



AN ECONOMIC STUDY ON PRODUCTION AND MARKETING OF MANGO IN DHARMAPURI DISTRICT OF TAMILNADU

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ABSTRACT

Cultivation of fruits is a very important factor contributing to the prosperity of a nation. In fact, per capita consumption and production of fruits are often taken as an index of the standard of living of the people in a country. The nutritive value of fruits in human diet is universally recognized. Fruits are the chief source of vitamins and certain minerals which are necessary to maintain health and are resistant to diseases.

KEYWORDS: Cultivation, Nutrition, Consumption, Production & Human Diet.

INTRODUCTION

The nutrition experts have recommended consumption of at least two ounces of fruit per head per day in addition to cereals, pulses, milk, vegetables, eggs etc., for a satisfactory diet. India is the biggest mango producer in the world, accounting for about 52 per cent of world production. Other major mango producing countries include China, Thailand, Mexico, Pakistan, Philippines, Indonesia, Brazil, Nigeria and Egypt.

MANGO – ORIGIN AND BACKGROUND

Mango, believed to have originated in south east Asia, is being cultivated for nearly 6000 years. The botanical name for the mango plant is *Mangifera indica*. It belongs to the dicotyledonous family *anacardiaceae* which consists of 64 genera, mostly of trees and shrubs. The word *Mangifera* is derived from the word 'Mangai' (The Tamil name for mango) and *fero* (Meaning 'to bear'). The word *Indica* means Indian and stands for the name of the species. Mango is the choicest fruit of Hindustan and one of the most delicious fruits of the world.

STATEMENT OF THE PROBLEM

Mango fruit is rich in nutrients such as protein, vitamin A, fiber, thiamine, ascorbic acid, etc. and on the other hand India earns huge amounts of foreign exchange reserves from exporting mango each year. However, in spite of all this, mango yield in India is 8 – 9 tonnes per hectare as compared to the world yield of 25 tonnes per hectare. This gap in yield is due to poor management practices and post harvest losses as the farmers lack technical know-how about the mango production in India. Economics of various crop enterprises has been estimated at different points of time by various organizations and individuals. Unfortunately, little research work has been conducted on finding out economics of growing mango in India.



Efforts have been made by various individuals to determine economics of orchards determined various financial techniques to find out profitability of mango cultivation. The producers would like to know the results of his economic activity by working out a detailed cost benefit analysis of the investment in the project. Unfortunately, the farmers and other concerned individuals know very little about economics of growing mango. The farmers need information regarding investment and returns from fruit gardening business. Keeping in view the importance of mango in terms of area, production and foreign earnings from exporting mango, the present study investigates in determining cost of production and profitability of growing mango orchard. Hence, an attempt has been made to analyse cost, returns, determinants of yield, yield gap and yield constraints and different marketing channels of Mango in Dharmapuri district of Tamil Nadu.

OBJECTIVES OF THE STUDY

The specific objectives of the study are:

1. To analyse the cost and return structure of small and big orchards producing Mango in Dharmapuri district.
2. To identify and analyse the determinants of yield of Mangoes of small and big orchard farmers group.
3. To analyse the factors causing yield gap with regard to farmers producing Mango.
4. To discuss the channels of marketing of Mango and price spread in Dharmapuri district.
5. To assess the efficiency of different marketing channels in the district.
6. To examine the effects of variations in the consumer's price on the shares of producer – seller and the retailer.

LIMITATIONS OF THE STUDY

The main limitation faced by the researcher for the present study was the selection of the period of primary data collection. Generally, a mango crop is subject to alternate bearing in different age of trees. But in the study areas of Dharmapuri, bearing behaviour is not alternative instead it is irregular and erratic. The farmers in the study area mainly have raised two commercial varieties of mango namely, Neelum and Rumani which are subject to heavy yielding and of regular bearing habit in this study area. However, the bearing behavior is irregular erratic due to climate factors, disease and insect attracts in addition to the nutritional status of the fruit tree. Hence the researcher had contacted many horticultural experts and had chosen the normal bearing year 2015-16 for primary data collection in the study.

METHODOLOGY

Choice of the Study Area

The general objective of the study is to understand the functions in production and markets of mango and therefore, the choice of the study area has to be around the major production and marketing centre for mango. Hence, Dharmapuri district which shows highest area under mango production in Tamil Nadu has been selected purposely and it stood one-half of the Mangos in the State.

