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A Study on the Adoption Behavior of Paddy Growers and the Relationship with the Characteristics of the Respondents in Pudukkottai District

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A B S T R A C T

Paddy is a very important cereal crop having the highest productivity in the world. India stands second in paddy production in the world and it is self-sufficient in paddy production. Generally, the success of paddy cultivation depends upon knowledge and adoption of recommended paddy cultivation practices by the farmers, but the so-called new farming technologies are still remaining unrealized due to many problems and constraints in the southern states of India. Paddy is commonly grown in a traditional way by majority of the famers in Pudukkottai. So, they were not much aware of the paddy farming technologies. Keeping this point in mind, this research study was undertaken to analyze their knowledge on recommended paddy cultivation technologies. Keeping this in view, the study was carried out selected six villages in Aranthangi block of Pudukkottai district. The sample size consisted of 120 paddy growers. The respondents were interviewed personally through a well-structured and pre- tested interview schedule. Arithmetic mean, percentage analysis, cumulative frequency, zero order correlation and multiple regressions were used for analyzing and interpreting the data. The study revealed that majority of the respondents was found to be middle aged, have possessed formal level of education. Majority of them were found to be small to marginal farmers with medium level of experience in paddy cultivation. With regard to the dependent variables adoption had exhibited medium to low levels on recommended paddy technologies. out of fourteen variables studied, age, educational status, annual income and mass media exposure had positive and significant relationship at five per cent of probability and one variables namely social participation had positive significant relationship at one per cent level of probability with the adoption level of paddy growers. All other variables were found to be non-significant. Mass media exposure showed a positive and significant relationship with extent of adoption.

***Key words*:** Adoption, Technologies, Paddy, Territory

Paddy (*Oryza sativa*) is the steady nourishment for 65 per cent of the populace in India. It is the biggest burned-through calorie source among the food grains. With a for every capita accessibility of 73.8 kg it meets 31 per cent of the absolute calorie necessity of the populace. India is the second biggest maker of rice on the planet close to China. In India paddy involves the primary spot both in region and creation. *Oryza sativa*, it is accepted, is related with wet, damp environment, though it's anything but a tropical plant [1]. It is presumably a descendent of wild grass that was undoubtedly developed in the lower regions of the far Eastern Himalayas. Another way of thinking accepts that the rice plant may have started in Southern India, at that point spread toward the north of the country and afterward onwards to China. It at that point showed up in Korea, the Philippines (around 2000 B.C.) and afterward Japan and Indonesia (about B.C.). At the point when Alexander the Great 2 attacked India in 327 B.C., it is accepted that he returned rice to Greece. Bedouin voyagers took it to Egypt, Morocco and Spain and that is the way it traversed Europe, Portugal and Netherlands took rice to their provinces in West Africa and afterward it made a trip to America through the 'Columbian Exchange' of normal assets. Yet, as is customarily known, rice is a sluggish starter and this is additionally consistent with the way that it required near two centuries after the journeys of Columbus for rice to flourish in the America. From that point the excursion of rice proceeds with the Moors taking it to Spain in 700 A.D and the Spanish carried rice to South America toward the start of seventeenth century.

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MATERIALS AND METHODS

Extent of adoption refers to measure how for the particular technology was adopted by an individual correctly without distortion of message. Rogers [2] defined adoption as a decision to make use of an innovation as the best course of action available. In this study, 35 recommended paddy technologies were selected for studying the extent of adoption. Each individual was asked about adoption and non- adoption against each item. The score of two was given for adoption and non-adoption received one score. The scores for all these items were added up for each respondent and total adoption score was arrived at. The formula for adoption index by Suhirdha [3] was followed in this study. The score were obtained for each of the recommended items by adding the score obtained by the individual farmer on each item and indices were worked out. The items of the recommended practices were also categorized into low, medium and high by adopting percentage analysis.

RESULTS AND DISCUSSION

Adoption is a decision to make use of an innovation as a best course an action available [2]. It is necessary to study the extent of recommended technologies in paddy cultivation. Therefore, the data with regard to overall adoption and practice-wise adoption were collected.

