

Concurrent Estimation of Coconut Construction in Krishnagiri and Dharmapuri Districts of Tamil Nadu

V. Vanitha¹, Dr. D. Janagam²

¹Ph. D Research Scholar Department of Economics,
Periyar University, Salem-11

²Associate Professor, Department of Economics,
Periyar University, Salem-11

ABSTRACT

Coconut is full-grown in more than 80 countries of the world with a total construction of 49 billion nuts. India occupies a predominant position in respect of construction of coconut in the earth. Coconut is a crop of small and marginal farmers since 98% of about five million coconut holdings in the country are less than two hectares. Two major classes of coconuts are typically documented on the basis of stature: tall and dwarf. The ones most commonly planted for commercial purposes are the tall varieties, which are slow to mature and first flower appear six to ten years after planting. During rainy season inter culture be done to need out grass and make the soil more pores. Thus, better and scientific agronomic practices at local level will result in improving the yield and construction. Accordingly the high yielding varieties like Veppankulam and Mandya tall varieties be encouraged among the farmers. Water Scarcity has play a major role for low productivity.

Keywords: Coconut, Crop, Agronomic

1. INTRODUCTION

Coconut is grown in more than 80 countries of the world with a total construction of 49 billion nuts. India occupies a predominant position in respect of construction of coconut in the world. Coconut is a crop of small and marginal farmers since 98% of about five million coconut holdings in the country are less than two hectares. In the west coast of India, the palm is an necessary component in the farmhouse system of farming where it is grown as rainfed.

Two major classes of coconuts are typically documented on the basis of stature: tall and dwarf. The ones most commonly planted for commercial purposes are the tall varieties, which are slow to mature and first flower appear six to ten years after planting. They produce medium-to-large sized nuts and have a life span of sixty to seventy years. The dwarf varieties may have originated as a change of tall types. The dwarf variety may grow to a height of twenty-five to thirty feet and begin to flower after three years. Their life span is only about thirty existences. Dwarf varieties are valued since they bear early and are opposed to to lethal. The palm is referred to as 'Kalpavriksha - the "tree of heaven" as each and every part of the palm is useful to mankind in one way or other. It provides food, drink, fuel and timber. Millions of families in India depend on coconut for their living either directly or not directly. India ranks third in area and construction of coconut in the world (Hamelin and others, 2005).

COCONUT CONSTRUCTION IN GLOBAL LEVEL

Coconut is a popular agricultural estate and is grown in more than 90 countries of the earth. Though, it is quite hard to establish a coconut agricultural estate but once it is done, it proves to be quite beneficial as the coconuts are harvested all through the year. The world construction of coconut sums up to around 55 million tons annually. Indonesia and Philippines are the major countries that create the maximum coconut fruits in the earth.

COCONUT CONSTRUCTION IN INDIA

Two distinguishable varieties of coconut i.e. tall and dwarf are cultivated in the state of Tamil Nadu because of cross-pollination in tall, variations do occur within the same variety. The varieties, which are more suitable for Tamil Nadu states, are East Coast Tall (ECT), West Coast Tall (WCT), Veppankulam - 3 (VPM-3), Andaman ordinary, a tall variety was released as VPM 3 during 1994 VHC-2 (ECT x MYD) a hybrid variety comes to bearing in 5 years (43 months - time taken to flowering).

Coconut is cultivated in more than 18 states and Union Territories. The states of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh account for more than 90 per of area and construction of coconut in the country. Even though, the cultivation of coconut is confined mainly on coastal states, coconut and its products are consumed by every household in India. It is consumed for edible, social and religious rituals and hence commands consumer demand throughout the year. Therefore the crop has gained national importance as food, oil seed, and beverage crop and is a major source of raw material for a large number of agro-base industries. Despite the fact their coconut is regarded as a long term crop which gives sustained yield income, subjects to pest and diseases. Rajendren (2002) reported that eriophide is a major pest, which affect the yield levels of coconut. He suggested that more of organic methods to synthetic for combating the pests. Rajendran recommended that to prevent the pests, coconut trees be subjected to tap toddy.

