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Research Article

ANALYSIS OF PRODUCTION AND MARKETING OF PADDY IN THRISSUR-PONNANI KOLE WET LANDS

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A B S T R A C T

The area under paddy cultivation in Kerala has been declining consistently over the last several years. The gap between production and consumption of rice is widening every year. The Kole lands are one of the largest and highly productive wetlands in Kerala. It is the largest wetland system in India, included as a Ramsar site in 2002. The paddy produced in Kole lands is procured by Government through Civil Supplies Corporation at a fixed price. Moreover due to paucity of adequate funds, the farmers have to wait for months to receive payment from Civil Supplies Corporation after procurement. Due to the diminishing and fluctuating returns, the farmers are either giving up paddy cultivation or leaving paddy fields barren. This is a major threat to the already fragile food security and the ecological balance of Kerala. This study made an attempt to review the trends and challenges of paddy cultivation in Thrissur-Ponnani Kole lands. Shortage of labour, rising cost of production and low return on investment are some of the major problems faced by the farmers. It is being realised that only through the establishment of a market driven and farmer owned integrated value chain of paddy, the farmers can be ensured a fair price for their produce.

INTRODUCTION

Paddy is one of the most important food crops of India and is second in importance throughout the world. It feeds more than 50 percent of the world's population. It is the staple food of most of the people in South-East Asia. Asia accounts for about 90 percent of the world's paddy cultivation and production. Among the paddy growing countries, India has the largest area under cultivation, though in terms of volume of output it is second to China. The area, production and productivity of paddy in India during the year 2017-18 were 43.2 million hactre, production 112.91 million tonnes and productivity 2600 Kilo gram per hectare respectively. Productivity in India is much lower than in Egypt, Japan, China, Vietnam, USA and Indonesia and even below the world's average (Umadevi, 2012). Rice is the most preferred staple food for about 65 percent of the population in India. It continues to play a vital role in the country's exports-constituting nearly 25 percent of the total agricultural exports from the country.

Rice is the most important cereal and staple food produced and consumed in Kerala. Kuttanad is known as the rice bowl of Kerala. Thrissur and Palakkad are the other two areas in Kerala where large scale cultivation of paddy is done. The area, production and productivity of Paddy in Kerala in 2017-18 were 1.94 lakh hectare, 5.21 lakh tonnes and 2757 kilo gram per hectare respectively.

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The food situation in Kerala is turning grim as factors ranging from global to local accelerate the scarcity and price hike of food grains. Out of the total annual requirement of rice in Kerala, only 12 percent is being produced domestically, the rest is being imported from Andhra Pradesh and Karnataka. The area under paddy cultivation has been declining consistently over the last several years and it felt to 1.94 lakh hectare in 2017-18 from 6.78 lakh hectare in 1985-86. Thus in 32 corresponding years, there was a decline of nearly 4.88 lakh hectare in the area under rice cultivation. The gap between production and consumption is widening every year. The unseasonal rainfall, rising temperature, depletion of groundwater, mounting cost of inputs and the shortage of agricultural labourers are some of the crucial factors that aggrevate the situation. Large tracts of paddy fields in Kerala have been diverted for the cultivation of crops such as coconut, banana, rubber and non-farm uses. The price of paddy is also exposed to high volatility and the farmers are deprived of a fair share of the consumer price.

Thrissur-Ponnani Kole lands are unique wetlands lying in Thrissur and Malappuram Districts. The Kole lands are one of the largest and highly productive wetlands in Kerala. It is the largest wetland system in India, included as a Ramsar site in 2002 (Jeena T.S., 2011). Kole is a particular cultivation practice adopted in wetlands in Thrissur from October to March. Etymology of "Kole" refers to the bumber yield of high returns. Out of the total Kole lands extending to 13,632

hectares in Thrissur and Malappuram districts; only 10,000 hectares are cultivated now (Jayan P.R. *et al.* 2010).

The area extends from Chalakudy River in South to Barathappuzha River in the North, and to Ponnani Taluk (Sujani *et al.* 2008). Jyothi, Uma and Jaya are the major varieties of rice cultivated in Kole lands. Coconut cultivation, construction of buildings and houses, conversion of fields for sand and clay mining and brick kilns, hunting of wetland birds, unscientific use of chemicals, shortage of fresh water and possibility of saline intrusion into these lands are the major threats for the Kole lands (Jayan P.R., *et al.* 2010).

