A STUDY ON THE ECONOMICS OF PADDY CULTIVATION IN THE WEST GARO HILLS DISTRICT OF MEGHALAYA

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Abstract: An attempt has been made to study the economics of paddy cultivation in the West Garo Hills district of Meghalaya. This study of benefit-cost analysis would help in estimating the strengths and weaknesses of the paddy cultivation in the area and thereby helping to determine options which would provide the best approach to maximizing the profit of the paddy grower. As per the findings of the study, the overall total cost of cultivation of paddy in the study area was Rs.24684.70/ha and the gross return of Rs.35719.28/ha with the benefit-cost ratio of 1.45. As per the result of agricultural input utilization, the highest overall share was for human labour (45.30 per cent) followed by power tiller (16.19 per cent), bullock labour (12.26 per cent), seed (8.81 per cent), marketing cost (8.57 per cent), Farm Yard Manure (6.23 per cent), fertilizer (2.41 per cent) and pesticide (0.23 per cent). The overall results show that the paddy cultivation in the study area is economically viable as the benefit-cost ratio is more than unity in all size group of paddy growers.
Keywords: Benefit Cost Ratio, Fixed Cost, Variable Cost, Farm Business Income, Net Income, Return from Management, Family labour Income.

INTRODUCTION

Paddy is the second most important food crop in the world population and it the most important food crop in India. It feeds nearly 50 per cent of the world population. It is grown in more than a hundred countries, with a total harvested area of about 159 million hectares, producing 685 million tonnes of grain annually. Asia produces about 90 per cent of the world's paddy production. Paddy is also the most important food crop in India contributing to more than 40 per cent of total food grain production of the country. Meghalaya is predominantly an agrarian economy and about 75 per cent of the population depends on agriculture for their livelihood. Among the districts of Meghalaya, the West Garo Hills district has maximum share of around 36.36 per cent of total rice production covering 35.98 per cent of cultivated rice area. However, in terms of productivity, it is lower than the national average. Therefore an attempt has been made to analyse the economics of the paddy

cultivation in the West Garo Hills district of Meghalaya. This study will help the farmers in deciding the best approach of cultivation and get a favourable price and maximize profit and productivity.

MATERIAL AND METHODS

The survey method of economic investigation was adopted for the data collection. A specially designed pre-tested structured schedule has been used for getting the information on related aspects. The study comprised of 200 samples of the paddy growers. Purposive sampling technique was adopted for the selection of sample paddy growers. The samples were collected from two Development Blocks Viz., Tikrikilla and Selsela, covering 20 villages. Then the selected paddy growers were stratified into three size groups Viz.,Group I (1> -6 bigha), Group II (6.1-14 bigha) and Group III (14 and above bigha) base on the area under rice cultivation by using Cumulative Root Frequency Rule.

Cost analysis

Cost of cultivation was estimated based on the various cost of concepts like Cost-A, Cost-B, and Cost-C along with per quintal net return, per hectare gross and net income following tabular analysis. The cost of paddy cultivation was estimated by using different cost concept in farm management in terms of variable and fixed costs. These are as under:

Cost A_1 = Cost A_1 includes hired human labour, value of seed of rice, marketing transportation cost and interest on working capital.

Cost B_1 = Cost A_1 + interest value on fixed capital asset.

Cost C_1 = Cost B_1 + imputed value of family labour

Cost C_2 = It includes 10 per cent of the total cost (C_1) on account of managerial function performed by the paddy growers.

Variable Cost: Variable cost was used in the present study includes the cost of labour, seed value and power tiller.

Fixed Cost: Fixed cost includes the depreciation cost of land and interest on fixed capital.

Income analysis:

Farm business income: The difference between the gross income and Cost A_1 that is profit at Cost A_1 represented the farm business income of the paddy growers.

Family labour income: The family labour income was calculated by deducting Cost B_1 from gross income.

Net Income: Net income was calculated by deducting Cost C_1 from gross income.

Return from Management. It was calculated by deducting Cost C_2 from gross income.

