

An Economic Analysis of Banana Cultivation in Erode District, Tamil Nadu

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Abstract

Banana is one of the major horticultural crops cultivated in India and occupies an important position in the agricultural economy. It is grown extensively by farmers belonging to different farm-size categories, including small, medium, and large-scale cultivators. Globally, bananas are an important food and commercial crop and contribute significantly to agricultural trade and rural livelihoods. The profitability of banana cultivation depends largely on production costs, productivity, resource utilization, market conditions, and the net returns generated per unit of cultivation. Therefore, an assessment of production and productivity is essential for understanding the economic viability of banana cultivation. The present study analyses the economics of banana cultivation in Erode District of Tamil Nadu, with particular emphasis on production costs, productivity, resource utilization, and the profitability of different categories of farmers. The study is predominantly descriptive and empirical in nature. Primary data were collected from selected banana cultivators belonging to different farm-size categories, while secondary data were obtained from published reports, official documents, and other relevant sources. Gobichettipalayam and Sathyamangalam Taluks of Erode District were selected randomly for the study. Appropriate statistical techniques were employed to analyse and interpret the data. The study also examines variations in cultivation practices and input utilization among small, medium, and large-scale banana growers. The findings indicate that small growers tend to cultivate different banana varieties with comparatively lower labour expenditure, whereas large-scale growers incur higher labour costs for planting, maintenance, and other cultivation activities. Large growers, however, generally possess greater access to productive resources such as milch animals, tractors, and agricultural implements, including disc ploughing equipment. The analysis further indicates that expenditure on planting and

maintenance constitutes a significant component of the total cost of cultivation. The study highlights the importance of efficient resource utilization, cost management, and appropriate cultivation practices in improving the productivity and profitability of banana cultivation in Erode District.

Keywords: Banana Cultivation, Productivity, Cost of Cultivation, Resource Utilization, Profitability, Erode District.

I. INTRODUCTION

Banana production is a premier horticulture crop in India. It has peculiar cultivation process and trade practices have been made by all type of farmers (small, medium, large size) in India, mostly they belonged to fertile land. It involves a large number of operational activities at the beginning stage to harvesting stage, such as sugarcane and spices. The features of banana cultivation is periodical stages have accessed various maintenance works. The fruits variety has grown with suitability on seasonal geographical and soil type. Productivity and economical will be adoptable for banana growers on the basis of farm size, nature of maintenance, market feasibility and seasonal support (or) atmosphere where suitable with cultivation practices. besides, cost control with maintenance had belonged to organic in nature, timely cutting for matured fruits.

World Scenario of Banana Cultivation

The geographical area of agro-climatic niches in the different states and within the state exert a strong influence in the production of horticultural crops especially the banana. Being from tropical climate, bananas are available throughout the year and can be harvested green and still ripen satisfactorily. Industrialized countries of northern hemisphere developed such a taste for improved bananas that they became the most valuable fresh fruit in the world, a position they held from the late nineteenth century.

Indian Scenario of Banana Production

Bananas are the fifth largest agricultural commodity in world trade after cereals, sugar, coffee and cocoa. Bananas are grown in more than 150 countries, producing 105 million tonnes of fruit per year. The global production of banana is around 102028.17 thousand tons of which India contributes 29.19%. Banana has an estimated production of 27.58 million tons in India which is highest in the world. 99.95% of this production is consumed within the country itself and only 0.05% production is exported. Major banana producing states in the country are Maharashtra, Gujarat, West Bengal and almost all the southern states.

Review of Literature

Ajay.A.R. *et al* (2018) have compared the Socio-economic impact of tissue culture banana with non tissue culture banana in Kenya. They found that, tissue culture banana production was relatively more capital intensive than sucker

propagated banana production. However, tissue culture banana production was found to more profitable (yield from sucker propagated banana production was only 60% of that of yield from tissue culture banana production) compared to non sucker banana production.

Begum et.al (2019) stated that the average net profit per acre on banana cultivation was high in the case of medium-size growers and medium to large-size growers and low in the case of small-size growers. Country capitalizes the opportunity in increasing the production of banana and productivity of banana can also be enhanced with scientific production technique.

Chavan et.al. (2020) examined that the majority of the farmers have cultivating banana had horticulture as their main source of income. The reason stated for non-enrolment in insurance was not lack of awareness or high premium rate but cumbersome administrative procedures and financial difficulty to pay premium at the pre-germination stages of cultivation. Even the farmers who had adequate financial resources were reluctant to pay premium in bulk, out of their own sources. Linking a credit facility with crop insurance programme is found to be an inevitable condition for its success.

