bearing in 2019.

Coconut production and productivity

In Kerala, Coconut is generally grown all over the state, mostly as a homestead crop. As per statistics reported by Department of Economics and Statistics, Kerala State; area, production and productivity of coconut is showing a decreasing trend. This trend is being reflected in the production and productivity of palms in Ernakulam district also.



COD Palm

The details of coconut harvested in the farm in last 5 years is shown in Table 3

Year	Tall	Dwarf	Hybrids	Hybridized nuts	Total harvested nuts
2016-17	34929	17634	558	10309	63430
2017-18	26695	10041	1369	11187	49292
2018-19	38089	18666	2315	4814	63884
2019-20	31736	18468	1929	-	52133
2020-21	28745	8582	2537	3462	39864

Year	Production of coconuts in million nuts	Yield rate of coconut in Nos/ha
2018-19	5299	6964
2019-20	4814	6328

Source: Department of Agri. Statistics and Economics

The present bearing palm population of Neriambangalam farm is 1158. The farm is getting an average yield of 53100 per year with an average productivity of 47 nuts per palm. The dwarf palms planted during 1992-93 period is completing 30 years and is showing a drastic decline in yield and hence replanting is taken up in phased manner in the farm.



CGD Palm

Cultivation practices adopted

This farm is mainly following the package of practices recommended by Kerala Agricultural University. As the farm is located in the banks of river Periyar, there is no scarcity of water and during severe summer months irrigation for seedlings is done by sprinkler irrigation. Every year coconut palms are applied with 50kg FYM and the recommended dose of chemical fertilizers. Micro nutrient mixture @ 100 gm is also applied to palms every year. In addition to this, for promoting the health of palms application of coconut tonic, Trichoderma, Bacillus sp. are also being undertaken on need basis.

Mulching basins with coconut husk

Depending upon the climatic conditions, prophylactic measures are also taken up for preventing major pests and diseases as part of demonstration to farmers. Introduction of mechanical trap – by using fish nets for Rhinoceros beetles was found to be very successful in managing the pest to a higher extent in the farm



Mulching basins with coconut husk

Commercial Nursery and supply of coconut seedlings

As the major mandate of DSP farm is production of good quality coconut seedlings, CDB- DSP Farm, Neriamaangalam takes stringent efforts to maintain the quality of the certified seedlings for distribution to the farmers of Kerala. As the production is solely for supply in Kerala, the entire certified seedlings are being distributed to farmers under various schemes of Government of Kerala ‘Model demonstration plots’ and Janakeeyasoothranam schemes of different Panchayaths throughout Kerala.

In order to contain the root wilt disease of coconut in Kerala, CDB had implemented the massive replanting and rejuvenation programme and this farm has also taken a lead role in the supply of seedlings to farmers in Kerala under this scheme

The details of seed nuts sown in last 5 years is shown in Table 5

Year	Own seed nuts	Seed nuts procured from outside sources	Total sown nuts
2016-17	38946	37007	75953
2017-18	29371	60000	89371
2018-19	38531	88150	126681
2019-20	19793	64000	83793
2020-21	19678	106000	125678
Total	146319	355157	501476

The details of seedlings produced from this farm in last 5 years are given in Table 6.

Year	No. of seedlings produced
2016-17	162082
2017-18	51516
2018-19	30738
2019-20	47054
2020-21	96889
Total	388279

The farm has been instrumental in supplying coconut seedlings under the flag ship programme “Coconut council” of Agriculture Department, Government of Kerala in five major districts in Kerala namely Ernakulam, Kottayam, Pathanamthitta, Idukki and Alappuzha in 2019-2020 and 46, 853 seedlings were supplied under the scheme.

Year	Existing palms	Bearing palms	2018-19		2019-20 *		2020-21 **	
			Production (No. of nuts)	Per palm productivity	Production (No. of nuts)	Per palm productivity	Production (No. of nuts)	Per palm productivity
Tall	752	634	38089	60	31736	50	28745	45.37
Dwarf	595	306	18666	61	18468	60	8282	28.00
Hybrid	162	80	2315	29	1929	24	2537	32.00
Hybridized nuts	218	218	4814	23			39864	0
Total	1727	1238	63884	52	52133	42.60	43326	32.00

** Hybridization discontinued during 2018-19 due to 2018 flood ** Dwarf palms were removed from plot no. II & V for replanting*



Coconut Nursery in block no. 1

Table 6. Seedling supplied in 2020-2021 – Coconut council programme

Sl No	District	Variety supplied	No. of seedlings lifted
1	Kottayam	WCT	17140
2	Pathanamthitta	WCT	16290
3	Ernakulam	WCT	623
		DWARF	4800
4	Idukki	WCT	3250
5	Alappuzha	WCT	4750
	Total		46853

During the current financial year, this farm has committed supply of 50,000 seedlings of which 38,362 seedlings are already supplied .