The coconut palm is unique in having perennial nature of concurrent yielding. The economic life span of the crops lasts more than 50-60 years after planting and hence warrants the need for continuous care and management for stabilized yield. Because of its unique nature of continuing growth and yielding phases, the nuts are harvested regularly on a fixed interval. But the yield varies from harvest to harvest and year to year.

2. REVIEW OF LITERATUR

Nandhu Sundaram, (2011) stated that the tender coconut water from Pollachi might be famous across the region, but the thousands of farmers here rarely opt to join the insurance scheme offered by the state government as the claims process is difficult and the norms totally impractical. The state government offers subsidized insurance for coconut farmers through the Agriculture Insurance Company of India Limited. Farmers are required to pay only 25% of the premium, while the state pays 25% and the Coconut Development Board pays the rest. But farmers are not tempted to join despite the steep subsidy.

Rajensenan, (2012) Generally, the respondents in all regions considered that insurance is necessary for coconut palms. In Kerala the state government provides assistance to the growers in the event of loss of palm, for which farmer does not have to pay any premium. Hence, those who consider the insurance as necessary are comparatively less in this region. Despite having effective alternatives, around 75 percent of the growers in Kerala consider the scheme as necessary.

Theerkhpathy & Chandrakumarmangalam (2014), Consequent to the globalization of Indian economy, the domestic coconut market economy has also been pushed towards a situation of competition, where coconut oil had to compete with other low price vegetable oil and fats in the international market. Indian food processing has the potential to be a driving force in India's economic development and a catalyst of the inclusive growth. It can increase farmers' incomes by 20-40 per cent, create between 50-100 million jobs and dramatically improve nutrition levels. The coconut palm exerts a profound influence on the rural economy of the many states where it is grown extensively and it provides sustenance to more than 10 million people. The processing and related activities centered on the crop generate employment opportunities for over two million people in India. The contribution of the coconut oil to the national edible oil pool is 6%. In addition the crop contributes Rs.7000 crores annually to the Gross Domestic Product (GDP).

Yamuna & Ramya (2016) India is an agricultural country and one third of population depends on the agricultural sector directly or indirectly. Agriculture remains as the main stay of the Indian economy since times immemorial. The coconut crop has a important impact on social and cultural collision on the coconut cultivators. Marketability and price established for coconut and it by products determines the economic condition of farmers. Tamil Nadu holds foremost share in coconut area and production after the state of Kerala. Coconut cultivation is considered to be one of the major livelihoods which support 60 % farmers in the state.

3. OBJECTIVES OF THE STUDY

Thus, having defined the scope of the study, the objective of the study has been narrowed down to the following aspects:

- Concurrent estimation of the estimate the yield and construction of coconut for 2017-18 in Dharmapuri and Krishnagiri District of Tamil Nadu state by undertaking field surveys and yield estimated based on established phenotypic characters of the buttons/nuts.
- To develop a scientific model for predicting the yield of coconut in the country at least 6-10 months in advance.
- To make a forecast of yield and construction for coconut for the next year (2018-2019).

4. METHODOLOGY

The Methodological Design forms an important part in any scientific exploration. For the estimation of construction of coconut in the country, one of the coconut producing states of

Tamil Nadu, have been selected for the study. Tamil Nadu State accounts for more than 90 per cent of area and construction of coconut in the country.

The broad methodology formulated is mentioned below

- Design of Proforma
- Survey Team Formation
- Primary Data Collection
- Processing and Analysis of Data

DESIGN OF PROFORMA

Well-Structured schedules have been prepared for the survey. The Schedule thus developed for the survey estimation of construction of coconut in the district of Dharmapuri and Krishnagiri contained the following information.

- General information
- Personal details of coconut Farmer
- Information about Coconut Holdings
- Yield data for 10 palms observed by the field investigator
- Nuts remaining in the tree

The schedule consisted of information needed on the following that have been collected from Coconut Farmer, Panchayat Chairperson and so on.

SURVEY TEAM FORMATION

The Survey Team consisted of a principal Investigator, Co-coordinator and 5 field level investigators who carried out the survey on 85 sample holdings. The survey team was given training on data collection. On an average, it took 11 holdings day in to complete the survey in a cluster.

