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Cost Cultivation of Arecanut Non-Traditional Region of Karnataka -An Analysis

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I. INTRODUCTION

Arecanut is a high valued commercial crop whose consumption is mainly for chewing purpose across all classes, age groups, and gender & social groups uniformly in India. The emergence of new product such as panmasala & gutkha further made a fillip in the demand pattern of arecanut. This has resulted in a remunerative price for farmers leading to rapid expansion in area not only in traditional growing regions, but also in non-traditional Maidan as well as in irrigated tracts of Karnataka. It has the quality of supplying stimulation to nervous system & increasing secretion of saliva in the mouth. It aids to digestive system & removes bad odor from the mouth. Ancient Ayurvedists used arecanut for some of its medicinal qualities for manufacturing aphrodisiac medicines for skin diseases, diabetes, blood pressure, leprosy, fever, leucoria,urinary stones,rheumatism,intestinal worms, seminal weakness, Jaundice, gastritis, hyper acidity etc by blending with other herbs. Arecanut is well-known as an appetizer which is also digestive and carminative. Arecanut can also be used in manufacturing soap. Chewing gums, dyes, chocolates, toothpaste, cosmetics, after-shave lotion, and ulcer cleaning tincture. Arecanut is both used in Ayurvedic as well as in folk medicines. In native medicines various parts of Areca palm bark,roots,leaf sheath, juice of ripe arecanut, tender, raw & dried nuts flowers etc are used for different purposes.

The area under arecanut is around 4 lakh hectares with a production of around 4.78 lakh tons in India. Karnataka and Kerala together account for 70 percent of area and production of arecanut. In Karnataka, around 2.15 lakh hectares are under arecanut cultivation. Chickmangalore district stands first in both area and area followed by Shivamogga, Davanagere districts. At present, arecanut is cultivated in 140 out of 175(80percent) of the taluks in Karnataka, with Kadur taluk ranking first in both area and production, followed by Channagiri and Bhadravathi taluks. World production of arecanut was 8.54 lakh tones with an area of 7.03 lakh hectatres920060. India's share I production is a mammoth 55 percent. India exported 1750 tons of arecanut and its products to more than 40 countries during 2009-10. The demand is increasing gradually in the developed world including USA, UK, Canada, Australia, Thailand, Singapore and France, that too for the products such as Gutka and Panmasala. India also imported 40000 tons of arecanut valuing Rs 100 cores at a paltry Rs 25 per kilogram in 2009-10.

In the survey data, the total cost of establishment of arecanut gardens for seven years is average cost of production Rs 607279.70 per acre in non -traditional arecanut growing in Shivamogga district of Bhadravathi taluk.

II. OBJECTIVE

- To study the cost of cultivation of arecanut among different categories of farmers in the first stage of Bhadravathi Taluk.

III. METHODOLOGY

Selection of the sample village & farmers.

The total sample size is 27 farmers. Within the taluk villages are Hebbandi and Siriyur in Bhadravathi of Shivamogga district out of two villages selected for the purpose 27 farmers are selected randomly from each village equally from different farm categories and from first stage of areca garden. Nine respondents selected in the small farmers category in the first stage, 09 respondents in the medium farmers' category, In the large

farmers' category selected 09 respondents, have been selected in each village both primary as well as secondary data.

Selection of Sample Areca Garden

First Stage 1 to 7 years: In the first stage, the areca palm will be in an infant stage & it starts bearing the yield from 8th year.

Categorization of Sample Farmers

The respondents of the sample villages were divided into three categories as small, medium & large based on the size of their land holdings. Small up to 2 Acre, Medium 2 Acre to 4.00 Acres, Large above 4.00 Acres.

