



## ECONOMICS OF PADDY CULTIVATION IN TAMIL NADU: AN ANALYSIS

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### Abstract

During the time of independence agriculture occupied the most significant place in the Indian economy by providing about 70 percent of livelihood to the population and contributing about 48.6 percent of GDP. After the introduction of Green Revolution in the late sixties, the scenario has been completely changed the Indian agriculture and it has appreciably transformed from food shortage to self reliance. This has become possible because of technological changes as well as the Government initiatives in the form of various package programmes. The New strategies in the agricultural practice brought a tremendous change in the productivity and production as well. More and more agricultural land were brought under cultivation with the help of improved irrigation facilities, cheaply available chemical fertilizers and supply of high yielding varieties of seeds in the market. Farm mechanization has also shortened the period of ploughing, sowing and harvesting process of agriculture. Therefore, the successful implementation of Green Revolution not only increases the productivity but also increases the area under cultivation that paved the way for a higher growth of the agricultural sector. With the passage of time the Indian agriculture moved with another dimension, from food shortage to self sufficiency and from self sufficiency to surplus agricultural produce. The period of 1980s has witnessed a higher increment in food grain production in comparison to increase in the population that increases the supply of food grains in the economy over the demand. This paper has made an attempt to analyse the Cost of and Return from agriculture, especially in the case of paddy cultivation in one of the Cauvery Delta Region of Tamil Nadu, Nagapattinam District by administering primary data collected from the selected farmers. In this study, the Farm Size wise and other socio economic status wise cost of cultivation of paddy have been analysed.

### Introduction

India is one of the world's largest producers of paddy, accounting for 20 percent of the world paddy production. There is considerable increase in productivity of rice in India during the recent past. The productivity of rice was 668 kg/ha in 1950-51 and it has increased to 2,066 kg/ha at present. The increase in productivity of rice is about 209 percent and this increase is due to introduction of high yielding rice varieties responsive to high dose of fertilizers coupled with improved package of practices evolved by Agricultural Scientists for various regions. It is grown in almost all the states of India. West Bengal, Uttar Pradesh, Andhra Pradesh, Punjab, Tamil Nadu, Bihar, Orissa, Assam, Karnataka and Haryana are the major producing states. More than 50 percent of the total production comes from the first four states. It is also grown in Haryana, Madhya Pradesh, Kerala, Gujarat and Kashmir. Agriculture still remains the major source of Income for families in India. Farms cover over half the land and almost three-quarters of that land is used to grow the two major grains: rice and wheat. India's annual rice production stands at about 85 to 90 million tons. The productivity of rice in India is higher than in Thailand, Pakistan, Bangladesh and Nepal but much below the productivity in Japan, China, Korea, U.S.A. and Indonesia. In fact, there is considerable increase in productivity of rice in the country but there are still certain areas, where rice productivity is low and very low. Rice productivity in such areas fluctuates significantly from region to region due to various factors such as soil type, soil fertility, rainfall pattern, flood, water logging and climatic conditions. While there has been a significant increase in production of food grains and other agri-produce in the recent past, there are formidable challenges, e.g. a decline in the average size of land holding, dwindling water resources and inefficient water use, the adverse impact of climate change, shortage of farm-labour, poor and inefficient marketing infrastructure, and increasing costs and uncertainties associated with volatility in international markets. Some of the specific challenges include variations in Agriculture: Declining Public Investment: Inadequate Credit Delivery: Decline in Credit to Small Borrowers: Sub-Optimal Use of Inputs and Adoption of Technology: Inadequate Spread of New Technology: Inadequate Power Supply: Distortion in Pricing and Subsidies: Untapped Exports Potential: Employment Absorptive Capacity: Paddy Cultivation Methods, Production and Productivity.

### Objectives

The core objective of the present research is to study the economic analysis of paddy cultivation in one of the Cauvery deltaic region of Tamil Nadu, Nagapattinam district. The specific objectives are: to study the Farm Size wise and Component wise Cost and Returns of Paddy Cultivation in the study area; To study the Yield Gap based on the socio economic variable of the farmers in the study area; to explore the Problems and Prospects of paddy cultivation in the Study area; and to suggest possible policy measures for strengthening paddy cultivation in general and the Study area in particular.