5. DATA COLLECTION

Primary data collection involved field level survey. A detailed data on coconut cultivation pattern for various end uses was collected from each holding with the help of schedules. The schedule was designed to collect data on major aspects of coconut cultivation, bearing palms, Non Bearing palms, status of management practices, cropping pattern, and number of nuts obtained during the last harvest, palm variety and age group of palm.

The household farm level data collection aimed at identifying and collection of all important aspects related to coconut cultivation. The survey for coconut estimating for Dharmapuri and Krishnagiri has been assigned with the Department of Economics, Periyar University and Salem. It is important to note that these districts come under Semi Arid Tropics (SAT), where coconut is also grown on a large scale. This is a being carried out in shallow valleys.

DATA PROCESSING AND ANALYSIS

The data collected at the farm holding level was processed. All the data have been segregated and analyzed as per the requirements suggesting of Coconut Development Board (CDB). From the data collection conducted, Number of nuts obtained during the last harvest and nuts remaining in the tree have been derived. The data have been processed with the software Excel.

AREAS UNDER COCONUT CULTIVATION – BLOCK WISE

SL. NO	BLOCK /DISTRICT	AREA OF COCONUT CULTIVATION(IN HA)
1	Kaveripattnam /Krishnagiri	77.69
2	Palcode / Dharmapuri	39.35

TABLE NO 1

The table 1 shows that the total areas of coconut in the sample villages are 77.69 Ha in Krishnagiri district and 39.35 Ha in Dharmapuri District. Number of holdings and palms surveyed are analysed in the following table 2.

SAMPLE FRAME

In the second stage, the same district and blocks of Dharmapuri and Krishnagiri was surveyed. From Dharmapuri District the number of holdings was increased and decreased in the second stage. The Table No 2 shows the number of sample holdings and palms surveyed. From the first stage Total Number of holdings in Dharmapuri was 27 and Krishnagiri it was 58.

SELECTIONS OF SAMPLE HOLDINGS – VILLAGE / BLOCK WISE

DISTRICT	BLOCK	VILLAGES / PANCHAYAT	NO. OF HOLDINGS	NO. OF PALMS SURVEYED
Dharmapuri	Palacode	A Mallapuram	6	60
		Belamaranachalli	6	60
		Bevahalli	5	50
		Chikkamarandahalli	6	60
		Golasanahalli	6	60
		Total	29	290
Krishnagiri	Kaveripattinam	Arasampatti	11	110
		Barur	11	110
		Pannandur	11	110
		Papparapatti	11	110
		Vadamangalam	11	110
		Total	55	550

SIZE OF HOLDING

DISTRICT	BLOCK	VILLAGE / PANCHAYAT	NO. OF HOLDINGS	HOLDING AREA IN HECTORS	AVERAGE SIZE OF HOLDING (IN HECTORS)	ACRES	AVERAGE SIZE OF HOLDING (IN ACRES)
Krishnagiri	Kaveripattanam	Arasampatti	11	22.86	2.07	55.5	5.04
		Barur	11	40.46	3.67	100	9.09
		Paparappati	11	19.76	1.79	48.85	4.44
		Pannandur	11	13.15	1.19	32.5	2.95
		Vadamangalam	11	11.57	1.05	30.6	2.78
		Total	55	107.82	9.77	267.45	24.3
Dharmapuri	Palcode	A.Mallapuram	6	6.63	1.10	5.04	2.73
		Belamaranahalli	6	3.43	0.57	9.09	1.41
		Bevuhalli	5	8.90	1.78	4.44	4.4
		Chikkamarandahalli	6	7.28	1.21	2.95	3
		Golasanahalli	6	13.07	2.17	2.78	5.38
		Total	29	39.33	6.83	97.2	16.92

TABLE NO 2**SELECTION OF PALMS**

In each of the Coconut farm selected, the central point was located and squared in such way that 10 palms were decided and marked.

METHOD OF DATA COLLECTION

From the selected palms, all bunches carrying developing nuts after fertilization i.e. three months and above, were counted bunch-wise with the help of Traditional Tree Climbers. Information regarding the last harvest was also collected from the owners of the plot. Details regarding the total area, number of bearing and non-bearing palms, status of the management of coconut, cropping pattern, etc., were also collected.

PERIOD OF SURVEY

The field survey was done in the month of august 2019.