Keywords: *Arecanut, Cost of cultivation, Categories, Production, Establishment and Maintenance cost,*

II. INVESTMENT ON INFRASTRUCTURE FOR ARECANUT

The sample villages selected non-command areas,the arecanut farmers had to invest on bore wells or open wells and pump sets. The other investments considered were fencing, land leveling and investment on drip systems, sprinkler units and conveyor pipes. The investment made on infrastructure for arecanut is presented in table s 2&3. The investments were calculated on per acre basis to facilitate comparison across the gardens. It could be seen that farmers of Bhadravathi had made more investment compared to other study area. The investment on bore wells and pump sets was found to be the highest among all the size of gardens. Only the large gardens had invested on conveyor pipes to transport water since the bore wells were drilled far away from the gardens. In Bhadravathi the farmers had to invest on open wells. The large gardens had made more investment on sprinkler. The farmers had to make more investment on land leveling because of the topography

Taking the report of the CAMPCO Committee as one of the sources of reference, the present evaluation made on a field study and realistic basis is based on the assumption that the unit of cultivation is one acre with average number of trees being 500; the average number of yielding trees is assumed to be 450 with average life span of 30 years. In the light of realities prevailing in Bhadravathi taluka .On the basis field study that the yield commences in the 7th year of the plant, with average yield of 8.5 Quintals per acre. The evidences collected in the field study that the average cost for acquiring one acre of land is around Rs 5.00lakhs.However, since most of the holdings are devolved by inheritance, it may be reasonably assumed that the value of land is imposed Rs 10500.00 rent for realistic evaluation of production cost.

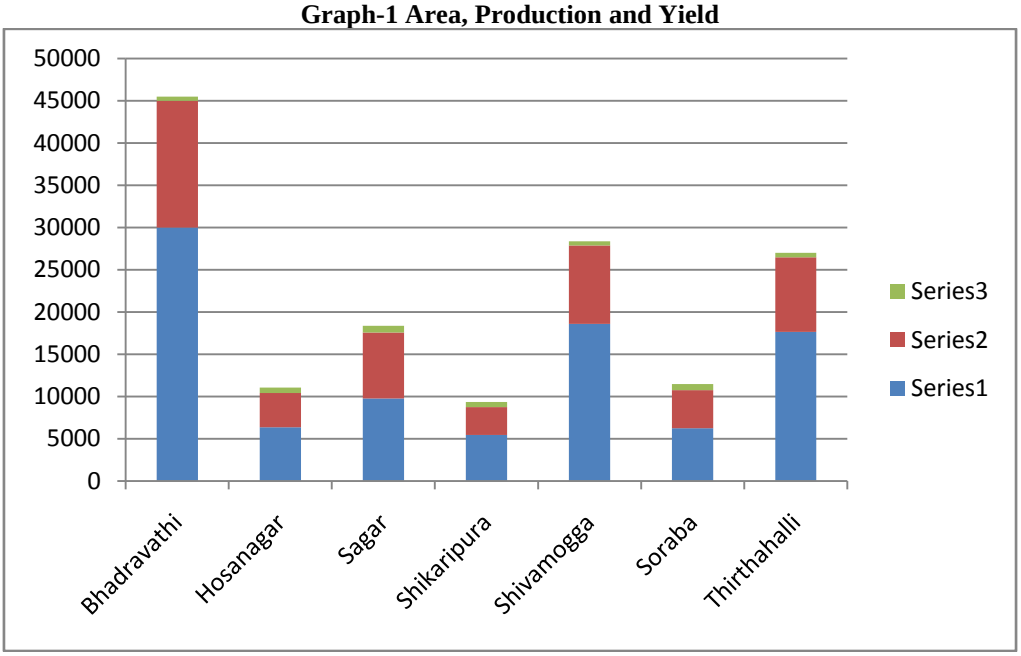
The present analysis clearly distinguishes a capital investment that is establishment cost and annual maintenance costs which are usually treated economic analysis as current expenses. The establishment costs are include are Land Leveling, Red earth, Fencing, Open well/Bore well Pumpset Sprinkler, pipes & Pump House, Seedlings, Land Revenue, Land Rent and Interest on Fixed Capital. Maintenance costs are Human Labour, Bullock Power, Hired Machines, Material Cost and Interest on Working Capital

Table 1 Area Production and Yield of Arecanut in Different Taluks of Shivamogga District 2008-09

