

An analysis of Cost and Returns of Sugarcane Production in Erode District of Tamilnadu

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Abstract

Objective: The main purpose of the present study is to estimate the cost and returns of sugarcane production per acre on different size of farms in Sathyamangalam block of Erode district in Tamilnadu, India.

Methods: The study was confined to a sample of 120 sugarcane farmer households selected from four villages of Sathyamangalam block of Erode District. A simple percentage analysis was employed to identify the cost and returns of sugarcane cultivation for the selected sample farmers.

Findings: The study found that an average sugarcane cultivating farmer in the area spent 14.40 percent of the total cost on seed, 5.32 percent (appropriated cost) on family labour, 64.96 percent on hired labour, 5.67 percent on machinery used for different operations, 6.04 percent on chemical fertilizer and 3.61 percent on pesticide, realised a net return of Rs.26424 per acre. This might be due to the fact that the benefit of economies of scale has reached its maximum only at the farm size of 5-7.5 acres. Therefore, our generalisation on optimum farm for the area falls in the category of 5-7.5 acres.

Application/Recommendation: The study recommends that can improve cropping system and stabilizes farm income to the farmers; the Government intervention is sought in a manner that there is unbiased credit support for farms of all categories without discrimination. The general observation from the farmer's perception in the area is that inspite of the fact that the Central and State Governments price incentives have provided them a relief to some extent, the mechanism evolved for fixing minimum price does not cover the entire cost components and the risk factors involved in the sugarcane cultivation.

Keywords: Sugarcane, Cost, Revenue, Production, Yield.

1. Introduction

Sugarcane is an important commercial crop of the world and is cultivated in more than 100 countries, the leading countries being Brazil, India, China, Thailand, Pakistan, Mexico and Colombia. The botanical name of sugarcane is *Saccharum officinarum* and for sugar beet, it is *Beat Vulgare*. Sugarcane is produced in tropical and temperate zones. It is the second important commercial crop in India and is grown in about 5 million hectares, production of about 27 million tonnes of sugar, contributing direct and indirect employment to 40 million farmers, besides providing employment to 3-5 lakhs skilled and unskilled workers in the manufacturing of Sugar, In [1]. Even though, sugarcane occupies only 2 percent of the total cultivated area, it contributes to 7 percent of the total value of agricultural output. Tamil Nadu is one of the major sugarcane growing states in India, contributing 6.41 percent of national sugarcane and producing 8.32 percent national sugarcane production in 2011-12. As on 31.5.2011, there are 46 sugar mills in Tamil Nadu of which 16 sugar mills are in cooperative sector, 3 in public sector and 27 in private sector [2]. Out of which two (Bannari Amman Sugar Ltd., Sthyamangalam and Sakthi Sugars Lts., Bhavani) are in the western part of Erode district in Tamilnadu. This implies that the economy of the farmers as well as prosperity of the state is highly influenced by the earnings from this crop enterprise. Now-a-days, sugarcane farming is becoming gradually

commercialized in Tamil Nadu. The commercial farmer's chief concern is to secure a satisfactory margin between the cost and selling price of his produce. Thus, in order to justify continuance a farm enterprise should generate a net profit over the total cost. It is therefore, crucially important for the farmers to know their production costs. The cost of production and returns from sugarcane varies from region to region and from one category to farmers to another.

2. Objectives

The objective of the study are to analysis of cost and returns of sugarcane production in Sathyamangalam block of Erode district in Tamilnadu and to suggest the suitable recommendation and policy measures to improve the sugarcane production in Erode district.

3. Materials and Methods

3.1 Sampling Area

Erode District in Tamil Nadu is one of the major sugarcane growing districts in the state. Sugarcane is grown up as a major field crop by majority of the farmers in the district and had a maximum area of canal irrigated sugarcane cultivation. Therefore, this district forms the universe of the study.

3.2 Primary Data

The primary data on various aspects were collected from the Sathyamangalam block of Erode districts through personal survey method with the help of structured interview schedule. The data pertained to the agriculture year 2014-15.

3.3 Sampling Size

For the purpose of the study, multistage random sampling technique was adopted in designing sampling frame for the study [3]. In the first stage, Erode district have 14 blocks, of which Sathyamangalam Block was purposively selected on account its commendable position in sugarcane cultivation. Similarly, in the second stage, Sathyamanagalam block has 30 villages, out of which 4 villages were selected at random. In the third stage, 30 sugarcane farmers for each 4 villages were chosen at random, giving equal representation to all sample villages. Thus, total sample size constitutes 120 sample sugarcane farmers selected from four villages of Sathyamangalam block of Erode district. Post stratification was made to classify the farmers into four groups viz., less than 2.5, 2.5 - 5, 5.0 -7.5 and above 7.5 acres respectively.

3.4 Analytical Tools

A simple tabular percentage analysis was employed to analysis of cost and returns of sugarcane cultivation for the selected sample farmers and the following formula used.

$$\text{Percentage} = (\text{observed data} / \text{Sample size}) \times 100$$

4. Results and Discussion

The recent experience of the developing countries confirms that faster growth in agricultural production is necessary for the overall economic development. Increase in agricultural production is continuously possible by increasing the productivity of land. The productivity of land depends on the optimum allocation of resources which are always being considered either of scarce or costly and would have a definite impact on the cost and revenue structure of crop farms. Therefore, for farmers, examination of the various items of costs involved in crop production and the revenue expected from the same are very necessary for policy planning at macro level and for rational cropping decisions at micro level.

