



Research Article

AN ECONOMIC ANALYSIS ON COST AND RETURNS OF PADDY IN JAWADHU HILLS OF TAMIL NADU

K. Marikannan and G. Srinivasan

Department of Agricultural Economics, Annamalai University, Chidambaram, Tamil Nadu- 608 002.

Article History: Received 30th May 2022; Accepted 27th June 2022; Published 1st July 2022

ABSTRACT

Rice is one of the three most important and staple food crops in the world. Rice belongs to the genus *Oryza* and family Gramineae. It is one of the few crop species endowed with richest genetic diversity. India is the second largest rice growing country after China. Tamil Nadu is the second largest producer of Paddy and the state is historically known for its agriculture since ancient times. The major food crop like Paddy is grown in large extent and rice is the staple food of the state. Because of the familiarity, the paddy crop has been cultivated in the hilly areas and it replaced traditional millet crops over the years. At this juncture, the study on economic analysis on production of paddy in Jawadhu hills of Tamil Nadu was carried out with the following specific objectives of: (i) to estimate costs and returns of paddy cultivation in the study area, (ii) to identify the constraints in production of paddy cultivation and offer policy suggestion based on the results of the study. A multi-stage stratified random sampling procedure was adopted for the study. Due to the profitability (net return in Rs.16, 726.00 per acre) of the crop, the tribal farmers in the study area increasing their area of cultivation of paddy over the years. But due to inadequacy of labour lack of availability of good quality seed and irrigation facility their portability minimized. The department of Agriculture and the Government has to take necessary steps to solve their constraints in paddy cultivation for the prosperity of the tribal farmers in the study area.

Keywords: Paddy, Cost and returns, Garrett Ranking, Profitability.

INTRODUCTION

In India, rice cultivation has a long history marked by a series technological break-through. Rice environments in the country are also extremely diverse. India has the largest area under rice in the world. Among the 42 million ha of harvested rice area, about 33 per cent are rain fed lowland, 45 per cent irrigated land, 15 per cent rain fed upland and 7 per cent flood prone. Green revolution technology has been most effective not only in expanding area under this crop but also in increasing its production and productivity.

Tamil Nadu is the second biggest producer of Paddy and the state is historically known for its agriculture from ancient times. The major food crop like Paddy is grown in large extent because rice is the main staple food of the state. Because of the familiarity, the paddy crop has been cultivated in the hilly areas and it replaced traditional millet crops over the years. At this juncture, the study on economic analysis on production of paddy in Jawadhu hills

of Tamil Nadu was carried out with the following specific objectives, to estimate costs and returns of paddy cultivation in the study area. To identify the constraints in production of paddy cultivation and offer policy suggestion based on the results of the study.

MATERIALS AND METHODS

Sampling design

A multi-stage stratified random sampling procedure was adopted for the study. The district forms the first stage unit and the blocks in the district form the second stage of sampling. The villages in the selected blocks from the third stage and the paddy growers in the selected villages form the fourth and the ultimate unit of the sampling. Tiruvannamalai district of Tamil Nadu was purposively selected because it is one of the districts in the state where the area under Paddy cultivation by tribal farmers is high.

*Corresponding Author: Mr. K. Marikannan, Ph.D. Scholar, Department of Agricultural Economics, Annamalai University, Chidambaram, Tamil Nadu- 608 002, Email: kannanagri07@gmail.com.

Jawadhu hills block of Tiruvannamalai district was selected because it has maximum area under Paddy cultivation in the district. From the selected block the villages which were having the Paddy cultivated area above the mean were listed and among them sixteen villages were identified randomly. From the selected villages, 320 farmers were identified as sample farmers based on probability proportionate method by using random numbers tables. The primary data related to cost of cultivation and socio economic details were collected through the comprehensive pre- tested interview schedule. The secondary data for the study were collected from Office of the Joint Director of Agriculture and District Statistical Office, Tiruvannamalai.

Tools of Analysis

The data collected were processed and tabulated for subsequent analysis. Keeping in view the objectives of the study, appropriate tools were employed to analyze the data. The CCPC method of cost of cultivation was followed for the study and to analyse constraints, Garrett ranking technique was followed.

Estimation of Costs and Returns

The farm management, cost concept approach is widely used in India for evaluating crop profitability in production. The cost concepts in brief, are Cost A₁, A₂, B₁, B₂, C₁, C₂, and cost C₃. COST A₁: This gives the total cash expenses incurred by the owner or operator. It included the following terms of costs.

- 1- Value of hired human labour.
- 2- Value of bullock labour.
- 3- Value of machinery charges (except depreciation).
- 4- Value of fertilizers and manures.
- 5- Value of seeds.
- 6- Value of insecticides, pesticides and weedicide
- 7- Irrigation charges.
- 8- Depreciation on farm implements
- 9- Interest on working capital.
- 10- Land revenue paid to government.

Cost A₂ = Cost A₁ + Rent paid for leased in land, if any

Cost B₁ = Cost A₁ + Interest on value of owned fixed capital assets.

Cost B₂ = Cost B₁ + Rental value of owned land less land revenue + rent paid for leased in land.

Cost C₁ = Cost B₁ + Imputed value of family labour.

Cost C₂ = Cost B₂ + Imputed value of family labour.

Cost C₃ = Cost C₂ + 10 per cent of Cost C₂ on account of managerial functions performed by the farmer.