Sl.No	Taluk	Area(acre)	Production(tons)	Yield(Kg/acre)
01	Bhadravathi	29992.5	14996	500
02	Hosanagar	6352.50	4066	640
03	Sagar	9767.50	7814	800
04	Shikaripura	5472.5	3284	600
05	Shivamogga	18585	9293	500
06	Soraba	6247.5	4498	720
07	Thirthahalli	17660	8830	500
	District Total	94077.5	52781	4260

Source: Government of India, Report of Special Scheme on Cost of Cultivation of Arecanut in Karnataka '**Arecanut Economy At the Cross Roads,'** March 2012.Dr.T.N.Prakash Kammardi, Principa Investigator, GKVK Bengaluru, 80-81

Graph-1 Area, Production and Yield



III. MAJOR FINDINGS OF THE STUDY

FIRST STAGE: AVERAGE COST OF CULTIVATION (Per Acre, 1-6th Years)

Establishment, Maintenance and Average Cost of Cultivation.

A Establishment cost of arecanut gardens.

Arecanut, being a perennial crop, requires huge investment to establish the garden. The period of establishment considered was seven years since in the farmer's view; the areca palm takes seven years to establish will start bearing economic yield. In Bhadravathi taluk banana was the intercrop grown during establish period which was planted mainly to provide shade to the young areca palms which also yields some early returns. The banana suckers were removed once the palms attained four years of age. The costs involved in establishing the garden as well as maintenance costs and production costs were broadly classified into variable and fixed costs. .In the second stage (8-30 years) of arecanut garden in the study area the respondents are found growing pepper, finaple and cocoa as mixed crops to get additional income.

The period of establishment considered was seven years since the garden generally starts bearing economic yield from the eighth year onwards. These costs were computed year-wise upto seven years in the study area. Wherein the costs were classified as variable cost and fixed cost. The variable costs consisted on fixed capital, depreciation, land revenue and land rent. The interest on fixed costs was calculated based on investment made by the sample farmers for each year; similarly depreciation was also arrived at. It could be viewed from the table 2&3 that, per acre cost was amounted to Rs 336952 as small farms, Rs 391608 as medium farm, and Rs355600 as large farms. In the establishment cost, the medium & large holdings of farmers have made more investment on irrigation infrastructure followed by land leveling together with red earth & fencing, interest on fixed capital, seedlings etc. The total establishment cost is high among large as compared to remaining holdings of farmers as it is evident from the fact that large farmers have made more investment on irrigation infrastructure that too on sprinkler and drip. The establishment average cost is 354536

B. Maintenance cost of arecanut gardens.

The Maintenance cost consists items like wages paid to labourers, hiring cost of bullocks, machines and cost of chemical fertilizers and manures, pesticides and insecticides, irrigation cost etc. It could be viewed from the table 2 &3 that, per acre maintenance cost in the first year. It could be viewed from the table 1&2 that, per acre cost was amounted to Rs. 193270 small farms, Rs. 330495 medium farm, and Rs. 449020.4 large farms and average cost of production is Rs 252743.7 in the seventh year.. In the maintenance cost, the medium & large categories of farmers have made more expenditure on human labour followed to the chemical fertilizers, manures, interest on working capital as compared to small farmers. In the first stage (1-7 years) total maintenance cost of small farm is average cost of production Rs. 252743.7

Table 2 Average per Acre Cost of Cultivation of Various Farms Category in the First Stage for the First Year in Bhadravathi Taluk (Rs)