The economics of sugarcane production based on the data collected from 120 sample sugarcane farmers selected from the Sathyamangalam block in Erode district of Tamil Nadu have been worked out for analysis. It may be

noticed that in agricultural production, cost of production refers to the expenditure incurred by the farmers on the various inputs (fixed and variable) to obtain the final produce. The fixed costs include depreciation, taxes, rent, interest and insurance premium etc, which results from past commitments of costs already sunk. It is constant over time and does not change with the changes in crop output. On the other hand, there are variable costs viz., seed, chemical fertilizer, pesticide, machine hour use and human labour etc, which are directly linked up with output. This would be an important cost which determines how much and what is to be produced. Therefore, it is the variable cost, based on which the major cropping decisions are taken at farm levels.

The estimated cost and revenue particulars of sugarcane production pertaining to the different farms level data collected from the sample farmers of four villages in Sathymangalam block of Erode District is furnished from Table 1.

Table 1. Estimated Cost and Revenue Particulars of Sugarcane Cultivation of Sathyamangalam block in Erode District (in Rs.)

Cost / Revenue particulars	Farm Size in acres				All
	< 2.5	2.5-5.0	5.0-7.5	> 7.5	
Average area under crop in acre	1.47	3.32	6.34	10.64	6.32
Cost of Seed	4285 (15.77)	4066 (15.45)	4700 (19.23)	4796 (22.70)	2954 (14.40)
Cost of Family Labour	2176 (8.02)	1626 (6.18)	1041 (4.26)	676 (3.20)	1091 (5.32)
Cost of Hired Labour	16,870 (62.10)	17590 (66.85)	15567 (63.68)	12763 (60.42)	13322 (64.96)
Cost of Machine hours	1632 (6.00)	1039 (3.95)	1135 (4.64)	916 (4.34)	1162 (5.67)
Cost of Chemical Fertilizer	1190 (4.38)	879 (3.34)	1236 (5.06)	1323 (6.26)	1238 (6.04)
Cost of Pesticide	1012 (3.73)	1114 (4.23)	767 (3.14)	651 (3.08)	741 (3.61)
TVC	27165 (100)	26314 (100)	24446 (100)	21125 (100)	20508 (100)
DIRTI-5	5400	5550	5800	7100	5900
TC	32565	31864	30246	28225	26408
TR	38571	51234	56309	50723	52832
Net Revenue (TR-TC)	6006	19370	26063	22498	26424
Revenue over total Variable cost (TR-TVC)	11406	24920	31863	29598	32324
Sample observations (in No's)	29	42	28	21	120

Source: Survey data (Figures in parentheses indicate percentage)

The data furnished in Table 1 indicate that an average sugarcane cultivating farmer in the area spent 14.40 percent of the total cost on seed, 5.32 percent (appropriated cost) on family labour, 64.96 percent on hired labour, 5.67 percent on machinery used for different operations, 6.04 percent on chemical fertilizer and 3.61 percent on pesticide, realized a net return of Rs.26424 per acre. In other words, of the cost constituents, the share of hired labour was recorded to be the maximum, indicating the fact that sugarcane production in the area is largely depend upon hired labour. Sugarcane production in the area is ensured for a higher participatory role for hired labour. Cost on seed occupied the second important position in the cost of cultivation of sugarcane, as it is the basic input on which the entire productions depend. The cost of fertilizer, and pesticide had been worked out to 6.04 percent and 3.61 percent respectively. Among the various categories of farms, though the average trends in the use of factor inputs continue in all categories of farms, there had been significant differences observed between farms, especially in the use of family labour, fertilizer and pesticide use. The general observation of small farms containing with large scale family labour force participation was found absent; while the trend of increasing hired labour cost with farm size is witnessed. From the point of view of net return, this tended to increase with farm size up to 7.5 acres; while decline in net revenue is recorded for farms of above 7.5 acres. This might be due to the fact that the benefit of economies of scale has reached its maximum only at the farm size of 5-7.5 acres. Therefore, our generalisation on optimum farm for the area falls in the category of 5-7.5 acres.

5. Summary and Action Implication

As a result, the estimates of the economics of sugarcane production in Sathyamangalam block of Erode district, the following observations can be accounted for policy planning suitable to this region.

1. Among the various size group of sugarcane cultivation, a comparative advantage has been witnessed for farms in the size group of 5.0-7.5 acres. Therefore, optimum farm in these areas might fall only on these groups.
2. Seed cost, being a basic input recorded to be an average of above 15 percent for sugarcane.
3. The higher proportion of hired labour cost was recorded to be the highest among all costs for sugarcane cultivation in the area.
4. The cost of chemical fertilizer was found on the rise for large farms, while higher proportion of pesticide cost was witnessed for smaller sized farms.
5. Excessive use of pesticide and some extent was observed for farms with <2.5 acres.

The study recommends that can improve cropping system and stabilizes farm income to the farmers; the Government intervention is sought in a manner that there is unbiased credit support for farms of all categories without discrimination. The general observation from the farmer's perception in the area is that in spite of the fact that the Central and State Governments price incentives have provided them a relief to some extent, the mechanism evolved for fixing minimum price does not cover the entire cost components and the risk factors involved in the sugarcane cultivation. Therefore, the comprehensive scheme on the cost of cultivation of sugarcane needs to be relooked and take care of the entire issue of farm economics on line with farmers perception then on the basis of the model's provided by Agricultural Universities in the state through experimental research.

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