A STUDY ON BANANA CULTIVATION WITH SPECIAL REFERENCE AT TIRUNELVELI KATTABOMMAN DISTRICT

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Abstract

The growth in the production of fruits and vegetables assumes critical importance nowadays due to the increase in the demand generated by the rapid increase in population and has been accelerated further by the rise in the levels of income of the people and the consequent change in the pattern of consumption. Fruits, observes Bakhru, play a unique role in developing countries like India, both in economic and social sphere for improving income and nutritional status, particularly of rural masses. Today, the need for meeting the minimum nutritional level of a diet of a common man is assuming greater importance. And, the cultivation of fruits and vegetables assume more importance for as protective food they provide much needed nourishment, supporting vitamins, minerals and also in improving the protein value in foods. Besides their value in human consumption, these crops play an important role in the economy of the country.

Among fruits and vegetables banana is a prominent and special crop with its peculiarities such as non-seasonal character, one year gestation period, single bunch output and perishable in a short period of seven to ten days. According to Subramanian, the growth of area and production of banana crop have increased in India as a whole. But the rate of growth has been very low. In majority of states the productivity of banana has decreased. This shows that urgent measures are required for arresting the decrease in productivity of banana crop. Hence this study is concerned about banana cultivation in Tirunelveli Kattabomman district.

Introduction

Banana is an important and popular fruit both among the rich and the poor in India. It
is highly nutritious, easily digestible and rich in carbohydrates as well as minerals. Banana is a commercial crop. It enters into every household either in the form of ripe fruit or tender fruit. It is being used extensively in all auspicious occasions such as weddings, festivals and for worship. Banana crop occupies a premier position to give lump sum income to the farmer among irrigated cash and food crops. It has greater potentiality in generating employment for agricultural labour at the farm level. In South India banana forms an article of great and diverse utility. The plants with or without bunches, cut at the base are extensively employed for decorative purposes. There is hardly any marriage or other ceremonial occasion in which the banana plant in bunches does not grace the festive pandal (Pandal means a shed put up with thatched leaves). The popularity of banana as a decorative plant is evident from its inclusion in the design of the paper currency of India.

**The Problem**

The core of the problem in the present study is to diagnose the potentiality of increasing the net revenue of the banana growers for the sake of sustaining production in order to meet the growing need for banana. This diagnosis depends on two aspects, viz., efficient use of the available resources of the banana grower in the production process and adequate price for the banana bunches in marketing. Studying anyone of these two aspects leaving the other would become incomplete in getting higher net revenue from banana production. A study on this problem compels to analyze the two economic aspects, one relating to resource-use efficiency in banana production and the other relating to market margin in the disposal of banana bunches.

**Scope of the Study**

This study at the micro level would help to make various analyses such as cost and returns, resource-use efficiency, yield gap and market margin. This would facilitate the farmers, capable of minimizing cost and maximizing output and revenue, with optimum use of the available scarce resources. At the macro level, this study would be of immense use to design appropriate policies and relevant strategies by the government authorities to increase the production of banana in this district and to necessitate efficient marketing system so as to satisfy both producers and consumers.

**Limitations**

This study is confined only to a particular agro-climatic district viz., Tirunelveli Kattabomman district. Only the banana
growers who have cultivated banana during May-June, 2015 and the intermediaries involved in marketing bunches during April-June, 2016, are considered in the selection of sample. Institutional finance is completely ignored. The decision of the grower to cultivate banana need not be based on purely net revenue. The growers have freedom to dispose their produce by themselves or through retailers or through pre-harvest contractors. As this micro study is exclusively based on primary data, collected by applying survey method, the collected data may have their own recall bias. Further, the statistical methods and tools applied may also have limitations in forecasting and in giving strength to economic theories and strategies to be followed.