Overall adoption of recommended paddy cultivation technologies

The distribution of respondents according to overall adoption of recommended paddy cultivation technologies are furnished in (Table 1). It could be understood from (Table 1) that a more than half of the respondents (57.50 per cent) had medium level of adoption of recommended paddy technologies followed by 25.00 per cent of the respondents with low level of adoption. Only 17.50 per cent of the respondents fell under high level of adoption. Medium level of experience in paddy farming, social participation, extension agency contact, mass media exposure, information seeking behaviour, social participation, innovativeness, and economic motivation and risk orientation would have been the reasons for majority of them to belong to medium level of adoption category [4].

Table 1 Distribution of respondents according to their overall adoption level of recommended paddy technologies (n=120)

S. No.	Category	Number of respondents	Per cent
1	Low	30	25.00
2	Medium	69	57.50
3	High	21	17.50
Total		120	100

Practice wise adoption level of the respondents on recommended paddy technologies

In order to have an in-depth idea about adoption level of the respondents, a practice wise adoption level of the respondents was worked out. The practice-wise adoption level of the respondents on selected technologies on paddy cultivation and the results are given in (Table 2).

Season

It could be seen from (Table 2) that season was found to be adopted by all the respondents (100.00 per cent). This might be due to the knowledge of the respondents about climate conditions prevailing in this tract. Moreover, the farming experience of the respondents would have enabled them to adopt the correct season for sowing of paddy.

Variety

Varieties are very important for getting higher yield. It could be observed from (Table 2) that 90.83 per cent of the respondents adopted the recommended varieties. This might be due to the high knowledge level of the respondents on recommended varieties.

Seed rate

It could be seen from (Table 2) that 60.00 per cent of respondents adopted the recommended seed rate whereas 40.00 per cent of the respondents did not adopt the practice. Some of the respondents felt that there may be the possibility of loss of seedlings during germination due to heavy rain, hence they have adopted higher seed rate than the recommended quantity. This might be the probable reason for non-adoption of recommended seed rate by 40.00 per cent of the respondents.

Table 2 Distribution of respondents according to their practice wise adoption on recommended paddy technologies (n=120)

S. No.	Technologies	Number of respondents	Per cent
I	Season		
1.	Recommended season	120	100.00
II	Variety		
1.	Recommended varieties of paddy	109	90.83
III	Seed rate		
1.	Recommended seed rate	78	65.00
IV	Seed treatment		
1.	Recommended fungicides	52	43.33
2.	Recommended quantity of fungicides	38	31.67
3.	Bio-fertilizers recommended for seed treatment	49	40.83
4.	Quantity of bio-fertilizer per hectare for seed treatment	43	35.83
	Mean percentage		37.92
V	Plant population		
1.	Size of the nursery area required per hectare	63	52.50
2.	Nursery of hills per metric square	45	37.50
3.	Recommended seedling planted per hill	32	26.67
	Mean percentage		38.89

VI	Spacing		
1.	Recommended spacing	72	60.00
VII	Fertilizer management for nursery		
1.	Recommended quantity of FYM/nursery area/ha	53	44.16
2.	Recommended quantity of N,P,K for nursery area	49	40.83
	Mean percentage		42.49
VIII	Main Field preparation		
1.	Method of land preparation	49	40.83
2.	Recommended number of ploughing/ha	42	35.00
3.	Recommended quantity of FYM/ha	40	33.33
	Mean percentage		36.39
IX	Irrigation management		
1.	Recommended maintenance of water level from transplantation to tillering stage	87	72.50
2.	Recommended time of irrigation	59	49.16
3.	Recommended water level after panicle initiation till maturity	56	46.67
	Mean percentage		56.11
X	Fertilizer management for main field		
1.	Stages of application of fertilizers	74	61.67
2.	Recommended doses of N,P,K/ha for basal application	65	54.16
3.	Recommended doses of N,K/ha for top dressing	43	35.83
	Mean percentage		50.55
XI	Weed management		
1.	Recommended time for first weeding	66	55.00
2.	Recommended time for second weeding	53	44.16
3.	Recommended herbicides	49	40.83
4.	Quantity of recommended herbicides	42	35.00
	Mean percentage		43.75
XII	Pest management		
1.	Recommended pesticide for the management of BPH	46	38.33
2.	Recommended quantity of pesticide for controlling BPH	32	26.67
3.	Recommended pesticide for the management of stem borer	27	22.50
4.	Recommended quantity of pesticide for controlling stem borer	23	19.16
5.	Recommended number of light traps per ha	63	52.50
6.	Recommended pesticide for the management of gall midge	48	40.00
	Mean percentage		33.19
XIII	Disease management		
1.	Recommended fungicide for controlling of leaf blast	46	38.33
2.	Recommended quantity of fungicide for controlling of Leaf blast	37	30.83
	Mean percentage		34.58
XI	Harvesting		
1.	Recommended time of harvesting	98	81.67

