

4. A MACRO LEVEL STUDY ON THE ECONOMIC ASPECTS OF PADDY CULTIVATION IN KERALA

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Abstract

In Kerala there are nearly three lakh paddy cultivators and most of them are small and marginal farmers. After the Eighties, the state has witnessed a steady decline in the area under paddy cultivation. There are various reasons for that. The profitability of paddy cultivation depends on many factors such as the size of land, cost of production including harvesting cost, yield realised by the farmers and the efficiency in marketing. Due to small size of paddy lands, the cost of paddy cultivation is high in the state. The yield gained by the farmers is moderate. Another significant factor that haunts the paddy cultivators is that most often they fail to get a satisfactory price for their crop at the time of harvesting. As a result of these diverse factors the profitability of the paddy growers has declined and even it has become an unprofitable effort.

Key Words- Paddy, Virippu, Mundakan, Puncha, Cost of Cultivation, Cost Benefit Ratio

Introduction

Kerala have unique certain geographical features that have made it as one of the most attractive place in the world. It situates on the south western coast of India. The land of Kerala is divided into three geographical regions such as Highland, Midland and Low land. The high land includes forests of Western Ghats and forms as the natural boundary in the east. Low land extends over the sea coast of the State in the west. Mid land region is the land lying between the high land and low land. Agricultural crops of Kerala can be broadly classified in to cash crops and food crops. Major cash crops are coconut, rubber, tea, coffee, pepper, cardamom, areca nut etc. Main food crops are paddy tapioca and other vegetables. Paddy cultivation is the part and parcel of the culture and heritage of the state. Paddy is mainly grown in the mid land region, which is known for its diversity in cropping pattern.

Statement of the Problem

Rice is the staple food of the people of Kerala. Traditionally, the cultivation of paddy has occupied pride place in the agrarian economy of the State. The area under paddy cultivation in Kerala has increased substantially during the first fifteen years after its formation in 1956. During the year 1955-1956 the area under paddy cultivation in the State was 7.6 lakh hectares. It has increased to 8.8 lakh hectares in 1970-1971. In the middle of sixties paddy accounted for the highest share of gross cropped area in Kerala and it was around thirty per cent of the total. Kerala has witnessed steady decline in the cultivation of paddy after eighties. The area under paddy has fallen in all the districts of the State during the last two and a half decades. This negative trend was highest in the case of for Ernakulam followed by Kollam, Thiruvananthapuram, and Malappuram. However, during the last few years, there are signs of hope regarding the revival of paddy cultivation in Kerala.

Importance of the Study

It is a fact that, in Kerala, the contribution of agriculture to the Gross State Domestic Product (GSDP) has steadily declined from 37 per cent to 9 per cent over the period 1980-1981 to 2013-2014. It indirectly shows the collapse of the agricultural sector of the State. As far as the economy of the State is concerned this is certainly a distressing concern. Agricultural statistics of the State reveals that the state is producing only about 12 per cent of its total requirement for rice. In the early sixties, the production of paddy in the State was more than ten lakh tonnes. By 2014-2015 the paddy production came down to 5.6 lakh tonnes. The mounting cost of cultivation coupled with low profitability has led to the crisis in the paddy sector. As a result of the escalating cost of cultivation of paddy, the area under the crop and its production in the State has shrunk significantly. The net result of this trend is that the dependency on neighbouring states for rice has increased.

Objectives of the Study

The major objectives of the study are:

1. To analyse the trends in the area under paddy cultivation in Kerala.
2. To analyse the trends in the production of paddy in Kerala.
3. To assess the cost and return aspects of paddy cultivation.

4. To assess the various problems encountered by the paddy cultivators in the State and to suggest the policy measures to overcome these.

Methodology of the Study

This study was carried out in Thrissur District of Kerala, which is the third largest paddy producing District in the State. From three selected Grama Panchayats of the District, namely Mala, Aloor and Poyya Grama Panchayats, 60 paddy cultivating farmers were selected from the source list provided by the related ‘Krishi Bhavans’. Primary data pertaining to paddy cultivation was collected from sample respondents by using an interview schedule. Secondary data were obtained from various publications and the Office of the Department of Economics and Statistics, Government of Kerala.

Limitations of the Study

As in the case of similar field studies, this empirical study has also certain limitations. One of the most important limitations of the study was that the region considered for the study was Thrissur District in Kerala. Another significant limitation of the study was that the primary data pertains to a single agriculture year that is 2015-2016. Another limitation was that the data were collected from a limited sample of fifty respondents. The objectivity of the data was limited to the extent of the memory power of the farmers regarding the cost of cultivation.

