PROBLEMS OF PADDY CULTIVATION IN KUTTANAD - FINDINGS OF A FIELD INVESTIGATION

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Chapter 7

PROBLEMS OF PADDY CULTIVATION IN KUTTANAD - FINDINGS OF A FIELD INVESTIGATION

In order to identify the current problems of paddy cultivation in Kerala we have conducted a field investigation in Kuttanad region which is regarded as the 'rice bowl' of the state. The investigation was conducted during the months of May and June in 1996 and its major findings are given in this chapter which is divided into three parts. In the first part a brief account of the study area and the process of sample selection is given. Second part deals with the main features of paddy farming in the study area. Major problems involved in paddy cultivation in the study area are presented in the third part.

7.1. Study Area and Selection of Sample Farmers

Kuttanad region represents the low lying lands measuring about 25 kilometers east-west and 60 kilometers north-south of the west coast of Kerala. The region comprises of a total area of 875 square kilometers and a major portion of it lies 1 to 2.5 meters below the sea level.[1] Soils of Kuttanad area are grouped into Kayal soil, Karappadam soil and Kari soil, all of which are suitable for paddy cultivation. Before the construction of Thanneermukkom salt water barrier, low lying lands in Kuttanad region were periodically inundated with salt water and a single crop was raised in a year from the paddy fields. However, since the completion of Thanneermukkom bund in 1976, a good percentage of fields are converted into double

1. Kerala Agricultural University (1984), *Status Report - Region of Problem Areas*, National Agricultural Research Project, Vellanikkara, Thrissur, p. 28.

cropped lands. Major crops cultivated in Kuttanad region other than paddy are coconut, cocoa, and banana.

Kuttanad and Palakkad are the two major rice producing areas in Kerala and over the past few years rate of decline in area under paddy had been comparatively higher in Kuttanad. Hence it was chosen as the study area. Eventhough Kuttanad region is spread over the three districts of Alappuzha, Kottayam and Pathanamthitta, paddy growing areas in this region are mainly located in the first two districts. Therefore for the purpose of field investigation Kuttanad taluk from Alappuzha district and Kottayam taluk from Kottayam district were identified and five villages from each of these taluks were selected. The villages thus selected from Kuttanad taluk were Kavalam, Neelamperoor, Veliyanad, Ramankari and Champakulam and the villages chosen from Kottayam taluk were Nattakom, Chengalam, Kumarakom, Aymanam and Arpookara. Using the method of quota sampling relevant data were collected from ten sample farmers from each of the ten selected villages with the help of a structured interview schedule. (A copy of the interview schedule is given in Appendix).

7.2 Paddy cultivation in the Study Area - Some General Features

7.2.1. Nature of ownership and size of holdings

Depending on the nature of the ownership of fields in which they cultivate, paddy farmers in the study can be grouped into three categories viz.,

(a) farmers who cultivate in their own lands,

(b) farmers who cultivate both in owned fields and fields taken from others on lease and

(c) farmers who cultivate exclusively in leased holdings.

Table 7.1

Area Cultivated by Sample Paddy Farmers According to the Nature of Ownership

(Area in ha.)

Nature of Ownership	Number of farmers	Cultivated Paddy area
Own	70 (70.00)	79.91 (41.92)
Own and lease	28 (28.00)	97.20 (50.75)
Lease	2 (2.00)	14.00 (7.33)
Total	100 (100.00)	191.11 (100.00)

Note : Percentages are given in parantheses.

Our field survey shows that 70 percent of sample farmers in the study area cultivate in their own fields. The proportion of land cultivated by them amounts to 41.92 percent of the paddy lands and the average size of holdings is found to be 1.14 hectares. In addition to their own lands 28 percent of the sample farmers have taken land on lease. More than half of the paddy lands in the study area are cultivated by this category of farmers. The remaining two percent of sample farmers are cultivating exclusively in lands taken on lease and area cultivated by them amounts to 7.33 percent of the total paddy fields in the study area (Table 7.1). Average size of paddy lands cultivated by the three categories of farmers taken together is estimated to be 1.91 hectares.