A	Establishment Cost	Measurement	Small (Rs)	Medium (Rs)	Large (Rs)	Average (Rs)
I	Land Leveling, Red earth, Fencing					
	Land Leveling	Tractor	25000	30000	35000	19500
	Red earth,	S.500 Bu. * Rs15 M.500*11/2Butti L.500*, 2Butties.	7500	11250	15000	11250
	Fencing-1. Barbed wire	Rs 3000*2Q = I , Simbe	6000	6000	6000	6000.00
	2. Stone Pillars	S.P-150*Rs.155	23500	23500	23500	23500
	3. Labour	S.12*Rs 200 M.18* *Rs 200 S.23*Rs 200	2400	3600	4600	3533.33
II	Bore well, Pump set Sprinkler, Pipes & Pump House					
	1. Bore well /Open well	One	100000	100000	100000	100000
	2. Pump set Costs of Pump & Electrical installation	S.2HP with pipes M-L 3HP with pipes	17500	30000	30000	25833.33
	3. Drip/Sprinkler(Exclude subsidy)		20000	20000	20000	20000.00
	4. Pump house	S.6feet*6feet M.7*7 L10*10	6000	10000	17000	10333.33
III	Seedlings					
	1.Seedlings(number)	500*RS 20 per tree	10000	10000	10000	10000
	2. Tree plant hole	Per hole Cost Rs5 *500	2500	2500	2500	2500
	3.Labour	S-6 L*Rs 200 M- 12L*Rs 200 L- 18L*Rs 200	1200	2400	3600	2400
IV	Land revenue Interest on Fixed Capital					
1.	Land Revenue	Per acre	50.00	50.00	50.00	50.00
2.	Irrigation levy		300.00	300.00	300.00	300.00
3.	Rental value of owned land		10500	10500	10500	10500
	Total		232450	260100	278050	245700
	Interest on Fixed Capital (12%)		27894	31212	33366	29484
Total Establishment			260344	291312	311416	275184
B.	Maintenance Cost					
I	1. Human Labour	5L.*12 M=60L *Rs 200 7L.*12 M=84L *Rs 200 10L.*12 M=120L *Rs 200	12000	16800	24000	17600
II	Bullock Power, Hired		-	-	-	-

	Machines					
III	**Material Cost**					
1	**Manure's & Fertilizers (FYM,CF,GL)**					
1.	**Green manure**	**S.500* RS.30 M.500* Rs 30, 1.1/2Butti l.500* RS.30, 2 Bu.**	**15000**	**22500**	**30000**	**22500**
2.	***Chemical fertilizers***	**S. 500*Rs 10 M.500*Rs15 L.500*Rs.20**	**5000**	**7500**	**10000**	**7500**
2	***Plant Protection Chemicals***					
1.	***FYM,/Compost Application***	**Rs 2per Plant*400 I Litre**	**1000**	**1000**	**1000**	**1000**
2.	**Chemical manuring-**	**6 Mandays@ Rs 200/- each**	**600**	**600**	**600**	**600.00**
3.	**Spraying-**	**Labour charges**	**500**	**700**	**700**	**633.33**
4.	**Total maintenance cost**		**34100**	**49100**	**66300**	**49833.33**
3	**Interest on maintenance capital (10%)**		**3410**	**4910**	**6630**	**4983.33**
	Total maintenance cost		**37510**	**54010**	**72930**	**54816.66**
	Total Cost (A+B)		**297854**	**345322**	**384346**	**330000.66**

Source: Survey Data. L-Labour, Q-quintals-Small, M-Medium, L-Large, SP-Stone Pillars'=Month

Table 3Average per Acre Cost of Cultivation of Various Farms Category in the First Stage for the Seventh Year in Bhadravathi Taluk (Rs)

A	**Establishment Cost**	**Measurement**	**Small (Rs)**	**Medium(Rs)**	**Large (Rs)**	**Average (Rs)**
IV	**Land revenue Interest on Fixed Capital**					
1	**Land Revenue**	**Per acre**	**50.00**	**50.00**	**50.00**	**50.00**
2	**Irrigation levy**		**300.00**	**300.00**	**300.00**	**300.00**
3	**Rental value of owned land**		**10500**	**10500**	**10500**	**10500**
4	**Depreciation on farm implements**		**300**	**500**	**700**	**750**
	Total		**11150**	**11350**	**11550**	**11600**
	Interest on Fixed Capital (12%)		**1338**	**1362**	**1386**	**1392**
	Total Establishment		**12488**	**12712**	**12936**	**12992**
	Previous year Est. Cost		**324464**	**378896**	**342664**	**341544**
	Gross Est.Cost		**336952**	**391608**	**355600**	**354536**
B.	**Maintenance Cost**					
I	**1. Human Labour**	**5L.*12 M=60L *Rs 200 7L.*12 M=84L 10L.*12 M=120L**	**12000**	**16800**	**24000**	**17600**
II	**Bullock Power/ Hired Machines**		**2000**	**3500**	**4500**	**3333.33**
III	**Material Cost-**					