Kumar.L (2023) studied the performance of banana plantations in northern Karnataka. The study revealed as perceived by the farmers the major problems in cultivation of banana were severe incidence of *Musa servospora* disease in all the districts of northern Karnataka, the disease lead to heavy crop losses. Erratic onset of monsoon was another problem in Belgaum district affecting banana plantations.

Department of Horticulture Data base (2023) narrates that Australia regulations and programs have been put in place to improve the sustainability of the banana sector by modifying production systems and protecting the plant system and the environment in the process. Meanwhile, other countries such as India have started to promote the development of export markets and may thus be expected to become more active in supplying the voluntary sustainability standard market in the coming years.

Objectives of the Study

1. To study the Socio-economic background of banana farmers in the study area.
2. To estimate the cost of cultivation and productivity of banana.

Statement of the Problem

Banana is a significant food crop and it has greater economic importance among the food crops, since it is one of the leading commodities in agricultural exports. Hence, the production performance of the crop is importance in improving the efficient use of resources. The cost of production and net returns obtained per unit would determine the profitability of the crop. The profitability of farmer

depends upon the efficient use of the resource in production(cultivation). Therefore, factors have supporting to cultivation and marketing and expenditure practices are influenced by them or affecting by them in order to attain productivity, What are the inputs have supporting for productivity of Banana by the various categories of banana growers? Is there any relevance with utilization of resources and expenses towards cultivation? How for it associate with marketing practices and strategies of banana Grower's in order to increase productivity. Hence, this study makes an attempt to find the solutions towards increasing productivity of banana growers in Erode district.

Methodology

1. Data Collection

The study is predominantly descriptive based on empirical in nature. The primary data was collected from various categories of Banana Cultivators. Secondary data was gathered from published documents. Suitable statistical tools have been used for analyzing the primary data.

2. Area Of the Study

Gobichettipalayam, and Sathyamangalam Talucks in Erode district were randomly selected for the study.

3. Sampling Techniques

A four-stage procedure was followed to select sample farmers. In the first stage, erode district were selected. In the next stage, two blocks namely Gobichettipalayam and Sathya Mangalam, were randomly selected. In the third stage, 10 villages from each selected block were randomly selected. In the final stage, 25 farmers were randomly selected from each village.

Data Analysis and Interpretation

Socio Economic Background of Banana Farmers

The demographic factors have influenced for the part of economical growth among the agrarian community in India. The banana growers who have pertains to the horticulture and cash crop categories in they belonged to agricultural activities. The economic analysis on banana production and productivity have determined with their socio- economic background and indications of growth by the respondents the socio- economic background which is determined and influenced factor they have had experienced and chain promoters of commercial involvement and under knowledge about cultivation practice and environment, seasonal variation awareness marketing constraints, logistic and supply chain from various stake holders.

Block wise Distribution of Respondents

S. No	Selected Blocks	Respondents	Per cent
1	Gobi	199	40.9
2	Sathi	288	59.1
	Total	487	100

Source: Primary Data

Erode district has unique in cultivation of banana which is located in western parts of Tamil Nadu state and nearest to the Western Ghats. This zone is familiar and suitable for banana cultivation either farmers effort and interest and soil condition, water source. In particular, the variety of poovan, kedali and red banana are specialized which comes under domestic use (consumption) and export trade. These are the various reasons for selected blocks from this district namely satyamanagalam and gobichettipalayam. In particular, these regions are familiar for continuous production, practice of leaf cutting and fruit sales next to Tuticorin, Kanyakumari and Theni district. Table shows 59 percent of the respondents from sathyamangalam and 41 per cent of them from Gobichettipalayam.

Main occupation of the respondents

S. No	Main occupation	Respondents	Per cent
1	Banana Cultivation	306	62.8
2	Banana Cultivation is Substitute crop	115	23.6
3	Other Crops	66	13.6
	Total	487	100.0

Source: Primary Data

Farming activities and structure in India has several kinds of practice. Basically, Indian agriculture is heterogeneous type of work practices. In this context, main occupation is engaged by the farmers who carry out the particular crops or only cultivating any crops. The occupations relate to allied activity of agriculture (Poultry, Sericulture, Dairy farm etc.) Sometimes, they can engage other than agriculture related work which is support for their survival. They are small business, service sector jobs etc., The determinants and influence of subsidiary occupation which contribute for banana productivity. There is a direct and indirect cost benefit analysis for agriculture allied activities. The input related expenses may be varied from allied agriculture activities. They are organic manure, less carriage charge for fertilizers. The bulk quantity sales may differ from allied activities income. But productivity is meant for labour supply input cost, cultivation period depends on seasonal variation. Table shows that 62 percent of the respondents who engaged banana cultivation is a major occupation. The substitute crop for banana is 23 of the respondents, 13 percent of them are having other crops are substitute banana is major crop.