Benefit cost ratio: Benefit cost ratio based on variable cost was calculated as

BCR = Gross Income/Variable cost

Benefit cost ratio on total cost (BCR) = Gross income/ Total Cost

RESULTS AND DISCUSSION

Cost Analysis:

The cost of paddy cultivation was estimated by using different cost concept in farm management in terms of variable and fixed cost incurred by the farmer in the selected study area. Variable cost is important in influencing the farmers in decision making in the short run. In Table 1.1 **cost** A1, Cost B1, Cost C1 and Cost C2 were considered for deriving the profit. The overall result shows the cost A1 (Rs 19023.36/ha), Cost B1 (Rs 20143.18/ha) Cost C1 (Rs 24684.67/ha), Cost C2 (Rs 27153.13/ha) in various size group of paddy growers. The highest total cost of cultivation was recorded in group II (24963.94/ha), whereas the variable cost (18786.26/ha) is highest in group III and fixed cost (6549.50 /ha) was recorded highest in group II. The percentage of the variable cost was recorded highest in group III (76.65 per cent) followed by the group I (74.00 per cent) and group II (73.76 per cent). However, the highest percentage of the fixed cost was recorded in group II (26.24 per cent) followed by the group I (26.00 per cent) and group III (23.35 per cent). The overall variable cost, fixed cost and total cost of cultivation amounted to Rs. 18463.48 (74.80 per cent), Rs.6221.22 (25.20 per cent) and Rs.24684.70 per hectare respectively. The result was similar to the findings of Reddy Donthiereddy Lakshaman (2017)

The agriculture inputs utilize in paddy cultivation in the study area is given in table 1.2. Considering the variable cost was only important in the short run to influence the decision making of the farmers, so these were considered for deriving the percentage of inputs utilized in paddy cultivation. The overall maximum share of input utilization was accounted for human labour (45.30 per cent) followed by power tiller (16.19) per cent, Bullock labour (12.26) per cent, Seed (8.81) per cent, Marketing cost (8.57) per cent, Farm Yard Manure (6.23) per cent, fertilizer (2.41) per cent and pesticide (0.23) per cent. The results show that the paddy growers utilized a meagre amount of Pesticides and fertilizers. This might be because paddy growers prefer using FYM rather than using chemical fertilizer and pesticides. The highest percentage of human labour is utilized by the paddy growers of size group III (49.38) per cent followed by group II (44.98) per cent and the group I (41.53) per cent. Thus it shows that paddy growers

belong to group III with large farm size deploy more labour, thus incurred higher cost. The findings are similar to the results of Suhaisini et.al (2017)

Table 1.1. Per hectare cost and returns structure in paddy cultivation under different size groups

Cost concept (Rs/ha)	Size group (ha)			
	Group -I	Group –II	Group –III	Overall
Cost A_1	18764.74	19003.886	19301.46	19023.36
Cost B_1	19915.24	20182.80	20331.51	20143.18
Cost C_1	24581.14	24963.93	24508.93	24684.67
Cost C_2	27039.26	27460.32	26959.82	27153.13
Variable cost	18189.74	18414.436	18786.26	18463.48
	74.00	73.76	76.65	74.80
Fixed cost	6391.64	6549.50	5722.50	6221.22
	26.00	26.24	23.35	25.20
Total cost	**24581.39**	**24963.94**	**24508.76**	**24684.70**
Gross Income	**35291.11**	**35393.87**	**36472.84**	**35719.28**
Farm business income(Profit at Cost A_1)	16526.37	16389.99	17171.39	16695.91
Family labour income(Profit at Cost B_1)	15375.87	15211.08	16141.34	15576.09
Net income(Profit at Cost C_1)	10709.97	10429.95	11963.92	11034.61
Return from management (Profit at Cost C_2)	8251.86	7933.56	9513.02	8566.14
BCR on variable cost	1.94	1.92	1.94	1.93
BCR on total cost	1.44	1.42	1.49	1.45

Table 1.2 Input wise variable cost incurred by paddy farmers in different group size