Review of Literature

Mohandas and Thomas (1997) have stated that rice production in Kole lands of Kerala is comparatively less remunerative. They opined that the profit from Kole land cultivation can be improved by better management and reallocation of factors of production.

Abhay Kumar and Sing (2018) have analysed the trends in the cost of cultivation and profitability in rice production in two rice growing Indian states of Bihar and Punjab. According to them the farmers realized very little income over total cost of cultivation in Punjab whereas farmers of Bihar encountered even losses in paddy cultivation during the last decade, mainly due to low productivity caused by inadequate use of manures and fertilizers, low adoption level of modern technologies, less mechanization and insufficient irrigation.

Land Use Pattern in Kerala

Department of Economics and Statistics, Kerala State has classified the geographical area of Kerala in to thirteen categories, according to the use of land. This is illustrated in Table-1

Sl. No	Category	Area	Percentage to Total Geographical Area
1	Forest	1081509	27.83
2	Land Put To Non Agricultural Use	441934	11.37
3	Barren And Uncultivable Land	11780	0.30
4	Permanent Pastures And Other Grazing Land	0	0
5	Land Under Miscellaneous Tree Crops	2450	0.16
6	Cultivable Waste	101379	2.61
7	Fallow Other Than Current Fallow	55530	1.43
8	Current Fallow	72008	1.85
9	Marshy Land	106	0.003
10	Still Water	98343	2.53
11	Water Logged Area	3210	0.08
12	Social Forestry	2556	0.06
13	Net Area Sown	2015482	51.86

(Source: Agricultural Statistics 2016-2017, Department of Economics and Statistics, Kerala State.)

The forest area of the State during 2016-2017 was 10.82 Lakh hectares, which constituted 27.83 per cent of the total geographical area in the State. The land area put to non agricultural use is accounting for 11.37 per cent of the geographical area of the State. The category of land cultivable waste includes the land available for cultivation but not taken up for cultivation or abandoned after a few years for one reason or the other. The total area under other fallow land in the year 2016-2017 was 1.43 per cent of the total geographical area. The land that are kept fallow off out of the net area sown during the previous year are

classified as the eighth category as current fallow for the reporting year. The area under this category was 1.85 per cent of total geographical area. The water logged area in the State was 0.08 per cent of the total geographical area. The land under social forestry is the land in which the trees are planted by the side of railway lines, road side, river and canal banks with a view to meet the fuel and the fodder needs of the rural population. It also includes village forests/plantation which is being used by common man. The land comes under social forestry is 2556 hectares. During the year 2016-2017, out of 3886287 hectares of total geographical area, 2015482 hectares of land constituting 51.86 per cent was cultivated once with various crops.

Paddy Cultivation in Kerala - An Over view

In all the Districts of Kerala, paddy is cultivated in three seasons, except Wayanad District. In Wayanad there is no autumn paddy cultivation. The available data reveals that the area under paddy cultivation in Kerala is decreasing on a regular basis. Area under paddy cultivation is collected in all three seasons. The area under paddy cultivation is estimated even in Panchayath level also. Upland cultivation of paddy is the new change in Kerala. The total paddy area during the year 1961-1962, was 7.53 lakh hectares. During the year 1975-1976 it was 8.76 lakh hectares. Thereafter a steady decrease in paddy cultivation took place in the State and it has reached to 2.29 lakhs hectares during the fiscal year 2007-2008. But in 2008-2009, area of paddy cultivation was increased as 2.34 lakh hectares. In comparison with the year 1975-1976, the area under paddy cultivation in the State has decreased 80.43 per cent during the year 2016-2017.

Table-1. The Trends in Area Under Paddy Cultivation in Kerala



(Source: Agricultural Statistics 2016-2017, Department of Economics and Statistics, Kerala State.)