Methodology
The studies in agriculture especially in micro level mostly suffer from paucity of data when attempt is made to study about an individual crop. They need special and relevant data to fulfill the objectives of the studies. Hence, the studies depend largely on sample survey to collect the reliable and special data intended for empirical analysis. There is no definite and exact procedure to collect accurate data relating to individual crop cultivation and marketing of the commodity. Moreover, with regard to marketing of any commodity, the contractors, wholesalers and retailers usually hesitate to supply relevant information. Therefore, effort was taken to elicit reliable data and to apply relevant statistical tools and techniques to ensure maximum accuracy in the analysis for the present study.

Choice of Sample
Tirunelveli Kattabomman district is purposively selected for conducting the present study due to great potential and wider scope for cultivation of banana in this district. Two-stage stratified random sampling was adopted for the selection of the respondents. In the first stage, a list of revenue villages having area under banana crop in these three regions was prepared from the record 'G Return, Fasli 1403' maintained by the respective Block Statistical Inspector for the agricultural year 2015-2016. Out of 239 banana growing revenue villages, 24 villages (5 villages from Ambai region, 11 villages from Nanguneri region and 8 villages from Radhapurarn region) were selected (10 per cent) on the basis of the area under banana in the selected regions as the first stage of selection with the aid of the 'Booklet of Random Numbers' 6 following three digit circular stematic random technique for each
selected region. In the second stage a list of banana growers who had cultivated banana crop during May-June 2016 in the selected villages was prepared from the 'Adangal7 with the assistance of Village Administrative Officers (VAOs) and 'Thalayaries 8. Banana plantation during May -June would yield more than the banana plantation during any other period because south-west monsoon begins during the first week of June. Hal.l 9 states that May-June is the ideal time for the plantation of banana. Therefore, this period is considered in this study.

**Data Collection**

The present study is primarily confined to primary data. Collection of primary data is purely related to the accounting of cost and revenue of banana and price spread from the first producer to the final consumer. The factors like nature and scope of the study, the time, the degree of accuracy desired, the financial condition, knowledge and skill of the interviewer exert an influence on the ways in which primary data is collected. A specially designed structured interview schedule was used to collect primary data from the banana growers in a phased manner viz., on the eve of the first month after planting, during the sixth month of the vegetative growth and finally during the twelfth month after the contract and also when the harvest was over. The researcher made cross checks wherever necessary to find whether the given data was correct or not. Thus, it would be possible to acquire maximum accuracy in the production analysis. Secondary data was collected from government records and reports such as G--Return', Census of India' Forecast Estimate of Area and Production of Important Crops in Tamil Nadu' and 'Seasons and Crop Reports of Tamil Nadu'.

**Review of literature**

Chandra Reddy et al. 20 have attempted to study the resource use efficiency in betelvine cultivation for three years in Cuddapah district of Andhra Pradesh. This study shows that there is a potential for further use of labour, manures and fertilizers upto the optimum level. Further investment in seed and miscellaneous costs is not desirable as revealed from their insignificant elasticity coefficients. Thakur et al. 21 have observed in their study that the MVP to factor cost ratios were different from unity in all size of holdings. This implies that there has been scope for increasing all the inputs. Out of the seven crops studied, four crops have been operating under diminishing returns to scale and the rest increasing returns to scale.
Semban has made an attempt to study resource—use efficiency in banana cultivation in Tiruchirapalli district for three years from 1985 to 1988. Three varieties of banana were studied in three blocks. For Poovan banana the yield has been influenced by the land size and seed in the blocks. Constant returns to scale have been operating in Poovan banana. The MVP to factor cost ratios were greater than unity for land and the support pole, bamboo and less than unity for seed.

Analysis and interpretation

A perusal of Table No.1 shows that the MVP to factor cost ratios for human labour and manures and fertilizers are greater than unity indicating under utilization of these inputs in the cultivation of different varieties of banana. This indicates that production could be increased by increasing the use of human labour and manures and fertilizers.