Agri-input	Group 1		Group II		Group III		Overall	
	Value (Rs/ha)	Per cent utilized	Value (Rs/ha)	Per cent utilized	Value (Rs/ha)	Per cent utilized	Value (Rs/ha)	Per cent utilized
Seed	1596.83	8.78	1615.29	8.77	1669.37	8.89	1627.16	8.81
Fertilizer	430.39	2.37	451.85	2.45	454.05	2.42	445.43	2.41
FYM	1285.96	7.07	1181.83	6.42	978.59	5.21	1148.79	6.23
Pesticide	46.81	0.26	38.94	0.21	42.77	0.23	42.84	0.23

Power tiller	641.49	3.53	3963.62	21.52	4418.07	23.52	3007.73	16.19
Bullock Labour	4926.06	27.08	1276.30	6.93	518.26	2.76	2240.21	12.26
Labour	7554.23	41.53	8283.12	44.98	9276.71	49.38	8371.36	45.30
Marketing cost	1707.98	9.39	1603.48	8.71	1428.43	7.60	1579.96	8.57
Total Variable cost	18189.74	100.00	18414.44	100	18786.26	100	18463.48	100.00
Total Return	35291.11		17267.74		36472.84			
B:C ratio	1.94		1.92		1.94		1.93	

Income Analysis:

The study shows that (Table 1.1) the overall gross income of paddy growers was highest in group III (Rs.35719.28/ha). Among the groups, the gross income of paddy grower was recorded highest in group III (Rs.36472.84/ha) followed by group II (Rs.35393.87/ha) and the group I (Rs.35291.11/ha) with net income of Rs.11963.92/ha, Rs.10709.97/ha and Rs.10429.95/ha in size group III, group I and group II respectively. The overall net income was recorded Rs.11034.61/ha

The highest farm business income was recorded with size group III (Rs.17171.39/ha) followed by the group I (Rs. 16526.37/ha) and group II (Rs. 16389.99/ha). The returns from management were recorded highest in group III (Rs. 9513.02/ha) followed by the group I (Rs.8251.86/ha) and group II (Rs.7933.56/ha). The overall return from Management was recorded Rs.8566.14/ha. The overall family labour was recorded Rs.15576.09/ha. Among the group, the highest family labour income was highest in group III Rs.16141.34/ha followed by the group I Rs.15375.87/ha and group II Rs.15211.08/ha.

The study reveals that the highest benefit-cost ratio on variable cost was received by the group I (1.94) and group III (1.94) followed by Group II (1.92). The overall benefit-cost ratio on variable cost was recorded as 1.93. Likewise, the highest benefit-cost ratio on total cost was received by group III (1.49) followed by the group I (1.44) and group II (1.42).

The highest benefit-cost ratio of the total cost is in group III, which might be due to the lower cost of cultivation for economies of scale. The overall benefit-cost ratio on total cost was recorded at 1.45. Thus the paddy growers of group III were observed to be higher profit earners because of the lower cost of cultivation.

Agricultural input Utilization:

From the agricultural inputs, the maximum share of input utilization was accounted for human labour (45.30 per cent) followed by power tiller (16.19) per cent, Bullock labour (12.26) per cent, Seed (8.81) per cent, Marketing cost (8.57) per cent, Farm Yard Manure (6.23) per cent, fertilizer (2.41) per cent and pesticide (0.23) per cent respectively.

CONCLUSION

The study may be concluded that the overall total cost of cultivation of paddy in the study area was Rs.24684.70/ha and the gross return of Rs.35719.28/ha with the benefit-cost ratio of 1.45. Among the agricultural inputs, the highest overall share was for human labour (45.30 per cent followed by power tiller (16.19) per cent, Bullock labour (12.26) per cent, Seed (8.81) per cent, Marketing cost (8.57) per cent, Farm Yard Manure (6.23) per cent, fertilizer (2.41) per cent and pesticide (0.23) per cent respectively. The overall findings show that the paddy cultivation in the study area is economically viable as the benefit-cost ratio is more than unity in all size group of paddy growers.

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