1	**Manure's & Fertilizers (FYM,CF,GL)**	**-**	**-**	**-**	**-**	**-**
1	**Green manure**	**S.500* RS.30 M.500* Rs 30, 1.1/2Butti l.500* RS.30, 2 Bu.**	**15000**	**22500**	**30000**	**22500**
1.	***Plant Protection Chemicals***					
2.	**Spraying-**		**1000**	**2000**	**3000**	**3000**
3.	**Total maintenance cost**		**30000**	**44800**	**61500**	**46433.33**
3	**Interest on maintenance capital (10%)**		**3000**	**4480**	**6150**	**4643.33**
	Total maintenance cost		**33000**	**49280**	**67650**	**51076.66**
	Previous year Maint. Cost		**160270**	**281215**	**381370.40**	**201667**
	Gross Maint Cost		**193270**	**330495**	**449020.4**	**252743.7**
	Gross Cost (A+B)		**530222**	**722103**	**804620.4**	**607279.70**

Source: Survey Data. L-Labour, Q-quintals-Small, M-Medium, L-Large, SP-Stone Pillars'=Month

C. AVERAGE COST OF CULTIVATION

It is clear from the table 2&3 that, in the first stage, the large farmers in Bhadravathi taluk are investing more as compared to medium and small farmers. The maintenance cost of small farmers is Rs. 530222, medium Rs. 722103, large Rs 804620.4 and average cost of production Rs607279.70.The total maintenance cost is more as compared to total establishment cost among all the categories of farmers. Within the maintenance cost all the categories of farmers have made more investment on human labour followed by organic manures and chemical fertilizers, irrigation, interest on variable cost, bullock and hired machines and plant protection chemicals.

The expenditure incurred on total maintenance cost is high among large farmers as compared to remaining categories of farmers as large farmers invested more on all components of maintenance cost.

In considering the total establishing cost, among large farmers it is high compared to other categories of farmers because of the same reseaon, where the investment is more on red earth, interest on fixed capital, bore well/well and rent for the land.

IV. PROBLEMS OF ARECA GROWERS

1. **Investment**: Arecanut is a perennial crop. Once established, it can yield up to 25-30 years of age. The gestation period of arecanut is 7 years. Till then, heavy investment has to be made for establishment. This happens to be a majority hurdle for the prospective arecanut growers. The small growers cannot meet out these expenses from their own resources. Majority of the growers particularly small and medium farmers suffer for want of adequate finance to establishment arecanut gardens. The field study revealed 80 percent of the respondents was expressed, the problem of inadequately of credit facilities.
2. Water scarcity
3. Pest and disease problems
6 Labour problems
7 Uncertainty of demand for arecanut.
8. The trend in prices for all the grades has been ups& downs. It may be due to the collapse of arecanut prices in the recent years.
9. Increasing cost of arecanut
10. Not sufficient returns because price instability in the market.

POLICY IMPLICATIONS

1. Support price needs to be revised to cover the cost of production, it protecting the farmers from loss in the arecanut production.
2. Arrangements should be made to provide the new technologies to the farmers.
3. Suitable steps should be initiated by the government to tackle the reasons for fall in prices of arecanut.

4. Alternate use of arecanut should be looked for & promoted.

5. The import duty on arecanut was increased from 35% to 100% to safeguard the interest of the farmers by the government of India. The arecanut is brought as a dry fruit. Arecanut should not be covered under dry fruit category. Appropriate action may be instituted so that the unscrupulous import should not take place.

6. President of Sringeri taluk Rita sangha demanded to the government implemented Dr. Gorakh Singh recommendation & others demand to the leaf disease of the palm

7. Alternative uses of Arecanut

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