Table 3 The relationship between characteristics of the paddy growers with their extent of adoption (n=120)

Var. No	Variables	'r' value	Regression co-efficient	Standard error	't' value
X_1	Age	0.203^{*}	3.145	1.095	2.652^{**}
X_2	Educational status	0.217^{*}	1.400	0.643	2.174^{*}
X_3	Farm size	0.087^{NS}	0.021	0.046	0.193^{NS}
X_4	Experience in paddy farming	0.138^{NS}	0.120	0.113	1.329^{NS}
X_5	Annual income	0.252^{*}	0.800	0.471	1.798^{*}
X_6	Social participation	0.275^{**}	2.100	1.050	2.000^{*}
X_7	Extension agency contact	-0.003^{NS}	0.064	0.190	0.694^{NS}
X_8	Mass media exposure	0.213^{*}	0.076	0.065	0.783^{NS}
X_9	Information seeking behaviour	-0.086^{NS}	-0.128	0.072	-1.253^{NS}
X_{10}	Innovativeness	-0.053^{NS}	-0.002	0.057	0.012^{NS}
X_{11}	Scientific orientation	0.034^{NS}	0.132	0.023	1.278^{NS}
X_{12}	Economic motivation	0.034^{NS}	0.083	0.473	0.932^{NS}
X_{13}	Risk orientation	-0.081^{NS}	0.003	0.121	0.036^{NS}
X_{14}	Decision making pattern	0.053^{NS}	0.041	1.542	0.430^{NS}

**Significant at 1 per cent level
*Significant at 5 per cent level
NS-Non-Significant

$R^2 = 0.532$
$F = 8.168^{**}$

Relationship between profile characteristics of the paddy growers with their extent of adoption

The results on correlation and regression analysis of characteristics of respondents with adoption of paddy growers are presented in (Table 3).

Association of characteristics of respondents with their adoption level of paddy growers

It could be observed from (Table 3) that out of fourteen variables studied, age, educational status, annual income and mass media exposure had positive and significant relationship at five per cent of probability and one variables namely social participation had positive significant relationship at one per cent level of probability with the adoption level of paddy growers. All other variables were found to be non-significant. Age showed a positive and significant relationship with adoption of paddy cultivation practices at 5 per cent level probability. As old farmers had more experience and adequate knowledge level on paddy cultivation practices, they might have adopted the paddy cultivation practices to a greater extent [5]. Educational status revealed a positive and significant relationship with adoption. This might be due to the reason that education facilitates acquisition and understanding of recommended paddy technologies. It is quite possible that educated persons would have been more enthusiastic in collecting and understanding technologies faster and it might have enabled adoption [6].

Annual income showed a positive and significant relationship with the extent of adoption. Most of the recommended practices in paddy require certain amount of money for better adoption to get higher yields in their field. As most of the respondents belong to low to medium annual income category which would have resulted with higher level of adoption of practices [7]. Social participation showed a positive and significant relationship with adoption. Better social participation provides more changes to farmers to interact and exchange farm information with other farmers. This might have helped the respondents in adopting more recommended paddy cultivation practices [8]. Mass media exposure showed a positive and significant relationship with extent of adoption. This implied that mass media exposure got direct influence on the extent of adoption of paddy technologies [9].