Table 7.2

Village wise Distribution of Sample Farmers According to the Size of Cultivated Paddy Fields

Village	Size of Paddy Lands			Total
	Small	Medium	Large	
Nattakom	Nil	9 (90.00)	1 (10.00)	10 (100.00)
Chengalam	1 (10.00)	7 (70.00)	2 (20.00)	10 (100.00)
Kumarakom	Nil	3 (30.00)	7 (70.00)	10 (100.00)
Aymanam	Nil	8 (80.00)	2 (20.00)	10 (100.00)
Arpookara	1 (10.00)	8 (80.00)	1 (10.00)	10 (100.00)
Kavalam	Nil	3 (30.00)	7 (70.00)	10 (100.00)
Neelamperoor	2 (20.00)	4 (40.00)	4 (40.00)	10 (100.00)
Ramankari	Nil	6 (60.00)	4 (40.00)	10 (100.00)
Veliyanad	Nil	9 (90.00)	1 (10.00)	10 (100.00)
Champakulam	1 (10.00)	8 (80.00)	1 (10.00)	10 (100.00)
Study Area	5 (5.00)	65 (65.00)	30 (30.00)	100 (100.00)

Note : Percentages are given in parantheses.

Proportion of small paddy farmers who cultivate less than 0.4 hectares of land is found to be much less than those of medium and large farmers in the study area. Nearly two-third of the sample farmers are medium farmers who cultivate 0.4 to 2 hectares of land. While the proportion of large farmers who cultivate 2 or more hectares of land is found to be 30 percent, only 5 percent of them belong to the category of small farmers (Table 7.2).

7.2.2. Cost of cultivation and value of product

Average per hectare cost of cultivation of sample paddy farmers in the study area for the 'Varsha' crop[2] in 1995-96 is estimated to be Rs. 10,374 and the average value of per hectare product is found to be Rs.17998 which is 73.49 percent higher than cost.[3] Village wise analysis shows that the cost of cultivation of paddy is comparatively lesser in the three villages of Aymanam, Neelamperoor and Champakulam while it is found to be relatively higher in Nattakom village. Considering the per hectare value of output the village of Kavalam and Veliyanad, both of which belong to Kuttanad taluk, come in the first and second positions respectively (Table 7.3). On an average, compared to Kottayam taluk, paddy cultivation is found to be more profitable in Kuttanad taluk.

Majority of the sample farmers in the study area believe that in recent years paddy cultivation had become less profitable. While 79 percent of the farmers are of the opinion that profitability has been steadily declining over the past few years the remaining 21 percent think that there is no remarkable change in profitability.

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2. Varsha crop is the main crop raised from paddy fields in Kuttanad and it broadly corresponds to the Autumn crop else where.
3. Cost of cultivation includes the imputed cost of house hold labour but interest on working capital, land value and other fixed assets are excluded. While estimating the value of product, value of by-product is also added.

Table 7.3

Village wise Distribution of Average Cost of Production and Value of Product in Paddy Cultivation

(in Rs./ha.)

Village	Average Cost	Average Value of Output	Profitability (Percentage)
Nattakom	11563	17590	52.12
Chengalam	10125	17107	68.96
Kumarakom	10600	18361	73.22
Aymanam	9650	15115	56.63
Arpookara	10375	18069	74.16
Kavalam	10063	20636	105.07
Neelamperoor	9763	18590	90.41
Ramankari	10675	17067	59.88
Veliyanad	11175	20303	81.68
Champakulam	9750	17146	75.86
Study Area	10374	17998	73.49

7.2.3. Labour requirements and wages

Maintenance of outer bunds, dewatering, clearance and levelling of land for sowing, construction of ridges, sowing, transplanting, weeding, manuring, spraying pesticides, reaping, threshing, and winnowing are the major agricultural operations involved in paddy farming. Out of these operations, repair of outer bunds and dewatering are done jointly by all of the farmers who cultivate in a 'padasekharam' under the supervision of an elected Padasekharam Commitee. Dewatering is done by private contractors who take up the work in auction. Usually individual farmers have to pay Rs. 650 to Rs. 875 per hectare as dewatering charges (Nerma). Outer bund repair costs are shared by the farmers on the basis of the proportion of area they cultivate.