Sampling Procedure

Stratified multistage purposive sampling technique has been used for the study, taking Dharmapuri district as the universe, the block as the stratum, the village as the primary unit and mango orchadists as the ultimate unit. Dharmapuri district comprises of 18 blocks. Mango is mainly produced in two blocks namely Karimangalam and Morappur. These two blocks which show nearly 77.9 per cent (10847 hectares) of total area under mango cultivation in this district have been selected for the study. Further, two varieties namely Neelum and Rumani are mainly produced in these blocks. Hence, the present study comprising, 218 orchards, 97 producing Neelum variety of mango and 121 producing Rumani variety have been purposely selected for the present study.

Collection of Data

Both primary and secondary data have been used in this study.

Tool of Analysis

In order to analyze and compare the cost of Mango cultivation, direct and indirect costs were measured. Direct cost included the operation and maintenance costs. Indirect cost included the annual share of establishment cost, interest on fixed capital, interest on working capital and depreciation. In order to identify and compare the factors influencing yield of mango for both varieties, the following form of multiple linear regression model was used.

The structural differences were examined by testing the equality of parameters of the production relations between small and big orchard. In order to measure the marketing efficiency (M.E.) shepherd's formula of the following form was used. Garrett's ranking technique was adopted to analyse the problems in production of mango and of marketing problems.

SUMMARY OF FINDINGS

It is inferred from the analysis that majority of the orchardists for both Neelum and Rumani variety belong to the age group 30 – 40 years (51 to 55 percentages). Regarding the qualification 73 per cent out of 97 and 63.64 per cent out of 121 for Neelum and Rumani variety respectively had +2 level education. It is followed by college level in the study area.

In the case of family size, majority of respondents in both varieties had a family size 4 to 6 member. It is followed by less than 4 members. In majority of orchards in both varieties 2 – 4 family members were engaged in mango cultivation. Usage of family members were found high in Neelum variety than the Rumani variety of orchards.

Regarding operational holdings, big orchardists (more than 5 acres) was found high in Rumani variety than Neelum variety under study. Experience in mango cultivation was found high (10 – 15 years) in the case of Neelum variety than Rumani variety.

Regarding the cost of production of mango orchard, it was classified into direct and indirect cost. Direct cost included the operation and maintenance cost and indirect cost included the annual share of establishment costs, interest on fixed capital, interest on working capital and depreciation.

The establishment cost of mango orchard per acre for five years were included all initial cost such as seed material, planting, gap drilling, fencing, fertilizer, cost of labour both human and animal, watch and ward cost, interest on land value and land tax, repairing cost.

Cost of production of mangoes included direct costs and indirect cost. The direct cost included annual operation and maintenance and the indirect cost included the annual share of establishment cost up to bearing, interest on fixed and working capital and depreciation of fixed assets.

The cost of production of mango per acre was Rs.13470.84 for small orchards and Rs.14423.17 for big orchards in the case of Neelum variety and in the case of Rumani variety it was Rs.12895.21 and Rs.133354.82 respectively for small and big orchards respectively. Of the direct cost amounted to Rs.9354.52 and Rs.10104.50 respectively for small and big orchards respectively.

Returns showing the variety-wise estimates of yield per acre were found to be 9.27 metric tones and 9.98 metric tones for small and big orchards respectively for Neelum variety. The yield of Rumani variety was found to be 8.36 metric tones for small and 9.38 metric tones for big orchards. Yield in monetary terms was Rs.31793.49 for small and Rs.19805.43 for big orchards. In the case of Rumani variety, gross and net returns for small orchards were Rs.28672.45 and Rs.15777.27 respectively and it was Rs.32170.76 and Rs.18815.94 respectively for Rumani variety.

The worked out netted benefit cost ratio was 3.29 and 3.31 for small and big orchards in the age group of 21- 35 years for Neelum and it was 3.16 and 3.32 for small and big orchards respectively for Rumani variety.

A comparative study of cost in Neelum and Rumani varieties indicate the highest cost of establishment, a higher cost on operation and maintenance and a higher cost of production in Neelum variety than Rumani variety.

A higher yield and return was observed for Neelum variety compared to Rumani variety. Higher yield in Neelum variety orchards is due to the long set practice of mango cultivation, the high number of bearing age of the orchards and the larger number of trees planted per acre compared to Rumani variety orchards and the special care that cultivators in Neelum take with regard to watering, pruning, bunding, etc. both gross income and net return are higher for Neelum compared to Rumani variety due to higher yield, regular care and watering, higher due to higher yield, regular care and watering, higher prices due to diversified market.