Kole lands are known for their higher productivity compared to other paddy fields. Kole lands account for about 4 percent of the total area of paddy fields in Kerala and about 20 percent of the paddy production in Kerala. The productivity of Kole lands is 5 to 6 tonnes per hectare (Johnkutty *et al.* 1993). These lands have a major role in ensuring food security and ecological balance of Kerala. The rice recovery rate from one kilo gram of paddy from Kole lands is about 65 percent.

The paddy produced in Kole lands is procured by Kerala government through Civil Supplies Corporation and farmers are paid a meagre price. Moreover, due to the paucity of adequate funds, the farmers have to wait for months to receive payment from Civil Supplies Corporation after procurement. Due to the diminishing and fluctuating returns, the farmers are either giving up paddy cultivation or leaving paddy fields barren. This is a major threat to the already fragile food security and the ecological balance of Kerala. The Thrissur-Ponnani Kole Development Authority was formed to formulate projects aimed at he comprehensive development of the people of Kole lands. One of the aims of the Authority is to retain farmers interest in paddy cultivation and to ensure remunerative price to the farmers. It is being realised that only through the establishment of a market driven and farmer owned integrated value chain of paddy, the farmers can be ensured a fair price for their produce. The vehicle for driving the value chain must be a Farmer Producer Company which combines the positive features of a co-operative and a Private Limited Company.

Wetlands

The Ramsar convention of 1971 on wetlands of international importance in its article 1.1 defines wetlands as "areas of marsh, fen, peat land or water whether natural or artificial, permanent or seasonal with water that is static or flowing, fresh, brackish or salty, including areas of marine water the depth of which at low tide does not exceed six metres."

According to the article 2.1 of Ramsar convention of 1971 "wetlands may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands."

(Cowardin *et al.,* (1979) defines wetlands as "the lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water". This includes three attributes that help to delineate a wetland: the area must be permanently or periodically inundated or water must be present for at least seven successive days during the growing season, the area must support hydrophytic vegetation and the substrate is predominantly hydric soils that are saturated or flooded for a sufficiently long period to become anaerobic in their upper layers. A wetland can be defined as land subject to excessive wetness, to the extent that the wet conditions influence the possible land uses (Andriesse, 1986)

Wet lands are defined as 'lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water (Mitsch *et al*., 1986)

Popularly known as the "kidneys of the earth", wetlands perform a wide array of functions ranging from reducing soil erosion to acting as natural water purifiers and from conserving migratory birds habitats to mitigating extreme climate change (Schweiger *et al*., 2002)

Kole wetlands of Kerala

Kerala is well known for its wetlands. These wetlands provided livelihood to the residents in the area in the forms of agricultural produce, fish, fuel, fiber, fodder and a host of other day-to-day necessities. Kerala, despite being a small land area of 38864 km^2, is bestowed with a vast network of backwaters, lagoons, natural lakes, rivers and canals. Occurance of the two distinct rainfall seasons i.e., south west and north east monsoons results in near water-logged conditions in almost 20% of the total geographic area of the state. Thus, as much as one fifth of the total landmass here is wetlands (Freyfogle, 2007)

The major part of kole wetland is paddy field. It forms the 'rice granary' of Thrissur and Malappuram districts. "Kole" is a term in Malayalam which means bumper crops. The whole kole paddy fields were reclaimed from the lake by putting up temporary earthen bunds and cultivation of rice was done during summer period from December to May. Due to profitability factor farmers stick to single crop cultivation in the wetland though two dams were constructed to support irrigation facilities in the summer months. The water from the fields will be pumped out and stored in a network of canals interspersed throughout the area and which is connected to Arabian Sea and protected with barrages in order to avoid saline water intrusion from the sea. Fishing is one of the important livelihood options available in kole wetland particularly during monsoon months (Binilkumar, 2010).