Distribution of Farm size

S. No	Particulars	Respondents	Per cent
1	Below 1 acre	34	7.0
2	2-5 acre	264	54.2
3	6-10 acre	172	35.3
4	11 and above	17	3.5
	Total	487	100.0

Source: Primary Data

Farm size is deciding factor on volume of production and yield by the farmers. But with the support of modernized equipment and appropriate distribution of water management, we can have cultivated mass production in the limited areas of land. Mostly small farmers are engaged the banana cultivation in this study area. A very few of them have belonged the large-size farmers. Even if, some of the farmers who cultivated their leased land (landlord or some others ownership). Thus, cultivation per acre is one of the major components for the determinant of productivity and maintenance of crops and land water management. Table shows that 57 percent of the respondents are cultivated up to 3 to 5 acres and 54 percent of the farmers have 2 to 5 acres of land. About 30 percent of the respondents are cultivated up to 2 acres only. Merely 12 percent of them are cultivated 6 to 10 acres.

Position of Land

S. No	Own and Lease	Respondents	Percent
1	Own land	404	83.0
2	Lease	68	14.0
3	Both-Own land and lease	15	3.0
	Total	487	100.0

Source: Primary Data

One of the most crucial components of India's post-Independence land reforms initiatives was to impose restrictions on renting agricultural land, as this practice was seen as a remnant of the feudal system, which encouraged exploitation of small farmers and agricultural labourer by big landlords. While the imposition of such restrictions was considered progressive, it didn't provide a feasible alternative around how the landless or the small and marginal farmers would either own or have access to agricultural land. Unfortunately, "land to the tiller" was merely limited to a catchy and ballot spinning slogan. With limited or negligible success of ceiling laws and Bhoodan in terms of providing land to the poor, under cover land leasing continued, in the absence of any other option for the poor to access land for cultivation.

S.No	Soil type	Respondents	Per cent
1	Canal from river water	43	8.8
2	Bore well	138	28.3
3	Well	203	41.7
4	River water with motor pump	103	21.2
5			
	Total	487	100

Source: Primary Data

Irrigation supply is deciding major input and elements of agriculture. If irrigation is canal and river-based water supply which leads to less expenditure with abnormal supply of water distribution for banana cultivation. Table shows that 41 percent of them are having well-irrigation.

Labor cost with average price

Average price Labour cost	Rs 20 -30	Rs 31-40	Rs 41-50	Total
Men – Rs 350 Women Rs 170	15(100)	0(0)	0(0)	15(100)
Men – Rs 400 Women Rs 250	49(42.2)	17(14.7)	18(15.5)	116(100)
Total	156(32.0)	117(24.0)	214(43.9)	487(100)

Source: Primary Data

Labour cost per day is one of the determinant factors of productivity on banana. The price differs from variety of banana and its duration of yield which covers labour cost. The labour cost remains same with every variety of banana. But the deliverance of yield and preparation which requires may be extended or reduced on the basis of variety of banana.

Preference of varieties cultivated

S.No	Varieties	Respondents	Percent
1	Poovan	15	3.1
2	Rasthali	116	23.8
3	Nendran	34	7.0
4	Kadhali	167	34.3
5	Red banana	119	24.4
6	poovan banana	18	3.7
7	Poovan Kadhali + Red banana	18	3.7
	Total	487	100.0

Source: Primary Data

The western Ghat region is renowned and familiar for banana cultivation. The suitability of soil, water supply, Geographical components for wind, seasonal variation and farmer's hard work. Therefore, several varieties have cultivated and supply to various domestic markets and export also. Table shows that 34 percent of the respondents preferred Kadhali varieties and 24 per cent of them preferred red banana and 23 percent of them are preferred Rastali. The variety of pooven itself preferred merely 3 percent of the respondents. The variety of proven and kadhali, red banana is preferred by the respondents up to 3 percent.