Contribution of characteristics of respondents towards their extent of adoption on paddy growers

In order to find out which of the independent variables explained the variation in the adoption level and also to known the extent of contribution made by these variable regression analyses was carried out and the results are presented in (Table 3). It could be observed from (Table 3) that all the fourteen variables together explained 53.20 per cent of the variation in the adoption level. The 'F' value was found to be significant. Hence, it could be concluded that a linear functional relationship between the independent and dependent variable could be established. Of the fourteen variables, the variable educational status, annual income, social participation contributed significantly and positively at one per cent level of probability [10]. Age of respondents had contributed significantly and positively at five per cent level of probability towards adoption level. All other variables were found to be non-significant. Hence it may be concluded that a unit increasing in age, educational status, annual income and social participation would increase the adoption level by 2.652, 2.174, 1.798 and 2.000. Hence, it could be inferred that the adoption level of paddy growers could be positively influenced by in age, educational status, annual income and social participation. The positive and significant relationship of independent variables with adoption level of paddy growers may discussed on the same line as already given under simple correlation of this variables with adoption [11].

CONCLUSION

From this study it is concluded that the adoption is medium. This is due to their low knowledge level. So, we have to increase the knowledge by conducting more trainings and through the mass media.

LITERATURE CITED

1. Malik TH, Baba A, Haji SA, Mir SD, Dar SA. 2017. Rice (*Oryza sativa*) cultivation in temperate areas of India. *Advance Research Journal of Multidisciplinary Discoveries* 20(0,C-11): 47-56.
2. Rogers EM. 1983. Diffusion of Innovations. The Free Press, New York. pp 453.
3. Suhirdha P. 2009. A study on adoption of pest management technologies by tomato growers in Mettur Tauk of Salem district. *Unpublished M. Sc. (Agriculture) Thesis*, Annamalai University, Annamalai Nagar, Tamil Nadu.
4. Manikandan K. 2013. Learning experience and extent of adoption of paddy farmers in Ariyalur district. *Unpublished M. Sc., (Agriculture) Thesis*, Annamalai University, Annamalainagar, Tamil Nadu.
5. Narasimhan R. 2014. Awareness, knowledge and adoption behaviour of eco-friendly agricultural practices in Perambalur district of Tamil Nadu. *Unpublished M. Sc. (Agriculture) Thesis*, Annamalai University, Annamalai Nagar, Tamil Nadu.
6. Maravi, M Singh. 2009. Depiction of Indigenous Technological Knowledge (I.T.K) in Agricultural Aspects Preailing in Gwalior Region of Madhya Pradesh. *Unpublished M. Sc. (Agriculture) Thesis*, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
7. Moktan, Mukhopadhey SD. 2012. Nature and extent of participation of farm women and their economic contribution in agriculture- A case study in hills district of West Bengal. *Indian Journal of Extension Education* 21(2): 1-9.
8. Mariammal R, Seethalakshmi M. 2017. Entrepreneurial behaviour of dairy farm women in Dindigul district of Tamil Nadu. *International Journal of Science, Environment and Technology* 6(4): 2539-2547.
9. Mullaivendan S. 2012. A study on yield gap and constraints to high yields in rice at farm level in Srikali Taluk, Nagapattinam District. *Unpublished M. Sc. (Agriculture) Thesis*, Annamalai University, Annamalai Nagar, Tamil Nadu.
10. Manikandan K. 2010. Information and skill needs of farmers on system of rice intensification. *Unpublished M. Sc., (Agriculture) Thesis*, Annamalai University, Annamalai Nagar, Tamil Nadu.
11. Mugambika K. 2012. Training needs of agricultural labourers. *Unpublished M. Sc. (Agriculture) Thesis*, Annamalai University, Annamalai Nagar, Tamil Nadu.