For ploughing, manuring, spraying insecticides and harvesting, piece rates are given. Ploughing charges range from Rs. 750 to Rs. 875 and manuring charges come up to Rs.100 per hectare. On an average, for spraying ten litres of insecticides six rupees are given to the labourers. For harvesting operations one-eighth of the total yield is given as 'patham' and one-fourth of 'patham' is given as 'theerpu'. Together it amounts to 15.63 percent of the total yield.

Among the various operations involved in paddy cultivation, ploughing, ridge making, manuring and spraying of pesticides are done exclusively by male labourers. Female labourers are used for clearing fields before sowing (Varal), weeding and transplanting. In harvesting, male labourers are employed mainly to bring reaped paddy to threshing grounds.

Nearly 95 percent of the total human labour days required in paddy farming are needed for the preparation of land, weeding and harvesting. It is observed that the proportion of female labour days required in paddy cultivation is much higher than that of male labour requirements. Nearly 45 percent of the female labour days are needed for weeding and more than 50 percent of male labour days are required for the preparation of land (Table 7.4).

Table 7.4

Required Labour Days in Paddy Cultivation

(Labour days per ha.)

Agricultural operations	Labour requirements		
	Male	Female	Total
Land preparation and sowing	8 (53.33)	39 (27.46)	47 (29.94)
Weeding and transplanting	Nil (0.00)	63 (44.37)	63 (40.13)
Harvesting	5 (33.33)	33 (23.24)	38 (24.20)
Other	2 (13.33)	7 (4.93)	9 (5.73)
Total	15 (100.00)	142 (100.00)	157 (100.00)

Note : (i) Preparation of land includes ploughing, levelling, ridge making, removal of decayed weeds.

(ii) Percentages are given in parantheses.

At the time of the present investigation, prevailing daily wages of male and female labourers in the study area for normal farm works were Rs. 100 and Rs. 40 respectively. For head load works male labourers were paid Rs. 150 per day on an average.

7.2.4. Extent of mechanisation

Earlier in Kuttanad region the entire paddy farming operations were exclusively carried out by making use of human or animal labour. At present in all the padasekharams in the study area electrically run pump sets are used for the purpose of dewatering, in the place of manually operated wheels. Similarly for plouhging power tillers and tractors are extensively used in this region. Some of the sample farmers in the study area believe that ploughing is unnecessary in Kayal lands where the texture of soil is silty clay loam with fairly good drainage. The present study shows that 8 percent of the sample farmers do not plough their fields before sowing. It is also found that only 26 percent of them are still depending exclusively on the traditional system of ploughing making use of draught animals, while 30 percent of them are using tractors or power tillers and the remaining 36 percent use draught animals along with power tillers or tractors.

For harvesting, manual labour is used by all the sample farmers in the study area. Eventhough threshing machines have been recently introduced in some areas it has not so far become popular among the paddy farmers. However, for winnowing electrically run fans are used in some of the padasekharams in Kuttanad region.

7.2.5 Varieties of seeds and manures used

All the sample farmers in the study area are at present using HYV seeds in their fields. The most popular variety of seed is 'Jyothi'. A few farmers are using certain other high yielding varieties like 'Pavizham', 'Triveni', 'Kanchana', 'MO-4' and

'Bhadra'. According to the present survey, during the previous season 85 percent of the sample farmers had used 'Jyothi', while 'Pavizham' and 'Triveni' were sown by 7 percent and 3 percent of the farmers respectively. It is also found that 74 percent of the sample farmers had purchased seeds either from private individuals or from the retail out lets of the National Seed Corporation (NSC).