Paddy cultivation in Kerala

Suresh A *et al.* (2009) 'Resource-use Efficiency of Paddy Cultivation in Peechi Command Area of Thrissur District of Kerala: An Economic Analysis'. This study undertaken in the Peechi Command Area of Thrissur district in the Kerala state, has examined the resource productivity and allocative as well as the technical efficiency of paddy production. The cost of cultivation of paddy in the command area has been found as Rs 21603/ha, resulting in a benefit cost ratio of 1.34. The elasticity coefficients for chemical fertilizers, farmyard manure and human labour have been observed significant and positive. The allocative efficiency has indicated that marginal return per one rupee increase under these heads would be Rs 2.83, Rs 1.57, and Rs 1.17 respectively. The average technical efficiency of the paddy farmers in the command area has been found as 66.8 percent. Education of the farmer and supplementary irrigation provided during the water-stress days have been identified as the factors which could enhance the technical efficiency. The study has called for an equitable distribution of canal water and enhanced extension services for resource management in the area.

Ravikumar R *et al.* (2010) 'Economies of paddy cultivation in Palakkad district of Kerala'. Paddy cultivators of Palakkad are falling down during the period of time. This paper analysed socio economic background of the paddy cultivators in the selected villages of Palakkad distirct and also analysed the problems of the paddy cultivators. The major causative factor identified by the social scientist is shortage of labour and low price for paddy. This paper emphasis the group management for improving the economies of paddy cultivation through better management based on low cost technology, improvement in productivity selective mechanization and cost reduction. This statement has been proved in the present study. Paddy cultivation in Chittur is falling down over the period of time. The major causative factor identified by the social scientists is a shortage of labour and low price for paddy. This statement has been proved in the present study. Though the fertility of the soil, favourable monsoon, and government policies have helped the farmers they have not completely engaged in paddy cultivation as it requires timely manual work. This needs more human labour, which is the only problem among the farmers. And hence, mechanization, or participation of more human labour alone will increase the paddy production in the study area.

Thomas P.M (2002) 'Problems and prospects of paddy cultivation in Kuttanad region: A case study of Ramankari village in Kuttanad Taluk'. This is a development oriented village level study. The major thrust of the study is on the revival and development of paddy farming sector in Kuttanad region. With this focus, the study aims to examine the socio-economic profile of paddy farmers and to analyse the changes in paddy farming operations, to assess the economic viability of paddy cultivation in its present level, to identify the current problems in paddy farming and to suggest appropriate measures for the development of paddy farming sector in the study area. This study is focused on the contemporary issues related to paddy cultivation in Ramankari village. Along with the conventional research methods we have adopted various Participatory Rural Appraisal (PRA) methods, which calls for the active involvement of local people in the research process.

RESEARCH METHODS

Both primary and secondary data were used for the research study of Thrissur - Ponnani Kole lands. Primary data were collected through a sample survey of selected respondents using structured schedules and secondary data were collected from books, journals and e-resources. The stratified random sampling was adopted for the selection of farmers included in the eleven Padashekhara Samithies (Group Farming) in Thrissur and Ponnani Kole lands respectively. They are Manalur Thazham (6 respondents), Kodannur (6 respondents), Pullazhi Kole (6 respondents), Kattur Thekkumpadam (7 respondents), Jubilee Thevar Padavu (5 respondents), Chenam Tharishu (7 respondents), Adat Thiruthinthazham (5 respondents), Pallipuram Alappad (4 respondents) from Thrissur Kole lands and Noonakadavu (6 respondents), Cheravallur Thekkekettu (4 respondents) and Naranippuzha Kummipalam (4 respondents) from Ponnani Kole lands. On the basis of the land holdings, farmers were divided into marginal (less than 1 hectare), small (1 to 2.5 hectares) and large (More than 2.5 hectares). A total of 60 farmers were surveyed for the study and of which marginal, small and large farmers were 31, 22 and 7 respectively. The main observations of the study were area, production and productivity of paddy, number of farmers in Thrissur-Ponnani Kole lands, size and number of holding of Kole lands, Padashekharams in Kole lands, seasons of production, paddy varieties cultivated, cost of production, group farming activities, marketing channels of farmers, present system of procurement.

RESULT AND DISCUSSION

Vast majority of the farmers are old aged and younger generation are not evincing much interest in paddy cultivation. Farmers are moderately educated. Agriculture is a full time occupation for all the 60 farmers. Majority of the farmers are marginal farmers. 50 percent of the farmers have landholdings up to 2.5 acres. None of the farmers were cultivating paddy on leasehold land alone. Paddy is the main crop covering 85 percent of the total area followed by coconut and vegetables. Farmers have vast experience in paddy cultivation. Vast majority of the farmers cultivate paddy because the land is ideal for paddy cultivation and not other crops. Majority (75 percent) of the farmers depend on National Seeds Corporation for procuring paddy seed. 88.3 percent of the farmers had not suffered any crop failure. Farmers utilize the paddy fields for fish farming and vegetable farming during the off season. Vast majority of the farmers have not insured paddy. Majority of the farmers cultivate paddy on 1 to 3 acre.