Table 1
Marginal value product of different inputs and their ratios to factor cost for different varieties of banana

<table>
<thead>
<tr>
<th>Banana variety</th>
<th>Marginal value product of different inputs</th>
<th>MVP/factor cost</th>
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<tbody>
<tr>
<td></td>
<td>Human labour (man-days)</td>
<td>Suckers (Rupees)</td>
</tr>
<tr>
<td>Thozhuvan</td>
<td>X1 158.10</td>
<td>X2 -12.54</td>
</tr>
<tr>
<td>Kadali</td>
<td>X1 100.94</td>
<td>-</td>
</tr>
<tr>
<td>Peyen</td>
<td>X1 97.51</td>
<td>-</td>
</tr>
<tr>
<td>Nendran</td>
<td>X1 155.65</td>
<td>5.70</td>
</tr>
</tbody>
</table>

The MVP to factor cost ratios of suckers in the Thozhuvan variety is negative. This is positive but greater than one in the Nendran variety. This indicates that expenditure on suckers for Nendran could be increased to increase the output. On the basis of these results it is understood that there is more scope for further use of human labour and manures and fertilizers.

MVP of Inputs for Different Size-Groups of Farm

The marginal value product (MVP) of different inputs for different size-groups of farm and ratios of MVP to factor cost are worked out and delineated in Table No.5.4. These ratios are used to
judge whether the banana growers belonging to these groups have used the inputs optimally or not. It is observed from Table No.2 that the MVP to factor cost ratios for different inputs in all the size-groups of farm are significantly different from unity. This indicates that the inputs have been inefficiently used by the banana growers. Therefore, the production of banana could be increased by increasing all the inputs except human labour in all the size-groups of farm.

Table 2
Marginal value product of different inputs and their ratios to factor cost for different size-groups of farm

<table>
<thead>
<tr>
<th>Groups</th>
<th>Marginal value product(MVP)</th>
<th>MVP/factor cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Human labour (man-days) X1</td>
<td>Suckers (Rupees) X2</td>
</tr>
<tr>
<td>Group-II</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Group-III</td>
<td>43.15</td>
<td>5.96</td>
</tr>
</tbody>
</table>

Human labour has been used less efficiently by farms in Group-III since the MVP to factor cost ratio is less than unity but positive. This means that the labor has been overutilised and each additional unit of labour would add more to the cost than to the gross revenue. Therefore, use of human labour should be reduced to get higher revenue. The ratios of all the other inputs indicate that the added return or revenue at this level has been higher than the additional cost incurred for the additional one unit of the respective input. Therefore, these inputs could be enhanced to increase the gross revenue in banana production.

Suggestions:
As banana production is highly profitable and involves risks and uncertainties, necessary steps should be taken by the government to compensate the loss due to risks and uncertainties and to expand banana cultivation elsewhere in Tirunelveli Kattabornman district. Crop insurance scheme may be extended to banana crop also. The prevailing market prices of inputs such as manures and fertilizers and plant
protection materials are higher. The banana grower is not able to make use of such inputs as required due to financial constraints. Therefore, financial institutions should make necessary provisions to banana grower at the time of crying need so as to improve the efficiency of input-use. The net revenue of each banana variety can be increased by applying more and more measurable inputs except human labour. Human labour is over-used in the sense that its Marginal Productivity (NP) is low. Banana is irrigated under surface method once in every five to seven days and during summer or dry season once in even every eight to ten days depending upon the soil and climatic conditions. Banana grower solely depends on dug wells and electric power for lifting water from dug wells to irrigate banana in the study area. Water is scarce in dug wells and banana grower suffers due to frequent power cut. This leads the banana growers unable to irrigate banana in the specified days of interval.

**Conclusion**

The economic efficiency comprises of both technical and allocative efficiency. The core of economic theory is concerned with the allocative or price efficiency - the marginal value product of factors might be equal to their marginal costs. The other important aspect of economic decision making process is to produce the greatest possible output from a given set of inputs. Cobb-Douglas production function ignores the problem of technical efficiency. Therefore, a probabilistic production function approach using linear programming can be studied to measure both allocative and technical efficiency in banana production in this district. Separate market analysis both internal and external in the disposal of banana bunches is needed because the prevailing banana market is imperfect and quite a lot of extraneous elements including demand and supply influence the functioning of the marketing system. Specific market theory may be followed to analyze the efficacy of banana market in Tirunelveli Kattabomman district.