In order to maintain productivity, paddy farmers in the study area are heavily depending on chemical fertilizers and only a small minority of them use organic manures like green manure and cowdung in their fields. According to the estimates of the Kuttanad Water Balance Study Report, during the main crop season alone 4481 tonnes of Nitrogen (N), 2393 tonnes of Phosphate (P_2O_5) and 3144 tonnes of Potash (K) are applied in the paddy fields of Kuttanad region.[4] Present study shows that while the entire sample farmers are using chemical fertilizers like Urea, Potash and Factamfose, only 6 percent of them use organic manures.

In the study area 513 kilograms of chemical fertilizers are used per hectare of paddy land on an average to raise a single crop. Out of it the share of Factamfose alone is 163 kilograms which amounts to 31.77 percent of the total quantity. Village wise analysis shows that the per hectare application of chemical fertilizers is highest in Nattakom and lowest in Champakulam. On an average per hectare use of chemical fertilizers in the villages belonging to Kottayam taluk is 25.89 percent higher than the villages in Kuttanad taluk (Table 7.5).

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4. Government of Kerala (1989), *Kuttanad Water Balance Study Report*, Thiruvanthapuram, December, Annex C, Table 1, p. 40.

Table 7.5

Village wise Distribution of the Average Use of Chemical Fertilizers in Paddy Cultivation

Village	Chemical Fertilizer (in Kg./ha.)				
	Factam fose	Urea	Potash	Mussoorie	Total
Nattakom	183 (24.33)	183 (24.33)	173 (23.00)	213 (28.32)	752 (100.00)
Chengalam	243 (50.73)	133 (27.77)	103 (21.50)	Nil	479 (100.00)
Kumarakom	160 (28.37)	128 (22.70)	143 (25.35)	133 (23.58)	564 (100.00)
Aymanam	145 (24.13)	118 (19.63)	118 (19.63)	220 (36.61)	601 (100.00)
Arpookara	175 (38.21)	148 (32.31)	110 (24.08)	25 (5.46)	458 (100.00)
Kavalam	145 (30.98)	138 (29.49)	115 (24.57)	70 (14.96)	468 (100.00)
Neelam-peroor	98 (16.87)	128 (22.03)	130 (22.38)	225 (38.73)	581 (100.00)
Ramankari	168 (39.62)	93 (21.93)	130 (30.66)	33 (7.78)	424 (100.00)
Veliyanad	155 (33.70)	105 (22.83)	100 (21.74)	100 (21.74)	460 (100.00)
Champakulam	158 (47.31)	83 (24.85)	93 (27.84)	Nil	334 (100.00)
Study Area	163 (31.77)	126 (24.56)	122 (23.78)	102 (19.88)	513 (100.00)

Note : Percentages are given in parantheses.

7.3. Problems of Paddy Cultivation in the Study Area

Some of the major problems involved in paddy farming as revealed by the present investigation are the following:

7.3.1. Decline in the number of full time and dedicated paddy farmers

At present, to the majority of farmers in the study area, paddy cultivation is merely a subsidiary occupation to supplement their other sources of income. As they are not full time farmers, they often lack genuine interest in paddy farming. All over the study area large number of businessmen, traders, government servants, employees in private establishments, inland fishermen and retired employees are indulged in paddy cultivation alongwith full time farmers. As our field study shows, only 40 percent of the sample farmers in the study area are full time farmers who are

Table 7.6

Distribution of Sample Farmers on the Basis of Occupation

Occupation	Number of Farmers	Percentage
Full time farming	48	48.00
Labour	7	7.00
Inland Fishing	7	7.00
Skilled Labour	5	5.00
Permanent Employees	9	9.00
Business/Trade	15	15.00
Retired /Ex-Service	9	9.00
Total	100	100.00

depending exclusively on agricultural incomes for their living. Excluding the number of ex-service men and retired employees, for 43 percent of persons who are presently engaged in paddy cultivation, it is only a part time job (Table 7.6). Paddy as a crop needs much personal care and supervision which can be expected only from full time farmers. It is one of the reasons why many of the paddy farmers in the study area opt for a single crop eventhough it is possible to raise a second crop in their fields.