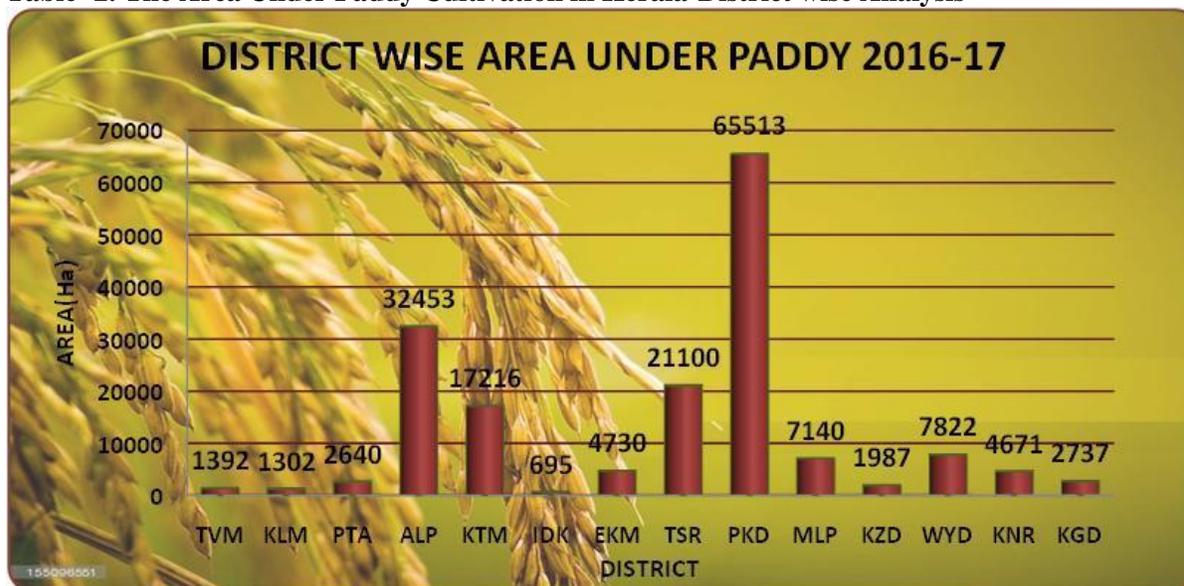
The area under paddy cultivation in Kerala during the agricultural year 2016-2017 was 1.7 Lakhs Hectares. Due to unfavourable climate the production of rice was very low in 2016-2017. Draught has intensively affected paddy cultivation all over the state. During the year 2016-2017, dry land paddy cultivation in the State was 5214 Hectares. The analysis of the data of the area under paddy cultivation in the State for the last ten years reveals that paddy cultivation was high during the year 2008-2009. During that year the area under paddy crop was around 2.34 lakhs hectares. Recently the area under paddy cultivation in Kerala is around 6.6 per cent of the total cropped area.

District wise Analysis of Paddy Cultivation in Kerala

Palakkad is the leading production centre of paddy in the State. The area under paddy cultivation in this District is around 65000 Hectares and it constitute around fort per cent of total paddy area in Kerala. During the year 2015-2016 it was around 81000 Hectares. The second largest production centre of paddy in the State is Alappuzha district. There the area under paddy cultivation was around 32000 hectares, which constituted around 19 per cent of total area under paddy in the state. Third leading production

centre is position Thrissur district with 21000 Hectares, which constitute twelve per cent of total paddy area in the state. Idukki district is the least production centre of paddy in the State.

Table -2. The Area Under Paddy Cultivation in Kerala-District wise Analysis



(Source: Agricultural Statistics 2016-2017, Department of Economics and Statistics, Kerala State)

Table-4 Trends in Area, Production and Productivity of Paddy in Kerala

Sl.No	Year	Area (in '000 hectares)	Production (in '000 tonnes)	Productivity	
				Kerala	India
1	2002-2003	311	609	2218	1874
2	2003-2004	287	570	1984	2077
3	2004-2005	290	667	2301	2047
4	2005-2006	276	630	2285	2074
5	2006-2007	264	642	2435	2131
6	2007-2008	229	528	2308	2202
7	2008-2009	234	590	2520	2177
8	2009-2010	234	598	2557	2125
9	2010-2011	213	522	2452	2255
10	2011-2012	208	569	2733	2337
11	2012-2013	197	568	2577	2462
12	2013-2014	199	564	2827	2424
13	2014-2015	198	562	2837	2432

(Source: Compiled from Economic Review, Various Issues)

Area, Production and Productivity of Paddy in Kerala- Season wise Analysis

In Kerala paddy is cultivated in three seasons. These three seasons are Virippu (autumn), Mundakan (winter) and Puncha (summer). Virippu is the first crop season ranging the months April-May to September-October. Mundakan is the second crop season. This season is September-October to December-January. The third crop season is Puncha and this season is ranging the period December-January to March-April. In Kerala, paddy is cultivated on an extensive scale during the Virippu and Mundakan seasons. Of the total paddy cultivated in the State in a year, around 45 per cent is cultivated as Mundakan crop. The share of Virippu season and Puncha seasons are around 29 per cent and 26 per cent respectively. During the year 2014-2015 the area under paddy, production and yield per hectare in Kerala under three seasons such as Virippu, Mundakan and Puncha are given in Table-5.