### **Methodology**

The present study is mainly based on the primary data which have been gathered from the selected farmers respondents by administering interview schedule. The study area, Sirkazhi Taluk was chosen as the representative taluk for the Nagappattinam district based on the size of famers followed by Five Revenue villages from the taluk were chosen randomly, and then a total of 122 farmers were selected and interviewed. The data have been collected during 2014-15 and to facilitate the study, relevant statistical tools have been used.

### **Scope of the Study**

The present study attempted to analyse the economic aspects of paddy cultivation in one of the paddy intensity and Cauvery delta regions of Tamil Nadu. It mainly focuses on the socio economic profile of the farming communities; the cost of and returns from cultivation of paddy cultivation among the three different farm sizes;; tries to explore the problems in the paddy cultivation; and renders possible suggestions for enhancing the quality of paddy cultivation in the study area. By considering all these issues pertaining to paddy cultivation, it is found hope that the present study may pave the way for addressing all these agricultural issues in one side and ensure for promoting paddy cultivation on the other.

### **Results and Discussion**

A total of 122 farmers were taken as sample respondents, of them, 43 are Marginal Farmers, 49 are Small Farmers and 30 are Large Farmers. It is found that among them, 64 percent of the total farmers belong to the age group of 40- 60; 105 respondents are Hindus followed by 11 respondents are Christians and 6 respondents belong to Islam. In all the farm groups the Hinduism dominates since the fact that the study area is primarily the Hindu intensified area.

With regard to educational status of respondent's majority of about 31 (25.40 percent) respondents are Secondary educated followed by 5 respondents (4.9 percent) who are Higher Secondary educated. 43 (35.24 percent) respondents are only primary educated and it is appreciable to note that remaining 15 (15.46 percent) are Higher educated.

With regard to the source wise income, the income through agriculture is about Rs.11, 254 /- followed by livestock and employment which accounts to Rs.14, 052/- and Rs.1, 62,960/- respectively. Among all, the maximum amount of earnings is through employment, followed by friends/relatives and business. It is also interesting to observe that invariably all the farm size respondents earned the maximum amount of income from the source of business in the study area.

Regarding expenditure of the respondents the Marginal Farmers have spent about Rs.39, 349/- on food items and it is Rs. 54,122/- and Rs.1, 13,600/- for Small Farmers and Large Farmers respectively while the average amount of expenditure on non- food items of Marginal Farmers is Rs.14, 791/- and it is Rs. 23,265/- and Rs.72, 800/- for Small Farmers and Large Farmers respectively.

Further with regard to the farm size wise average borrowings, the Large Farmers have borrowed Rs.13, 571/- and the Small and Marginal Farmers have borrowed Rs.54, 632/- and Rs, 42,899/- respectively. Further, the average savings of the inorganic farmers in the study area, the average amount of savings of Large Farmer is Rs. 5, 81,600/-, and it is Rs 8,940/- and Rs. 7,200/- for Small Farmers and Marginal Farmers respectively. With regard to assets position of the respondents about 47.30 percent of the total farmers' form the majority in land wise source of asset and it is maximum of 73.26 percent in Marginal Famers and they are followed by 60.37 percent of Small Farmers and 37.79 percent in Large Farmers Among the costs, farmers have spent more on applying chemical fertilizers which accounts 13.31 percent which is followed by weeding13.28 percent. The majority of cost components were utilized by Large Farmers are of about 13.93 percent in weeding which was common component mostly used by all farmers. Cost variation is generally found on the cost incurred on human labour.

The average cost of cultivation of paddy per acre is Rs.20, 960/- .In the case of illiterate farmers have spent Rs. 21,360/-. But the Higher Educated category farmers have spent Rs.21, 584/- which is higher than that of others.

The analysis on the total components wise cost of cultivation of the respondents in the study area could inferred that the maximum of cost was used for nurse pulling (Rs.3, 40,380/-) followed by weeding (Rs.3, 37,220/-) and transplanting (Rs.3, 00,690/-). The cost of cultivation used for irrigation accounts to Rs.1, 21,520/- and in case of threshing it is about Rs.75, 640/- whereas for sowing and harvesting it is Rs.53, 680/- .Rs.48, 800/- was spent on pesticides and Rs.37, 820/- was used for top dressing, basal dressing and land preparation. Per acre cost of cultivation for Marginal Farmers is Rs. 19,876/- and it is Rs. 21,460/-, and Rs 21,698.33/- for Small Farmers and Large Farmers respectively.