7.3.2. Aversion of younger generation to paddy farming

Another factor that adversly affects the prospects of paddy cultivation in Kuttanad region is the growing aversion of new generation to paddy farming. Throughout the study area youngsters have developed a sort of aversion to take up paddy cultivation as their occupation. It is evident from the age composition of paddy

Table 7.7

Distribution of Sample Paddy Farmers According to Age

Age group	Number of farmers	Cumulative Distribution	
		Age	Percentage
30 - 34	5 (5.00)	≥ 30	100.00
35 - 39	9 (9.00)	≥ 35	95.00
40 - 44	16 (16.00)	≥ 40	86.00
45 - 59	13 (13.00)	≥ 45	70.00
50 - 54	10 (10.00)	≥ 50	57.00
55 - 59	18 (18.00)	≥ 55	47.00
60 - 64	16 (16.00)	≥ 60	29.00
65 - 70	13 (13.00)	≥ 65	13.00
Total	100 (100.00)	---	---

Note : Percentages are shown in parantheses

farmers which shows that the majority of them belong to higher age groups. According to the sample survey 13 percent of the sample farmers are 65 or more years old and 47 percent of them fall in the age group of 55 or above. None of the sample farmers are below 30 years and only 14 percent of them are below 40 years. Average age of paddy farmers in the study area is estimated as 52.35 years (Table 7.7).

7.3.3. Farmer's reluctance to take second crop

After the completion of Thanneermukkom salt water barrier and construction of permanent outer bunds, it is possible for the paddy farmers to take a second crop during the Summer season in Kuttanad region. Inspite of it only 37 percent of sample farmers had taken the second crop during the year 1995-96. Possibility of crop failure due to saline intrusion, non availability of required number of hired farm labourers and the comparatively lesser profitability of Summer paddy had induced paddy farmers to keep their lands fallow during the second crop season.

7.3.4. System of giving paddy lands on lease

In order to avoid the problems and risks involved in paddy cultivation many of the paddy land owners in the study area give out their land on lease for cultivation. Usually paddy land is given for single crop and rent is collected in advance. Per hectare rent amounts to Rs. 4000 to 5250 in Kottayam taluk and Rs. 4500 to Rs. 6000 in Kuttanad taluk. Nearly one third of the sample farmers in the study area are cultivating in paddy fields taken on lease.

Present field investigation shows that nearly 40 percent of the total area cultivated by the sample farmers are lands taken on lease. It is also observed that the proportion of leased holdings is comparatively higher in Kuttanad taluk where it amounts to 50.21 percent (Table 7.8).

Table 7.8

Village wise Distribution of Cultivated Paddy Lands and Paddy Fields on Lease

(Area in hectares)

Village	Cultivated Paddy Area	Area on Lease	Percentage Area on Lease
Nattakom	14.22	2.80	19.69
Chengalam	10.49	3.20	30.51
Kumarakom	21.70	3.20	14.75
Aymanam	19.78	7.20	36.40
Arpookara	9.40	2.00	21.28
Kavalam	62.80	43.20	68.79
Neelamperoor	16.12	8.00	49.63
Ramankari	14.50	3.60	24.83
Veliyanad	10.88	1.60	14.71
Champakulam	11.22	1.60	14.26
Total	191.11	76.40	39.98

Since paddy lands are given on lease only for a single crop and afterwards transferred to some other persons, farmers who cultivate in those fields are reluctant to undertake any kind of permanent land improvement measures which involves considerable capital investments such as construction of proper bunds, levelling of fields etc. Lesser use of farmyard manures in paddy fields of the study area can be partially attributed to the system of land lease.

7.3.5. Labour shortage

Since paddy farming is highly labour intensive and the supply of household labour is not substantial, hired labour requirements are very high in Kuttanad region. According to 97 percent of the sample paddy farmers, the single biggest problem involved in paddy farming is the non availability of sufficient number of farm labourers in right time. Till a few years back majority of the paddy farmers in the study area were primarly depending on outside labourers. However, the inflow of outside labourers had been steadily declining over the past years and at present 63 percent of the sample farmers are exclusively relying on local labourers. While, according to 45 percent of paddy farmers the problem of labour shortage becomes more severe during the harvesting season, the remaining 55 percent feel that the problem is equally acute for all the agricultural operations involved in paddy farming.