Recycling of farm waste and organic manure production

The farm is maintaining vermicompost production units with a capacity to produce 60 tonnes of vermicompost per year. Crop residue of banana, chopped pseudostem pieces and coconut leaf are effectively recycled in the production of vermicompost

Further, coir pith composting is also done as per the suggestions given by Technical committee visit in 2018-19. Application of vermicompost and organic manures in addition to cow dung has improved the general health of the palms and has imparted more resistance to diseases in the field.

Intercropping

As part of demonstration of cropping system, this farm is practicing intercropping in coconut plantations. One of the major advantages of



Rambutan as intercrop

intercropping is that it provides additional income to the farm and better utilization of the available land and other natural resources including land, water and sunlight. Annual intercrops such as banana and elephant foot yam are being cultivated in the farm. Perennial intercrops such as pepper, cashew, nutmeg, cocoa, arecanut and rambutan also are planted in various blocks along with coconut palms. The intercrops have helped the farm to generate additional revenue ranging from Rs. 1.0 to Rs. 5 lakhs per year.

Hybridization programme

Considering the huge demand for the hybrid seedlings in the state, farm is conducting hybridization program especially production of D X T seedlings. Around 218 mother palms are selected in the farm and trained labourers are being utilised for the same. During this year, the farm has started trials using the ground pollination device in consultation with CPCRI, Kayamkulam



OJT for VHSE Agri students



FoCT Training

Table 7. Trainings Conducted in DSP Farm, Neri Mangalam

Sl. No.	Name of Training	Period of training (no. of days)	No. of Trainings	No. of Trainees
2016-17				
1	OJT-VHSE	1	12	437
2	ATMA-One day Farmers visit	1	3	54
2017-18				
1	OJT-VHSE	1	9	307
2	OJT-VHSE	2	1	26
3	OJT-VHSE	3	1	45
4	OJT-VHSE	4	1	45
5	One day training for farmers "Integrated pest and disease management"	1	1	40
6	Farmers Visit- ATMA	1	1	30
2018-19				
1	ATMA (Integrated Crop Management- Inter State Training Programme)	1	2	40
2	OJT-VHSE, Muvattupuzha	1	1	59
3	OJT-VHSE, Pallarimangalam	1	2	48
4	OJT-VHSE-Valakom	1	1	25
5	OJT-GVHSS-Kadavoor	1	2	41
6	ATMA cell, Karur, Tamilnadu	1	1	21
7	OJT-GVHSS-East Marady	1	1	20
8	OJT-GVHSS-Neriamangalam	2	2	90
9	VHSE-Nedukkandam	1	1	23
10	Farmers training- KB, Karimkunnam	1	1	10
2019-2020				
1	OJT-VHSE- Thodupuzha	1	2	60
2	OJT-VHSS-Valakom			24
3	Exposure visit of farmers and officials from Manipur	1	1	10
4	OJT-VHSE, Muvattupuzha	1	1	28
5	OJT-VHSE, Kadavoor/Pallarimangalam/ Kolenchery	1	1	111
6	ATMA-Madathikulam/Nagapattinam / Thiruvapur -TN	1	3	70
7	JNV,Neriamangalam	1	1	6
8	One day farmers seminar-	1	2	60
9	FOCT- Friends of coconut tree training	6	1	20



Elephant Foot yam intercropped in Block 1

Extension activities

The farm is having a training centre which is utilised for conducting training and various awareness programmes to farmers, Friends of coconut tree trainings and other extension activities. The farm also caters to the requests from various vocational higher secondary schools for conducting On Job Training (OJT) programmes to VHSE agri. students.

Area expansion programme

Neriamangalam farm has facilitated the implementation of Area expansion scheme in Kerala by distributing 19,505 seedlings to 586 farmers in 2018-19 and 2019-2020.

Conclusion

DSP farm, Neri Mangalam plays a pivotal role in the supply of quality seedlings to farmers in Kerala and it is devoted in dovetailing all the resources needed for improving and strengthening the farm, which will definitely benefit the coconut sector in the state. ■