With regard to the average returns from cultivation of the sample respondents results inferred the returns is the more for the Large Farmers (Rs.32, 680/-) than that of Marginal Farmers (Rs.31, 800/-) and Small Farmers. (Rs.30, 798/-).

Regarding educational status wise returns of the respondents the highest returns is for Higher Educated which accounts to Rs.21, 584/- followed by illiterate accounts about Rs.21,360 /- and it is Rs.31,867 /- and 31,110/- for Secondary and Higher Secondary Educated farmers.

With regard to the problems faced by the farmers, the intensity of problems are more for Small Farmers than that of Marginal Farmers and Large Farmers. Among the various problems which are tormented by farmers in general, for sake of convenience, locational specific problems such as non- availability of labour; quality, availability and price of seeds; price and availability of fertilisers; credit availability; problems in irrigation and rainfall; problems in marketing of paddy have been identified and from the analysis it is found that problems in the labour availability stands first followed by credit availability, and marketing of paddy.

### **Suggestions**

Based on the analysis some of the following possible suggestions have been put forth to meet the growing demand for agricultural produce and to ensure food security in the study area. It is suggested that Water users Association may be established for effective water resource management.

It is also suggested for adopting and encouraging Organic Farming in the study area since very few farmers are practicing with organic farming.

It is also essential to inculcate among the farmers about the modern Paddy cultivation practices such as Rice Intensification which facilitate for Cost-effective and productivity-enhancing System Reforms in extension services are needed to ensure smooth transfer of agriculture technology and information to the farming communities Efficient markets with a dynamic supply chain system should be strengthened in the study area which is indispensable for the development of the agricultural sector.

Measures should also be suggested to reduce the Yield Gap in the Paddy cultivation to reach sustainable agricultural development in the study area.

### **Conclusion**

In the piece of research, an attempt is made to study the Economics of Paddy Cultivation in Tamil Nadu. It is to be noted that various operations and practices are involved in paddy cultivation along with the problems faced by the farmers in the process of cultivation have been discussed. The cost of cultivation varies according to the size of farmers and even in educational status. It is appropriate to study the cost and return on paddy so as to know the income earning capacity of the paddy cultivating farmers. Hence an attempt is made to study the variation in cost and to identify the causes for such variations. Thus paddy cultivation in this study area has scope in the future, if the government and the paddy cultivators long view to increase the paddy production in this study area.. As the shortage of labour is the primary problem, Mechanization will increase paddy production. The price of paddy to be increased at the reasonable level which makes the farmers to cultivate paddy to a greater extend. To sum up, agriculture development is predicated by improvement in farm production and productivity, better utilization of agriculture inputs, proper marketing infrastructure and support, stepping up of investment in agriculture with due regard and environmental concerns and efficient food management.

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**Table 1 : Components wise Cost of Labour Distribution of Farmers( Rs.000's)**

S. No	Components	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Land Preparation	13330 (2.85)	15190 (2.64)	9300 (2.61)	37,820 (2.70)
2	Sowing	18920 (4.06)	21560 (3.75)	13200 (3.70)	53,680 (3.84)
3	Main field	13330 (2.85)	15190 (2.64)	9300 (2.61)	37,820 (2.70)
4	Nurse Pulling	119970 (25.65)	136710 (22.13)	83700 (23.51)	3,40,380 (24.33)
5	Transplanting	95290 (20.37)	127400 (25.65)	78000 (21.91)	3,00,690 (21.49)
6	Basal Dressing	13330 (2.85)	15190 (2.64)	9300 (2.61)	37,820 (2.70)
7	Top Dressing	13330 (2.85)	15190 (2.64)	9300 (2.61)	37,820 (2.70)
8	Weeding	104000 (22.24)	142480 (24.75)	90740 (25.49)	3,37,220 (24.10)
9	Pesticides	17200 (3.68)	19600 (3.40)	12000 (3.37)	48,800 (3.49)
10	Irrigation	13330 (2.85)	15190 (2.64)	9300 (2.61)	37820 (2.70)
11	Harvesting	18920 (4.06)	21560 (3.75)	13200 (3.70)	53,680 (3.84)
12	Threshing	26660 (5.70)	30380 (5.28)	18600 (5.22)	75,640 (5.40)
	<b>Total</b>	467610 (100)	575640 (100)	355940 (100)	1399190 (100)
	<b>Average</b>	10,875	11748	11845	11469