Table-5 Area, Production and Productivity of Paddy in Kerala- Season wise Analysis

Sl.	Season	Area (in	Production	Productivity
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No		Hectares)	(in Tonnes)	(in Kg./Hectare)
1	Virippu	63981	161477 (28.73 %)	2524
2	Mundakan	88990	254450 (45.27 %)	2859
3	Puncha	45188	146165 (26.00 %)	3235
All Seasons		198159	562092 (100.00 %)	2837

(Source: Economic Review, 2017. Values in Parenthesis is Percentage)

Cost Aspects of Paddy Cultivation (Mundakan)

Sl.No	Items	Cost (in Rs./ Acre)	Share in Per cent
A. Variable Cost			
1	Human Labor	17405.24	44.49
2	Machine labour	7255.78	18.55
3	Seed	758.35	1.94
4	Manures	2025.65	5.18
5	Fertiliser	2545.15	6.51
6	Irrigation	00.00	00.00
7	Plant Protection Chemicals	430.55	1.10
8	Interest on Working Capital @ 10 %	3042.07	7.78
Sub Total		33462.79	85.53
B. Fixed Cost			
1	Rental Value of Owned Land	5000.00	12.78
2	Rental Value of Hired Land	00.00	00.00
3	Interest on Fixed Capital @ 10 %	510	1.30
4	Depreciation	50	0.13
5	Land Tax	100.00	0.26
Sub Total		5660.00	14.47
TOTAL COST OF CULTIVATION		39122.79	100.00

(Source: Primary Data)

Major agricultural operations involved in paddy cultivation are upholding of outer bunds, land clearance and levelling, sowing, transplanting, weeding, manuring, spraying pesticides, harvesting, threshing, and winnowing. Major agricultural practices such as ploughing, ridge making, manuring and spraying of pesticides are done by male workers. Transplanting, weeding, harvesting and threshing are mainly done by female workers. Recently most of the farmers of this are making use of harvesting machines for harvesting and threshing. The average cost incurred for harvesting and threshing was calculated on the basis of harvesting machine used per hour. It was found that, during the survey period June-July, 2018, the average cost incurred for using the harvesting machine per hour was Rs 2500. It was observed that around ninety percent of the total human labour days required for the cultivation of paddy were for the preparation of land, transplanting, weeding and harvesting. It was also found that the female labour involved in paddy cultivation was also much higher than male labour participation. Although the threshing machines have been introduced recently in certain areas, it has not become popular among the paddy farmers.

Profitability Aspects of Paddy Cultivation (Mundakan)

Sl. No	Particulars	Amount (in Rs.)
1	Cost of Cultivation (Rs/Acre)	39122.80
2	Total Gross Returns (Rs/Acre)	61245.50
3	Net Returns (Rs/Acre)	22122.70
4	Benefit-Cost-Ratio	1.76
5	Average Yield (q/Acre)	20.35 Quintal
6	Average Market Price (Rs/q)	Rs.2300 / Qntl
7	Cost of Production (Rs/q)	1922.49 / Qntl

(Source: Primary Data)

Primarily the total cost of paddy cultivation is divided in to two categories as the variable cost and fixed cost. The analysis of the data has revealed that the total variable cost involved in paddy cultivation was Rs.33463.80 and the fixed cost was Rs.5660.00. The breakup of total cost of cultivation indicated that the share of variable cost and fixed cost were 85.53 per cent and 14.47 per cent respectively. Among the various components of variable cost human labour occupied maximum share of Rs. 17405.24, which was approximately 45 percent of the total cost of paddy cultivation.. This was followed by machine labor accounting Rs. 7255.78 (18.55 %), cost of fertilizers Rs. 2545.15 (6.51 %), cost of manures Rs.2025.65 (5.18 %), cost of seeds Rs.758.35 (1.94 %), plant protection chemicals Rs.430.55 (1.10 %) and interest on working capital 3042.07 (7.78 %).

Among the fixed costs, rental value of cultivated land constituted the maximum share. The prevailing rate of rent per acre in the study area was found as Rs.5000.00, that constituted 12.78 per cent of the total cost of paddy cultivation and it was followed by interest on fixed capital Rs.5610.00 (1.330 %), land tax Rs.100.00 (0.26 %) and depreciation charge Rs 50.00 (0.13 %).

The total cost of paddy cultivation was estimated to be Rs.39122.79 per acre. The gross returns realised by the farmer per acre was estimated as Rs.61245.50. The net return was estimated as Rs.22122.70. The average yield per acre was 20.35 quintals of paddy. The average price obtained by the farmers was Rs.2300 per quintal. The study has revealed that the average cost of paddy cultivation (Mundakan) per quintal was rs.1922.50. The benefit cost ratio of paddy cultivation was found as 176.

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