During the off season 50 percent of the farmers have availed agricultural loan and 16.7 percent home loan. Farmers who have not availed loan form 25 percent. It observed that 58.3 percent of the farmers have availed agricultural loan and 16.7 percent home loan. Farmers who have not availed loan form 25 percent. Out of the 35 farmers who have availed loan for agriculture, 21 have availed interest free loan and the another 14 have taken loan with an interest rate of 4 percent. When 28.6 percent of the farmers have availed loan in the range of Rs.50,000-1,50000, 25.7 percent below Rs. 25,000 and 20 percent of Rs.25,000-50,000.

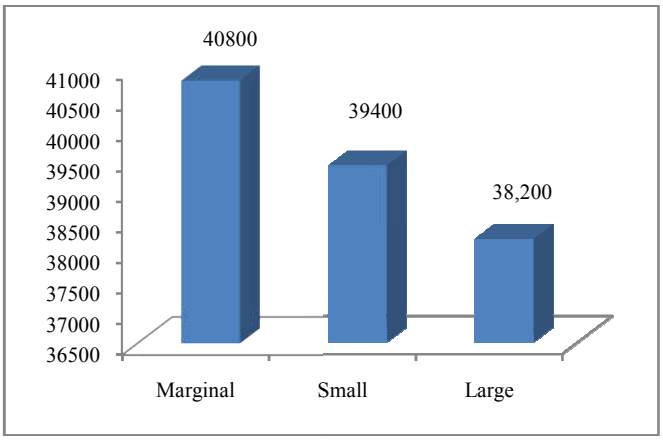

Diagram 1 Cost of Cultivation of paddy per acre

Cost of cultivation includes cost of land preparation, seed and nursery raising, plant protection, use of machine, weedicides, dewatering, pesticides, fertilizers and micro nutrients and labour. According to the diagram 1 average cost incurred by 31 marginal farmers is Rs.40,800 per acre. The average cost incurred by 22 small farmers is Rs.39,400 and by 7 large farmers is Rs.38,200 per acre. Average cost of cultivation for all the respondents comes to Rs.39,457 per acre.

Table 1 Averaqge Yield per acre

Sl.No.	Farmers	Average yield (Kg)	No. of respondents
1	Marginal	< 3000	31 (51.7)
2	Small	3000 - 3250	22 (36.7)
3	Large	3250-3500	7 (11.6)
	Total		60(100)

Source : Primary Survey
Note : Figures in bracket indicate percentage to total.
As per the table 1, the average yield per acre is less than 3000 kg. for the marginal farmers, 3000-3250 kg. for small farmers and 3250-3500 kg. for the large farmers.

Table 2 Marketed surplus of paddy

Sl.No.	Farmers	Marketed surplus	No. of respondents
1	Marginal	< 2900	31 (51.7)
2	Small	2900-3100	22 (36.7)
3	Large	3100-3300	7 (11.6)
	Total		60(100)

The table 2 shows that marginal farmers sold upto 2900 kg. of paddy per acre to Civil Supply Corporation. On the other hand small farmers sold 2900 - 3100 kg. and large farmers 3100-3300 kg. per acre.

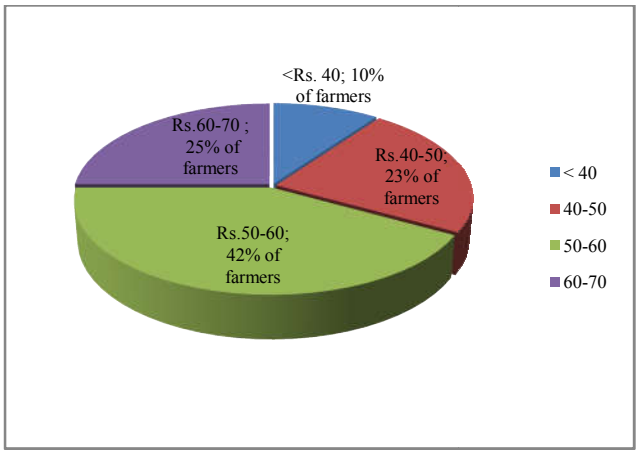

Diagram 2 Marketing cost incurred for 100 kg. of paddy

From the Diagram 2, it was found that 42 percent of the farmers incurred Rs.50-60, 24 percent Rs.40-50 and 25 percent Rs.50-60 as marketing cost. Another 10 percent incurrd less than Rs.40 as marketing cost.