Rates of Returns over Different Cost Concepts

Gross Income: Yield of main product (in kg/acre) x their prices (Rs.) + Yield of by product (in kg/acre) and their prices (Rs).

Net Income: Gross Income – Cost C.

Garrett Ranking Technique

Garrett's ranking technique was used to analyse the problems, expressed by the respondents in the production of little millet. The order of merit given by the respondents was converted into ranks using the formula.

$$\text{Per cent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij}- rank given for ith factor by the jth respondent

N_j- Number of factors ranked by jth respondent

The per cent position of each rank thus obtained was converted into scores by referring to the table given by Garrett. Then for each factor, the scores of individual respondents were added together and divided by total number of respondents from whom the scores were added.

RESULT AND DISCUSSION

The cost incurred in the cultivation of paddy and returns obtained are presented in Table.1.

Table 1. Cost of Cultivation of Paddy (in Acre).

S. No	Inputs	Cost (Rs. /acre)	Per cent
I.	Cost A ₁		
	Land preparation		
1.	Machine labour	3000.00	8.88
2.	Seeds	1140.00	3.38
3.	Organic manure	5,500.00	16.28
4.	Manures	3535.00	10.47
5.	Plant protection chemicals	1500.00	4.44
6.	Weeding	2500.00	7.40
7.	Harvesting	5,800.00	17.17

8.	Transport cost	3100.00	9.18
9.	Miscellaneous expenses	450.00	1.33
	Sub Total	26525.00	
10.	Interest on working capital @8 per cent	2122.00	6.28
	Cost A ₁	28,647.00	84.82
11.	Rent paid for leased – in land	-	-
II.	Cost A ₂	28,647.00	84.82
12.	Rental value of owned land	1,500.00	4.44
13.	Land revenue	25.00	0.07
14.	Interest on fixed capital @ 10 per cent	152.00	0.45
III.	Cost B	30,324.00	89.79
15.	Family labour	3,450.00	10.21
IV.	Cost C	33,774.00	100.00
16.	Price per bag	1450 per bag	
17.	Yield	3100 kgs	
18.	By- products	5550.00	
19.	Gross return	50500.00	
VI.	Net return	16,726.00	
VII.	Return per rupee investment	1.49	
VIII.	Cost of production (Rs. / Kg)	18.15	

Table 2. Constraints in Production of Paddy faced by Tribal Farmers.

S. No	Constraints	Mean Score	Rank
1.	Inadequacy of Labour	86.25	I
2.	Lack of availability of good quality seed	79.10	II
3.	Lack of irrigation facility	68	III
4.	Lack of Management practices	63	IV
5.	Disease and pest attack	59	V
6.	Lack of confidence in taking new technology	51	VI
7.	Lack of guidance from Govt. officials	47	VII

From the above table, that the findings of the analysis showed clearly that the one acre variable cost of Paddy was Rs.28,647/acre (cost A₁). The harvesting is a major variable cost accounted with 17.17 per cent followed by organic manure (16.28 per cent), manures (10.47 per cent), labour (10.21 per cent), transport cost (9.18 per cent), machine labour (8.88 per cent), weeding (7.40 per cent) and the total variable cost of Paddy (Cost B) was 89.79 per cent to the total cost. Only insignificant number of farmers in the study area cultivating leased in land, hence it was not considered as factor to work out in cost of cultivation. Most of the farmers were cultivating their owned land and average imputed rental value of owned land was Rs. 1,500 (4.4 per cent) in the study area. The cost B included with rental value of owned land, land revenue and interest on fixed capital was Rs. 30,324 which was 89.79 per cent to the total cost of cultivation. The average imputed value of family labour was Rs.3, 450 (10.21 per cent) and the total cost of cultivation total cost C was Rs 33,774. The average yield of paddy obtained was 3100 kgs (31bag) per acre and

the average price received by the sample farmers in the study area was Rs. 1450/bag. The one acre gross return was Rs 50,500 and the net return was Rs. 16,726. Hence Cost of production per kg of paddy was 18.15 per kg. Thus the return per rupee of investment was work out to be 1.49. An attempt was made to identify the problems in production paddy and results are presented in Table. 2 along with the ranks assigned to them by the Garret's ranking technique. Among the constraints is production of paddy faced by farmers in the study area, inadequacy of labour ranked first with the mean score of 86, followed by lack of availability of good quality seed (mean score: 79), lack of irrigation facility (mean score: 68), lack of management practices (mean score: 63). Among the identified constraints, diseases and pest attack and Lack of confidence in taking new technology and Lack of guidance from govt. officials (Rank V, VI, and VIII) are the least with the mean score of 59, 51 and 47.

CONCLUSION

Due to the profitability (net return in Rs.16, 726.00 per acre) of the crop, the tribal farmers in the study area increasing their area of cultivation of paddy over the years. But due to inadequacy of labour lack of availability of good quality seed and irrigation facility their portability minimized. The department of Agriculture and the Government has to take necessary steps to solve their constraints in paddy cultivation for the prosperity of the tribal farmers in the study area.

ACKNOWLEDGMENT

The authors express sincere thanks to the Department of Agricultural Economics, Annamalai University, Chidambaram, Tamil Nadu and Rajiv Gandhi National Fellowship Scheme for the facilities provided to carry out this research work.

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