The production problems of mango were identified and they were analysed by using Garrett's ranking technique. It was found from the analysis that the most important factor which severely affected mango was the problem of post and disease. In the case of small and big orchards producing Neelum variety of Mango, all the five independent variables jointly explained about 80 to 81 per cent of the variations in the yield of mango. Among the significant variables, human labour had a greater influence on the determination of yield in the case of small orchard, it was followed by fertilizer. The fitted regression model emerged highly significant.

The regression analysis of Rumani variety revealed that the independent variables caused about 76 to 81 per cent of the variations in the yield per acre. The variables, human labour, fertilizer and age of the orchard were significantly related to yield for both orchardists.

The examination of the structural differences between small and big orchards revealed that there existed a structural difference between small and big orchards in the study area. The analysis based on dummy variables revealed that existence of structural difference between two groups at slope level. At the slope level, inputs namely age of the orchard were responsible for the differences in yield.

The analysis of yield gap revealed the existence of a gap between the potential and actual yield per acre for both orchardists in each variety. The yield gap was found higher in the case of big orchards than in the case of small orchards.

The Garrett's ranking technique was applied to identify the major constraints to the attainment of potential yield and it was found that severity of disease and pest attacks and water shortage were identified as major constraints for both small and big orchard producing Neelum variety. Rumani variety, small orchards have reported that the inadequate credit facilities and water shortage to be the main constraints to maximum yield

There is no significant variation between the two sizes of orchards regarding the loading and unloading charges and commission charges. More than 90 per cent of the produce was marketed through commission agents cum wholesaler.

Final sale price including commission and transit charge was Rs.5167.42 per metric tones for small orchardists and Rs.4695.26 for big orchardists. The producer's share in consumer's price was 71.19 per cent for small and 71.77 for big orchardists.

Marketing efficiency was estimated using the Shepherd's formula and it is found that there is no difference between two sizes of orchardists as per the ratios so arrived at. From the results estimated regression coefficients share of producer and retailer were significantly affected by variation in consumer's price. The producer's share was inversely related to the consumer's price while retailer's share was positively related.

SUGGESTIONS

It is suggested on the basis of the findings that the extension service officials may improve technical efficiency by advising the farmers on input application at the proper time as recommended. The most important factor in the production of any crops is the availability of the capital and more so in case of the fruits like mango as these crops are highly capital intensive. It could be observed from the study that the

institutional agencies, commercial banks and co-operative banks almost do not advance credit to meet their cost of cultivation of mango. Hence, most of the orchardists relied upon the local money lenders and contractors so as to fulfill their financial requirements paying exorbitant rate of interest. So steps should be devised to ensure adequate credit for cultivation of mango in the study areas. The lack of technical knowledge on the part of the orchardists prevented them from realizing the maximum yield from mango in the study areas. They do not bother to apply remanded fertilizers or manures and the attitude of the cultivation was casual towards maintaining the orchards. In this context, the tension agency has to play an important role in educating the cultivators regarding proper input requirements and their beneficial effects. The seasonal nature of the fruits like mango creates wide fluctuation in prices and sometimes the cultivators get so low price that they find it unremunerative even to harvest that fruit. Hence, there is a need to devise ways and means to ensure better price and offer cold storage facilities. Establishing fruit processing industries are also advocated in the study area. Adequate transport facilities at low cost and other infrastructural facilities are indispensable for proper marketing. Lacks of these facilities lead to in poor returns in the study region. It could also be observed that most of the orchardists sell their produce only through commission agents cum wholesalers who have charged a higher rate of commission. Thus, to improve the marketing channels and also fix reasonable commission charges. Further, market committee officials can take steps to propagate the marketing of mangoes through regulated markets in the study areas.

CONCLUSION

Thus, it may be concluded from the analysis of the present study that the establishing of mango orchards in Dharmapuri district, are technically feasible and economically viable. Comparing the two varieties namely Neelum and Rumani, Neelum stood better in all respects such as intensive care of orchards, yield, price, recoup the investment earlier, marketing etc. Further, statistical test namely Chow's test showed that there is a structural difference in the production relation between the two taluks. It was also observed that the difference existed only at the slope level due to the variable, number of bearing trees. The human labour and tillage practices are under utilization in the study regions whereas the uses of plant protections are found to be rational. It could be concluded that there is no difference regarding the marketing efficiency between two taluks based on the results of the Shepherd's formula.

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