Table 3 Net Income received per acre

Sl.No.	Farmers	Net Income (Rs.)	No. of respondents
1	Marginal	< 25000	31 (51.7)
2	Small	25000-35000	22 (36.7)
3	Large	>35000	7 (11.6)
	Total		60(100)

According to Table 3, the net income of the marginal farmers was below Rs.25000. The small and large farmers received net income (per acre) of Rs.25000-35000 and Rs.35000 and above respectively from paddy cultivation. Majority of the farmers are not satisfied with the price they received from Civil Supplies Corporation.

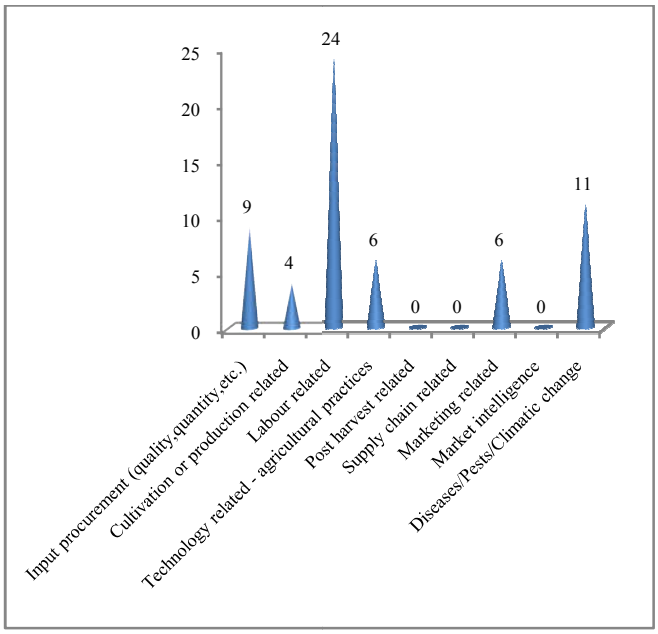

Diagram 3 Problem faced by paddy farmers

According to the diagram 3, 24 farmers faced labour related problems such as scarcity and high rate of labour. Another 11 farmers faced diseases and pest related problems. The farmers who faced input related problems such as low quality of seeds and high rate of seeds were 9 farmers. The farmers who faced technology and marketing related problems accounted for 6 each. Another 4 farmers faced cultivation or production related problems. Production related problems imply reduction in nutrients or quality of the soil.

90 percent of the farmers are willing to join the proposed farmer producer company and only 10 percent of the farmers are unwilling to join in it.

CONCLUSION AND SUGGESTIONS

The Kole lands are the largest wetland system in India, included as a Ramsar site. Jyothi, Uma and Jaya are the major varieties of rice cultivated in Kole lands. Kole lands account for about 4 percent of the total area of paddy fields in Kerala and about 20 percent of the paddy production in Kerala. The productivity of Kole lands is 5 to 6 tonnes per hectare. The Kole lands are one of the most fertile areas for producing high quality paddy.

The Kole land farmers are facing a number of challenges to continue with paddy cultivation. The most important being shortage of agriculture labourers, rising cost of production and low return on investment. The farmers who are good at production quite often fail in marketing their produce at remunerative prices. They are in the clutches of the traders or rice mills in marketing their produce. The paddy farmers are denied a fair share of the retail consumer price. Moreover, due to the paucity of adequate funds, the farmers have to wait for months to receive payment from Civil Supplies Corporation after procurement. Because of the diminishing and fluctuating returns, the farmers are forced to either give up paddy cultivation or leave paddy fields barren.

Farmers interest in paddy cultivation can be sustained only if there is a permanent structure which will ensure regular market, remunerative price and timely payment for their produce. The best way to capitalize this market opportunity is

to promote a Farmer Producer Company owned and managed by the paddy farmers of the Thrissur-Ponnani Kole lands for the production and marketing of paddy from Thrissur-Ponnani Kole lands as a unique brand.

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