Major Findings

1. **Location of Respondents:** It is observed that 59 per cent of the respondents were from Sathya Mangalam Taluk, while the remaining 41 per cent were from Gobichettipalayam Taluk.
2. **Age Composition:** With regard to age, 44 per cent of the respondents belonged to the age group of above 51 years, followed by 36 per cent who were in the age group of 41–50 years. This indicates that banana cultivation is predominantly undertaken by middle-aged and older farmers.
3. **Main Occupation:** More than half of the respondents (62 per cent) reported banana cultivation as their principal occupation, indicating the significant role of banana farming in their livelihood.
4. **Farm Size:** Regarding the size of holdings, 57 per cent of the respondents cultivated between 3 and 5 acres, while 54 per cent reported having between 2 and 5 acres of land. About 30 per cent of the respondents cultivated only up to 2 acres. A relatively small proportion (12 per cent) cultivated between 6 and 10 acres.
5. **Land Ownership:** A substantial majority (83 per cent) of the respondents cultivated their own land. Only 14 percent of cultivated land obtained from others through lease agreements. This indicates that ownership of agricultural land is predominant among the banana growers covered by the study.
6. **Awareness of Horticultural Subsidy Schemes:** With regard to awareness of horticultural subsidy schemes, 12 per cent of farmers having holdings of 2–5 acres reported awareness of such schemes, whereas awareness was considerably higher among farmers with holdings of 6–10 acres, at 43 per cent. This suggests that awareness of government horticultural schemes varies according to farm size.
7. **Training and Promotional Activities:** About 73 per cent of the respondents participated in training programmes conducted by the Horticulture Department. Similarly, 73 per cent of the respondents had joined the Agri Business Consortium, indicating considerable participation in institutional

support mechanisms intended to facilitate cultivation practices and marketing activities.

8. **Irrigation, Soil Type and Planting Practices:** Regarding irrigation facilities, 41 per cent of the respondents depended on well irrigation, followed by 28 per cent who used borewell water and 21 per cent who depended on river water. With regard to soil characteristics, 50 per cent of the respondents reported that their agricultural land had clay soil. Further, 78 per cent of the respondents preferred the traditional method of obtaining and planting banana seedlings.
9. **Use of Manures, Pesticides and Farm Inputs:** About 47 per cent of the respondents used organic manure and pesticides, while 52 per cent used a combination of organic and chemical manures and pesticides. Regarding the preparation or procurement of farm inputs, 43 per cent of the respondents prepared their inputs on their own farms, whereas 27 per cent sourced them from nearby farmers' farms.
10. **Variety Preference, Labour Cost and Price:** With regard to the cultivation of banana varieties, the Poovan, Kadhali and Red Banana varieties were among the preferred varieties of the respondents. The average daily labour wage was reported as ₹450 for male workers and ₹170 for female workers. The average price received for banana varied across the different categories, with 45 per cent of respondents reporting a price range of ₹41–₹50, while 28 per cent reported a price range of ₹20–₹30. The findings indicate that variety selection, labour costs, and prevailing market prices are important factors influencing the economics of banana cultivation.

II. CONCLUSION

The economic analysis of banana cultivation reveals that production costs, resource utilization, farm size, labour expenditure, cultivation practices, and marketing strategies are important determinants of productivity and profitability. The operational costs associated with planting, maintenance, and harvesting, together with the yield obtained, significantly influence the economic performance of banana cultivation. Furthermore, differences in farm size and resource availability contribute to variations in production efficiency and profitability among different categories of farmers. The study indicates that small-scale banana growers cultivate different varieties while maintaining relatively low labour costs. In contrast, large-scale growers incur higher labour expenditure on planting, maintenance, and harvesting activities. However, large-scale farmers generally possess greater access to agricultural resources, including tractors, livestock, disc ploughs, and other agricultural equipment. The findings suggest that planting and maintenance costs are relatively similar across small and large farm categories, although labour expenditure and cultivation practices vary according to farm size and resource availability. The

analysis further reveals that irrigation facilities, labour charges, marketing practices, and the sale of banana leaves influence the profitability of banana cultivation. Large-scale growers generally possess better transportation and logistical facilities, enabling them to participate in domestic and export markets. Moreover, institutional assistance provided by the Horticulture Department, particularly in the form of subsidies, training, and cultivation-related support, appears to be more accessible to larger farmers. Small-scale growers, on the other hand, adopt diversified cultivation practices by producing different banana varieties and generating supplementary income through the sale of banana leaves. Such diversification helps them manage operational expenditure, maintain financial stability, and improve overall profitability. Cultivating a single banana variety in large quantities may expose small farmers to financial difficulties because income from banana harvesting is generally realized approximately ten months after planting. During this period, farmers must continuously meet cultivation expenses while also fulfilling their household financial requirements. Therefore, the study emphasizes the importance of balancing production costs, productivity, and profitability among different categories of banana cultivators. Efficient resource management, crop diversification, improved irrigation facilities, access to institutional support, and effective marketing strategies are essential for enhancing the economic sustainability of banana cultivation. Particular attention should be given to strengthening financial assistance, improving market accessibility, and providing technical support to small-scale farmers. These measures can contribute to reducing production costs, increasing productivity, improving farmers' income, and ensuring the long-term economic viability of banana cultivation in Erode District of Tamil Nadu.

III. REFERENCES

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