The worsening situation of labour shortage in Kuttanad region can be attributed to the following factors

a. **Growing employment opportunities in other sectors**

The successful implementation of the various poverty alleviation programmes envisaged by the government such as the Integrated Rural Development Programme (IRDP), Training Rural Youth for Self Employment (TRYSEM), Jawahar Rosgar Yojna (JRY) and Development of Women and Children in Rural Areas (DWCRA) have created large amount of employment opportunities to the people out

side the farm sector. Eventhough there is only little industrial development in Kuttanad, more than one hundred registered industrial units are located in this region.[5] Most of these units are agriculturally based rubber plants and coir factories in which large number of rural labourers are employed. Again the fast growing service sector alongwith the hectic construction works going on in and around the study area absorb a major portion of the new generation of rural labourers and thereby reduce the supply of farm labourers.

b. **Aversion of new generation from agricultural labour households to paddy cultivation**

Since the social status of agricultural labourers is comparatively lesser, new entrants to labour market from rural households prefer more colourful jobs even at lower wages. Again a large portion of unemployed youth from agricultural labour families are well educated and they prefer to remain jobless till they get a permanent job elsewhere rather than to work in paddy fields as casual labourers. Elder generation of agricultural labourers also encourage their youngsters to take up any other jobs which need lesser physical strain and effort.

c. **Low wages**

Compared to construction workers, head load workers and other skilled labourers in rural areas, daily earnings of paddy farm labourers are considerably low. For example, while female labourers can earn up to 75 rupees per day in road construction work , their counterparts who work in paddy fields earn only a little more than half of it. Similarly while a male head load worker in the study area earns 150 to 250 rupees per day, the prevailing daily wage of male agricultural labourer for ordinary farm work is less than half of it. This type of wage differentials induce more and more farm labourers to adopt alternative jobs.

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5. *Ibid.*, p. 27.

d. **General improvement in the economic status of rural house holds**

Over the years the economic status and thereby the living conditions of the rural households in Kuttanad region had greatly improved. A large number of persons from the poor and lower middle class families which had been the traditional suppliers of farm labourers, are at present employed in other sectors. Some of them are working either in other states or in foreign countries as emigrant labourers. Since their earnings and remittances are sufficient to meet the whole household expenses, other members of their families who used to work in paddy fields are not presently turning up for agricultural works. Successful adoption of family planning programmes and the resultant decline in the dependency load had also helped the poor rural families in this region to improve their economic status which in turn had resulted in the decline of agricultural labour supply.

e. **Nature of payments**

For all other major agricultural operations paddy farm labourers in the study area receive payments in cash, but for harvesting it is given in kind as a fixed proportion of the harvested crop. Payments in terms of paddy causes two types of inconveniences to the labourers. Firstly, they receive their due share of paddy only after threshing and the time gap between reaping and threshing often goes up to 30 days or even more. Secondly, as the price of paddy decreases drastically during the harvest season, labourers who are badly in need of money to meet their day to day household expenses, are forced to sell their share of paddy at very low prices. Due to the above reasons many of the paddy farm labourers are least interested in harvesting once they earn enough paddy for their annual household consumption. Thus the mode of payment is one of the major reasons for the acute labour shortage during the harvest season.

f. **Changes in the ownership pattern of paddy lands**

During the last few decades the pattern of paddy land ownership had undergone drastic changes in Kuttanad region. After the introduction of land reform measures, big land lords who possessed hundreds of hectares of paddy fields had to surrender their excess lands which were later distributed among land less labourers and small peasants. Again, many of the agricultural labourers have recently purchased small plots of paddy lands or have taken land on lease for paddy cultivation. This new category of farmers who were once paddy farm labourers, with their enhanced social and economic status, are not usually available as hired labourers.