Here both the time series and cross sectional data have been used. Secondary data for area and construction at macro level (Block and District) have been outlined. Followed by this field level information have been examined with field experience. The area of coconut cultivation in Krishnagiri and Dharmapuri district is shown in the following table.

FARM SIZE AND HOLDINGS

Given the macro scenario that coconut cultivation is dominated by small and marginal farmers, a small exercise has been done to find out the average holding size in the study area.

FARM SIZE

DISTRICT	BLOCK	VILLAGE / PANCHAYAT	MARGINAL (LESS THAN 1 ACRES)	SMALL (1 TO 4 ACRES)	MEDIUM (ABOVE 4 ACRES)	TOTAL HOLDINGS
Krishnagiri	Kaveripattanam	Arasampatti	-	6	5	11
		Barur	-	4	7	11
		Paparappati	-	8	3	11
		Pannandur	1	7	2	10
		Vadamangalam	-	11	1	12
		Total	1	36	18	55
Dharmapuri	Palcode	A.Mallapuram	-	5	1	6
		Belamaranahalli	1	5	-	6
		Bevuhalli	-	3	2	5
		Chikkamarandahalli	-	5	1	6
		Golasanahalli	-	4	2	6
		Total	1	22	6	29

TABLE NO 3

CROPPING PATTERN IN SAMPLE VILLAGES

From the table 4, it is clear that mono crop is adopted in Krishnagiri district and mixed cropping is adopted in Dharmapuri district. Though the agro-climatic conditions in both the districts appear same, due to other economic and institutional factors, the cropping pattern differs.

CROPPING PATTERN

DISTRICT	BLOCK	VILLAGE / PANCHAYAT	MIXED	MONO	TOTAL
Krishnagiri	Kaveripattanam	Arasampatti	1	10	11
		Barur	0	10	10
		Paparappati	1	10	11
		Pannandur	2	10	12
		Vadamangalam	1	10	11
		Total	5	50	55
Dharmapuri	Palcode	A.Mallapuram	3	3	6
		Belamaranahalli	5	0	5
		Bevuhalli	0	5	5
		Chikkamarandahalli	5	0	5
		Golasanahalli	2	4	6
		Total	15	12	27

TABLE NO 4

BEARING AND NON-BEARING PALMS IN SAMPLE VILLAGES**BEARING AND NON-BEARING PALMS**

DISTRICT	BLOCK	VILLAGES / PANCHAYAT	BEARING	NON-BEARING	TOTAL
Dharmapuri	Palacode	A Mallapuram	60	-	60
		Belamaranahalli	59	1	60
		Bevahalli	60	-	60
		Chikkamarandahalli	60	-	60
		Golasanahalli	60	-	60
		Total	289	1	290
Krishnagiri	Kaveripattinam	Arasampatti	110	-	110
		Barur	110	-	110
		Pannandur	110	-	110
		Papparapatti	109	1	110
		Vadamangalam	110	-	110
		Total	549	1	550

TABLE NO 5

The details about the age of the palms and their bearing status were elicited from the selected respondent farmers. Accordingly it was found that out of 29 holdings in Dharmapuri District were bearing palms and only one in the case of Belamaranahalli village were non-bearing palms. In the same case applicable in Krishnagiri District also out of 55 holdings only in Papparapatti village were non-bearing palms.

AGE OF DISTRIBUTION OF PALMS

The distribution of palms under age group of 5-15 years and above 15 years is shown in the table 6.

DISTRIBUTION OF PALMS AND AGE GROUPS IN THE SELECTED VILLAGES

YEARS	KRISHNAGIRI DISTRICT	DHARMAPURI DISTRICT
5-15 years	10	8
Above 15 years	540	282
Total	550	290

TABLE NO 6**DISTRIBUTION OF NUTS IN SAMPLE VILLAGES**

The distribution of nuts in month wise is shown in the table 7, among the selected villages, A. Mallapuram has relatively more coconut nuts as 6325 and Arasampatti has more nuts as 12755 in both the Dharmapuri and Krishnagiri Districts respectively. Productivity of coconut would give relatively for estimate to understand the efficiency. Here in this study the yield level assess different villages has been done as shown in table 7

