



## **Commercial Profitability of Cultivation and Marketing of Betel (*Piper betel* L.) leaves in Machavaram village**

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### **ABSTRACT**

*Betel vine (Piper betel L.) is medicinally important crop. The aim of the present study is to investigate the commercial profitability aspects of betel leaves grown in Machavaram village of Andhra Pradesh, India. A structured questionnaire is used to collect the data. Data was collected in January, 2018. The study revealed that investment on betel vine cultivation was not only commercially profitable but also feasible for the region. It also provides lucrative employment.*

**Key words:** *Betel vine, commercial profitability, cultivation*

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### **INTRODUCTION**

India is an agrarian country. Though Indian agriculture has achieved tremendous growth in production of crops after independence, there are still some blues in the farm sector like indebtedness, crop failures and poor returns over cost of cultivation causing crisis. Studies to analyze the profitability of various crops in relation to the cost of cultivation and marketing are necessary to give proper information to the farmers about the suitable crops. This study explores the financial costs and returns, labour intensity, land-suitability, infrastructure, marketing, demand and production risk of betel leaves. It aims to provide an understanding of commercial profitability aspects of betel leaves grown in tropical region. Betel vine is medicinally and nutraceutically important cash crop[1]. It belongs to the family Piperaceae. It is a shade loving perennial creeper and bears heart shaped leaves. This crop is generally cultivated in India, Sri Lanka, Malaysia, Thailand, Taiwan and other Southeast Asian countries[2]. Betel vine has been under cultivation in India for centuries. Betel leaves as part of pan are offered after lunch and dinner and other social gatherings. Betel leaf is the traditional medicine prescribed for dietary calcium, bronchitis, cold, cough and increasing digestive capacity.

### **MATERIALS AND METHODS**

#### **Location of the study area**

The study area is confined to Machavaram village, located in Kandukurmandal of Prakasam district of Andhra Pradesh. It is 11km south of Kandukur. This village is selected because large area is under betel vine cultivation. Road transport is available from Kandukur and Kavali in SPSR Nellore district of Andhra Pradesh. Machavaram is basically an agricultural village. The popular crop of the village is rice under tank irrigation and bore well irrigation. There are temples, one high school and one hospital. There is a branch of State bank of India. Co-operative society and fair price shops are located in the village. It has a population of nearly ten thousand.

#### **Methodology adopted**

About eighty five hectares of land is in cultivation of betel leaves in Machavaram village. Hundred and fifteen small and marginal farmers are cultivating this crop. Out of hundred and fifteen farmers, 75 farmers are cultivating by taking the land on lease basis, the rest 40 farmers are cultivating in their own land. Ten percent of the farmers are selected by adopting stratified proportional sampling technique. Eight farmers from the lease holders of the land and four farmers from the owners of land are selected.

The total sample size is twelve farmers. A structured questionnaire is used for the collection of required data. The collected data is analyzed with the help of simple average and percentages.

### The concept of commercial profitability

Commercial profitability is to be measured as the rate of return on total capital employed. Total revenue (sales volume x price) and total cost (TC) are to be determined. Return(R) is the difference between total revenue (TR) and total cost(TC).

$$\text{Return on capital employed} = \frac{\text{return}}{\text{capital employed}} \times 100$$

Murray D Bryce (1965)[3] in his book Industrial Development has suggested four studies to examine the feasibility of an industrial project i.e. technical feasibility( location, size and technology), economic feasibility (supply and demand), commercial profitability (return on total capital employed) and national economic profitability(contribution to the nation).Measurement of commercial profitability as suggested by Murray D Bryce is employed in this study.

## RESULTS AND DISCUSSION

Red and black soils are used for the cultivation of betel leaves in Machavaram. The first step in this cultivation is ploughing and levelling of land. Tractors are used for this purpose. Terminal cuttings of the older creepers are used as seed material. *Sesbania grandiflora* trees are used for support. Banana leaves are used to maintain shade. Irrigation is through bore wellwith the help of electric motors and pump sets. Watering is done once in a week. Farmyard manure, chemical fertilizers and pesticides are in use. The life of betel leaves farm is two years in Machavaram. The gestation period is five months. Cutting of leaves takes place once in a month. The average output per hectare works out to 7500 bundles per month. The market places are Ongole, Nellore, Hyderabad, Chennai and Addanki. Sales are through intermediaries. Packing of betel leaves is done in cane baskets. Transport is through vans, autos and buses. The sales are on credit basis. Payment may be paid once in a week. The banks are not helping betel leaf farmers. There is a negative impact of cyclones and heat waves in the summer. Government is paying exgratia, if the farm is completely destroyed by cyclone. It is highly labour intensive. Daily supervision is required. It creates self-employment and wage employment. It prefers women labour with skill for collecting leaves and to facilitate betel vine on to supporting trees. To regulate the shade regular pruning of support tree branches are done. On an average it provides employment to 100days for women and 20 days for men per hectare per month.