**Note:** Figures in Parenthesis denote Percentage



**Table 2 : Farm Size and Components wise Cost of Cultivation (Rs.000's)**

S.No	Components	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Nursery Land Preparation	21500 (2.51)	24500 (2.32)	15000 (2.31)	61000 (2.39)
2	Seed Cost	45150 (5.28)	51450 (4.89)	31500 (4.83)	128100 (5.00)
3	Sowing Cost	18920 (2.21)	21560 (2.05)	13200 (2.02)	53680 (2.09)
4	Main Field Preparation	77400 (9.05)	88200 (8.39)	54000 (8.30)	219600 (8.59)
5	Farm Yard Manure	44800 (5.24)	54000 (5.13)	15600 (2.40)	114400 (13.31)
6	Nurse Pulling	119970 (14.03)	136710 (13.00)	83700 (12.86)	340380 (10.40)
7	Transplanting	95290 (11.14)	127400 (12.11)	78000 (11.98)	300690 (4.47)
8	Fertilizer	117200 (13.71)	135500 (12.89)	87000 (13.37)	339700 (11.76)
9	Weeding	104000 (12.17)	142480 (13.54)	90740 (13.93)	337220 (13.28)
10	Plant Protection/ Growth regulator	58800 (3.68)	81400 (7.74)	57000 (8.76)	197200 (13.19)
11	Pesticides	15600 (1.83)	49000 (4.66)	30000 (4.60)	94600 (7.71)
12	Irrigation	13330 (1.56)	15190 (1.44)	9300 (1.42)	37820 (2.42)
13	Harvesting	82130 (5.23)	78400 (7.46)	57300 (8.80)	217830 (10.63)
14	Threshing	26660 (1.70)	30380 (2.89)	18600 (2.86)	75640 (2.29)
15	Marketing	13920 (0.88)	15370 (1.46)	10010 (1.53)	39300 (1.54)
	<b>Total</b>	854670 (100)	1051540 (100)	650950 (100)	2557160 (100)
	<b>Average</b>	19,876	21,460	21,698	20,960

Note: Figures in Parenthesis denote Percentage

**Table 3: Educational Status wise Average Cost of Cultivation of Farmers (Rs.000's)**

S. No	Educational Status	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Illiterate	78390 (19598)	199290 (22143)	0 (0)	277680 (21360)
2	Primary Education	197320 (17938)	660660 (21312)	0 (0)	857980 (20428)
3	Secondary Education	398860 (20993)	107940 (21588)	218260 (21826)	725060 (21325)
4	Higher Secondary Education	180100 (180100)	0 (0)	84660 (21165)	264760 (20366)
5	Higher Education	0 (0)	83650 (20913)	348030 (21758)	431680 (21584)
	<b>Total</b>	854670 (19876)	1051540 (21,460)	650950 (21,698)	2557160 (20960)

Source: Primary Data



**Note:** Figures in Parenthesis denote Average Amount

**Table 4: Educational Status wise Average Returns of Cultivation (Rs.000's)**

S. No	Educational Status	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Illiterate	452900 (32350)	284500 (31611)	0	737400 (32060)
2	Primary Education	376800 (31400)	948700 (30603)	0	1325500 (30826)
3	Secondary Education	503600 (31475)	153200 (30640)	331100 (33110)	987900 (31867)
4	Higher Secondary Education	31400 (31400)	0	124150 (31037)	155550 (31110)
5	Higher Education	0	122750 (30687)	525150 (32821)	647900 (32395)
	Total	1364700 (31800)	1509150 (30798)	980400 (32680)	3854250 (31592)

**Source:** Primary Data

**Note:** Figures in Parenthesis denote the Average Amount