PALM WISE YIELD / NUTS

DISTRICT	BLOCK	VILLAGE / PANCHAYAT	PREVIOUS HARVEST	9 AND ABOVE	8	7	6	5	4	3	TOTAL NUTS FOUND
Dharmapuri	Palacode	A Mallapuram	31800	1134	1104	831	805	755	850	846	6325
		Belamaranachalli	16100	581	236	262	267	332	322	404	2404
		Bevahalli	80700	925	652	663	743	722	637	662	5004
		Chikkamarandahalli	11700	974	614	570	609	556	694	700	4717
		Golasanahalli	21600	620	515	521	624	669	642	714	4305
		Total	161900	4234	3121	2847	3048	3034	3145	3326	22755
		Arasampatti	43130	3266	1824	1696	1579	1447	1426	1517	12755
		Barur	52050	1546	874	959	999	991	1075	1071	7515
		Pannandur	16260	1946	891	1007	1056	1119	1309	1721	9049
		Papparapatti	35700	948	862	789	725	744	710	663	5441
		Vadamangalam	35800	2117	1085	1175	1187	1267	1219	1392	9442

DISTRICT		BLOCK	VILLAGES / PANCHAYAT			TOTAL YIELD FROM THE PALMS				ANNUAL YIELD PER PALMS			
Krishnagiri	Dharmapuri	Kaveripattinam	Palacode			A Mallapuram				5191		8724.36	
						Belamaranachalli				1823		363.86	
						Bevahalli				4079		6855.46	
						Chikkamarandahalli				3743		6290.75	
						Golasanahalli				3685		6193.27	
						Total				18521		28427.7	
Krishnagiri		Kaveripattinam	Arasampatti			9489				15947.89			
			Barur			5969				10031.93			
			Pannandur			6833				11484.03			
			Papparapatti			4493				7551.26			
			Vadamangalam			7325				12310.92			
			Total			34109				57326.03			
	Total		182940		9823	5536	5626	5546	5568	5739	6364	44202	

TABLE NO 7

ANNUAL YIELD PER PALMS

Annual Yield Per Palm Calculated By 8+7+6+5+4+3 Month's Nuts Total Multiplied By 100 Divided By 59.5

TABLE NO 8

PRODUCTIVITY OF COCONUT

PRODUCTIVITY OF COCONUT (PER HECTARE AND PER PALM)

DISTRICT	BLOCK	VILLAGE / PANCHAYAT	NO. OF PALMS	AREA SURVEYED (HA)	AREA IN CENTS	BEARING PALMS	PRODUCTIVITY PER HA	PRODUCTIVITY PER PALM ESTIMATED PRODUCTIVITY (2013-14)	PRODUCTIVITY PER PALM FORECASTING (2014-15)
Krishnagiri	Kaveri pattnam	Arasampatti	110	22.86	16.4	60	41857.97	5027.22 (45.7)	5375.0 (48.86)
		Barur	110	40.46	8.5	59	14628.86	1403.66 (12.76)	2320.17(21.09)
		Paparappati	110	19.76	22.0	50	19107.43	3781.65 (34.37)	4432.01(40.29)
		Pannandur	110	13.15	18.0	60	52398.61	3289.90 (29.90)	4276.31(38.87)
		Vadamangalam	110	11.57	32.3	60	63842.28	3045.87 (87.68)	4440.78(40.37)
		Total	550	107.8	97.2	289	191835.15	16548.3 (30.08)	20844.27(37.89)
Dharmapuri	Palcode	A.Mallapuram	60	6.63	55.5	110	144748.05	9355.96 (155.93)	9627.19(160.45)
		Belamaranahalli	60	3.43	100.0	110	98257.9	5196.33 (86.60)	6879.38(114.65)
		Bevuhalli	50	8.90	48.8	110	84730.40	5420.18 (108.40)	8506.57(170.13)
		Chikkamarandahalli	60	7.28	32.5	109	94188.42	4359.63 (72.66)	4642.54(77.37)
		Golasanahalli	60	13.07	30.6	110	52123.92	6324.77 (105.41)	8504.38(141.73)
		Total	290	39.31	26.74	549	474048.69	30656.87(105.7)	45039.44(155.30)

TABLE NO 9

Per palm productivity has varied from 12 to 155 in the study blocks and the average came to 30 for these districts. Given the prevailing drought condition and failure of monsoon the palm productivity decrease during 2017-18. Per palm productivity may go up or down during 2018-19 it depends upon the quantum of water released.