### General characteristics of betel vine farmers in the study area

The general characteristics of betel vine farmers in the study area are presented in table 1.All farmers are in active age group (20-50 years). The education level of 7 farmers is elementary, 3 farmers have the high school education and two farmers are illiterate. The size of the family ranges between 2 and 6. Earning members in 12 families are 31. The dependents are 26. All farmers except three are having white ration cards. These three farmers have pink ration cards. Out of 12 farmers,eight farmers are cultivating betel leaves in leased land and the rest in own land. The experience in cultivating betel leaves by farmers ranges between two years and twelve years.

### Cultivation

The details regarding cost of cultivation, total revenue, profit, investment and rate of return are presented in table 2, table 3, table 4 and table 5. The rate of return on investment comes to 8.69% in the first year and 113.04% in the second year. This is mainly due to the gestation period (period between seeding and production) in the first year. The rate of return on investment is reasonable in the first year and very high in the second year.

Table 1: General characteristics of betel vine farmers in the study area

Sample No.	Age (Years)	Education	Family size	Earning members	Dependents	Ration card	Own/Leased land	Experience
1.	40	Elementary	4	2	2	white	Leased	8
2.	48	Elementary	6	3	3	white	Leased	10
3.	20	High school	2	1	1	white	Leased	2
4.	40	Elementary	5	2	3	pink	Leased	8
5.	50	Illiterate	6	4	2	white	Leased	10
6.	45	High school	5	2	3	pink	Leased	8
7.	30	High school	4	1	3	white	Leased	4
8.	50	Elementary	5	3	2	white	Leased	8
9.	35	Elementary	6	4	2	white	Owned	4
10.	40	Elementary	5	4	1	white	Owned	8
11.	45	Elementary	4	2	2	white	Owned	10
12.	50	Illiterate	5	3	2	pink	Owned	12

Table 2: Cost of cultivation of betel leaves per hectare

Particulars	First year(₹)	Second year(₹)
Rental value of the land or lease	100000	100000
Ploughing of the land	17500	---
Labour charges	280000	480000
Fertilizer	75000	80000
Pesticides	5000	10000
Irrigation charges	2000	2000
Miscellaneous charges	5500	8000
<b>Total</b>	<b>660000</b>	<b>680000</b>

Source: Field data

Table 3: Total revenue per hectare of betel leaf cultivation

Particulars	First year	Second year
Cutting of leaves	7 times	12 times
Production/ sales of leaves	52500 bundles	90000 bundles
Price per 7500 bundles	₹100000	₹100000
<b>Total Revenue (TR)</b>	<b>₹700000</b>	<b>₹1200000</b>

Table 4: Investment on betel leaf cultivation per hectare

Particulars	Investment (₹)
Rental value of the land	100000
Electric motar or pumpset	10000
Seed material	75000
Ploughing and levelling of land	15000
Fertilizers	75000
Working capital	100000
<b>Total capital employed</b>	<b>460000</b>

Table 5: Profit per hectare and rate of return on investment

Particulars	First year(₹)	Second year(₹)
Total Revenue (TR)	700000	1200000
Total Cost (TC)	660000	680000
Profit (TR-TC)	40000	520000
Rate of return on investment = $\frac{\text{Profit}}{\text{Investment}} \times 100$		
Rate of return in the first year = $\frac{40000}{460000} \times 100 = 8.69\%$		
Rate of return in the second year = $\frac{520000}{460000} \times 100 = 113.04\%$		

## CONCLUSION

The betel leaves cultivation in Machavaram village is technically feasible because of availability of land at cheaper rental rates, suitability of soil, availability of labour, presence of entrepreneurial qualities among farmers. It is economically feasible because the supply is less than the demand. It is commercially profitable because the rate of return on capital employed is reasonable. It is nationally economic profitable because it generates self-employment, wage employment and the leaves have demand in pharmaceuticals. The study reveals that the cultivation and marketing of betel leaves in Machavaram village is commercially profitable. This information may encourage the new farmers to enter in to this activity.

## REFERENCES

1. Suryasnata Das., ReenaParida, I., Sriram Sandeep., Sanghamitra Nayak and Sujata Mohanty. (2016). Biotechnological intervention in betel vine (*Piper betle* L.): A review on recent advances and future prospects. *Asian Pacific Journal of Tropical Medicine*, 9(10): 938-946.
2. Punuri, J.B., Sharma, P., Sibyala, S., Tamuli, R. and Utpal, B. (2012). Piper betle-mediated green synthesis of biocompatible gold nanoparticles. *Int Nano Lett.* 2: 18.
3. Murray D Bryce. (1965). *Policies and Methods for Industrial development*. Mc Graw- Hill.

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