g. **Nature of work and work conditions**

Compared to many other jobs paddy farm works are more laborious and tiresome. Often farm workers are exposed to scorching heat or incessant rain for many hours of a day. Again in paddy fields labourers are usually under the strict supervision of farmers while jobs like inland fishing give them more freedom. All the more, since paddy farming is seasonal, for the major part of the year workers have to remain idle and they have no job security. It is natural that they will leave paddy fields for the sake of any permanent jobs with better service conditions.

h. **Simultaneous farming in adjoining padasekharams**

Usually during any paricular season, in all the nearby padasekharams in the study area sowing is done simultaneously. As a result of it transplanting, weeding and harvesting are also to be done in all the adjoining paddy fields at the same time.It puts more pressure on the locally available labour force and thereby aggrevates the problem of labour shortage.

i. **Inter regional marriages**

Inter regional marriages also play a role in reducing the supply of farm labourers in Kuttanad region. Whenever a female agricultural labourer is married outside the region she will not be further available for farm works. Most of the young brides coming to the area from outside, either lack the skill needed in various farm operations or are not willing to work as labourers. Many of the young bridegrooms also consider it awkward to send their wives to paddy fields as farm labourers.

The problem of labour shortage has become so acute in the study area that in order to attract labourers paddy farmers have to provide refreshments and conveyance charges to the workers in addition to the prevailing wages. The present investigation shows that 87 percent of the sample farmers in the study area had given daily refreshments worth 5 to 10 rupees to their labourers during the previous crop season. Conveyance charges are usually paid to labourers coming from other locations and it range from 2 to 8 rupees. During the previous season 26 percent of the sample farmers had given conveyance charges to their workers. If the crop in a particular season happens to be poor, in order to get it harvested, farmers are forced to pay extra wages that range from 20 to 30 rupees per day to the labourers in addition to the prevailing rate of 'patham'.

7.3.6. Abnormal increase in input costs

Another major problem that confronts paddy farmers in Kuttanad region is the abrupt and abnormal increase in the cost of inputs such as labour, seeds, fertilizers and pesticides. During the previous one year average daily wages of male labourers had increased by 42.86 percent (from Rs. 70 to Rs.100) and that of female labourers by 33.33 percent (from Rs. 30 to Rs. 40). Meanwhile prices of paddy seeds, insecticides and pesticides had also shown 20 to 30 percent increase.

After the steep rise in the administered prices of chemical fertilizers in 1991, majority of the sample farmers had either decreased the volume of per hectare fertilizer use or began to apply relatively cheaper varieties as substitutes for the costly ones. Present investigation shows that after the increase in fertilizer prices 44 percent of sample farmers reduced the consumption of chemical fertilizers to the extent of 10 percent to 50 percent and 38 percent of them began to use Mussoorie as a substitute for Factamfose.

7.3.7. Dependence on non institutional sources of credit.

In order to meet their capital requirements majority of the paddy farmers in the study area are depending on external sources like commercial banks, co-operative banks, friends and relatives, money lenders etc. Present investigation shows that only 16 percent of the sample farmers have enough household savings to meet their costs in paddy cultivation and 44 percent of them are depending exclusively on loans taken from commercial banks or co-operative societies for the purpose. It is also found that a major portion of the capital requirements of 40 percent of the sample paddy farmers are met by non institutional sources of credit such as money lenders and traders. While the organised banking sector charges only reasonable annual rates of interest that range from 12 percent to 18 percent, village money lenders and traders charge exhorbitant rates of interest that come up to 120 percent per year from their customers.

7.3.8. High rate of crop failures

Recurrence of crop failure is yet another problem for the paddy cultivators in Kuttanad region. During the period of the previous five crop seasons, 91 percent of the sample paddy farmers had at least once experienced 50 percent or more loss in their yields. While for 59 percent of farmers the proportion of crop failure to the number of crops raised was 20 percent, for another 32 percent it was 40 percent or

more. Out of the 128 crop failure cases reported by the one hundred sample farmers, 68 cases (53.13 percent) were caused by floods. Other major causes of crop failures were the incidence of pests and plant diseases (21.88 percent), intrusion of saline water (16.41 percent) and break of outer bunds (7.03 percent).