The estimated productivity and forecasting of both are done in the table 9. The total area covered, bearing palms are also shown in the table. Based on the number of palms surveyed, area surveyed, bearing palms of area surveyed and nuts found in the surveyed palms, the construction of bearing palms is estimated. In Krishnagiri district, the estimated construction of bearing palms is found as 289 and the calculated productivity per hectare/year is 191835.15nuts and the productivity per palm /year is 30.08 nuts. In the case of productivity per hectare/year, the 191835.15 Vedamangalam block seems to be high (63842.28 nuts) and low (14628.86 nuts) in Barur village of krishnagiri district. In the Dharmapuri district, the estimated construction of bearing palms is found as 549 and the calculated productivity per hectare/year is 474048.69 . In the case of productivity per hectare/year, the A. Mallapuram village seems to be high (144748.05 nuts) and low (84730.40 nuts) in Bevuhalli village of Dharmapuri district.

6. CONCLUSION

The statistical survey for concurrent estimation of coconut construction in the districts of Krishnagiri and Dharmapuri of Tamil Nadu observed that many of the farms are marginal and small holdings and most of them followed mono cropping and a few farmers adopted mixed cropping system like banana, jowar and arecanut mango, vegetables and guava Proper scientific agronomic practices will give more yields in coconut farms. Both the scientific community and the farmers shall join hands to improve the yield. As the sample districts fall under SAT (Semi-Arid Tropics) watering needs to be given scientifically. This will save water.

Additionally insisted of applying chemical inputs, organic matter is applied for improving the productivity. During rainy season inter culture be done to weed out grass and make the soil more pores. Thus, better and scientific agronomic practices at local level will result in improving the yield and construction. Accordingly the high yielding varieties like Veppankulam and Mandya tall varieties be encouraged among the farmers. Water Scarcity has play a major role for low productivity.

Safety nets like crop insurance need to be propagated more intensively to protect the palm groves during drought, tsunami and Thane. Natural Disasters like storm will largely damage the palm which would affect the subsistence farmers.

7. REFERENCE

- [1] Nandhu Sundaram, 'No takers for coconut insurance scheme', "The Times of India", Coimbatore, TNN Aug 31, 2011.
- [2] Sreedevi Chitharanjan, Coconut Cultivation no longer a male domain, "The Times of India", Kozhikode, Nov 2011.
- [3] Rajensenan, D., "Evaluation of Coconut Palm Insurance Scheme (CPIS)", Cochin University of Science and Technology (CUSAT), Cochin, 2012. P.70
- [4] Dr.S.S.Theerkhaphathy & Dr.S.Chandrakumarmangalam (2014) coconut processing industries: an outlook, g.j.c.m.p., vol.3(5):219-221 (september-october, 2014) issn: 2319 – 7285
- [5] Dr.S.M.Yamuna* Ms.R.Ramya (2016), study of coconut cultivation and marketing in pollachi taluk, international journal of innovative research in management studies (ijirms) issn (online): 2455-7188 volume 1 | issue 2 | march 2016 www.ijirms.com page | 77
- [6] "Report on Copra", National Multi-Commodity Exchange of India Limited, Ahmadabad, 2008.
- [7] Resmi D.S., "Coconut industry: Decades of poverty, decades of waiting", Phillippine Daily Inquirer, Mar 2013.
- [8] Rolando, T., "Coconut industry: Decades of poverty, decades of waiting", Phillippine Daily Inquirer, Mar 2013.
- [9] SowmitraTrivedi, "Coconut growers reducing plantations", Business Standard, Apr.2007.
- [10] Sreedevi Chitharanjan, "Coconut Cultivation no longer a male domain", The Times of India, Kozhikode, Nov 2011.
- [11] Srinivasan, N., and M.Gunasekaran, (1992), An appraisal of symptom expression in coconut due to leaf rot disease, Indian Coconut Journal, Sep 1992.