7.3.9. Lack of proper marketing system

Wide temporal variations are observed in paddy prices in Kuttanad region. During the harvesting season of the previous Varsha crop (September- October, 1995) the prevailing price of paddy had been less than 500 rupees per quintal in the study area. After a lapse of three to four months it improved to more than 600 rupees per quintal. However, in order to clear their debts and due to the lack of storage facilities 74 percent of the sample paddy farmers had sold a major part of their marketable surplus of paddy during the harvesting season itself. It is also found that in few villages like Ramankari and Kavalam agricultural co-operative societies had entered the market and purchased paddy directly from the farmers at a price little higher than the then existing market prices. Later the procured paddy had been sold at higher prices and a portion of the thus earned profits was divided among the farmers. However, direct procurement of paddy was laden with rampant curruption, favouritism and nepotism of concerned authorities and hence failed to give the desired results. All the more only 6 percent of the sample farmers had been beneficiaries of the system.

7.3.10. Failure of research institutions and lack of proper guidance to paddy farmers

Agricultural research programmes in the state have not so far been very successful as far as the needs of paddy farmers in Kuttanad region are concerned. Since the introduction of the HYV seed 'Jyothi' by the Pattambi Rice Research Institute in 1972, no better seed varieties have so far been developed in Kerala. 'Jyothi' has a short duration of 110 to 115 days and yield capacity of 2 to 2.5 tonnes per hectare.

HYV seeds later developed in the Mancompu Rice Research Station such as 'Asha', 'Pavizham', 'Aruna', 'Makam' and 'Kanakam' even with longer durations of 115 to 120 days have already failed to give better yield. At present 85 percent of the sample farmers in the study area are using 'Jyothi' and according to them all the later developed seeds are more vulnerable to plant diseases.

Lack of an effective agency to co-ordinate and supervise paddy farming in Kuttanad region is yet another problem. Often farmers are not properly guided in the application of fertilizers, insecticides and pesticides. They have to wait for more than six months to get the result of soil samples given for testing. Eventhough the state government with a view to revitalise the paddy sector had launched the Group Farming Programme in 1989, a large number of paddy farmers in the study area are not yet covered by this programme.

7.3.11. Inadequate infrastructural development

Kuttanad region still lacks a proper and efficient system of water management conducive to paddy cultivation. Outer bunds are not periodically repaired and bund elevation programmes are going on at a very low pace. In many areas lack of proper roads and boat services make the transportation of inputs to paddy fields and products from fields very difficult. Interruptions in regular power supply during the time of dewatering is another problem faced by many padasekharams.

7.3.12. Other factors

Unwieldy size of some padasekharams which amounts to more than 1000 hectares, high acidity of soil, ingress of saline water, high incidence of pests like brown plant hopper, leaf roller, case worm, stem borer, rice bug etc., plant diseases such as sheath blight, blast, sheath rot and stack burn and growing menace of weeds like salvinia, grasses, sedges etc., also adversely affect the per hectare procuctivity and thereby the profitability of paddy cultivation in Kuttanad region. Failure to adopt

appropriate mechanisation in paddy cultivation, militant trade unionism and strained labour relationships are also responsible for the decline of paddy cultivation in this region.

To sum up, our field investigation shows that the most important problem involved in paddy cultivation in the study area is the shortage of farm labourers, eventhough a host of other problems such as lack of adequate capital, improper marketing system, frequent crop failures, growing menace of plant diseases and pests etc., also create problems to the paddy farmers. Aversion of new generation to take up paddy farming as a full time occupation has made the prospects of the crop bleak in the study area. Thus the findings of the field study vindicate our hypothesis that shortage of factor inputs and aversion of younger generation to paddy cultivation have their contributions in the decline of paddy crop in the state.

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