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A Study on Knowledge Level of Paddy Growers and the Relationship Between Characteristics of the Respondents about Recommended Technologies in Paddy Cultivation

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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 namely knowledge and adoption both the variables had exhibited medium to low levels on recommended paddy technologies. out of the fourteen variables studied only five variables viz., age, educational status, social participation, mass media exposure, risk orientation was found to have significant and positive relationship with knowledge level of respondents. Among the significant variables, the variable social participation was found to be significant at one per cent level of probability.

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

India is a significant focal point of paddy. The paddy is developed on the biggest region in India. History specialists accept that while the *Indica* assortment of paddy was first trained in the territory covering the foot slopes of the Eastern Himalayas (i.e., north-eastern India) extending through Burma, Thailand, Laos, Vietnam and southern China, the Japonica assortment was tamed from wild paddy in southern China which was acquainted with India. Enduring wild paddy actually fills in Assam and Nepal. It appears to have showed up around 1400 BC in southern India after its taming in the northern fields. It at that point spread to all the prolific alluvial fields watered by streams. The gross edited region in Tamil Nadu is around 58.43 lakh hectares of which the gross inundated territory is 33.09 lakh hectares which is 5700 and the equilibrium 4300 of the region are under rainfed development [1-2]. Significant endeavors are needs to build the profitability of rainfed crops by beating the different difficulties, for example, unpredictable rainstorm downpours, soil with low supplement and natural substance/helpless water holding limit, soil and water disintegration and so forth, the work shortage particularly during the pinnacle trimming season is additionally making trouble the farmers to take up ideal field tasks [3]. In regard of farming harvests, the yield development is taken up in two to three seasons yearly. Knowledge level of farmers refers to the respondent's exposure to the existence of paddy innovations and gaining some understanding of how it functions. This level provides accurate recommendations to the farmers adopting the technologies in the paddy cultivation. Hence, knowledge of respondents was studied and results are presented in this section.

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MATERIALS AND METHODS

Bloom *et al*. [4] defined knowledge as those behaviour and test situation, which emphasized the remembering either by recognition or recall of ideas, materials or phenomena. Knowledge is one of the important components of the behaviour and hence it plays a vital role in the adoption of improved practice. In this study, knowledge is denoted as the understanding of farmers about the recommended technologies in paddy cultivation. To measure the knowledge level of respondents on paddy cultivation, a teacher made knowledge test was developed for this study. Following the approach, thirty-five items were selected for testing the knowledge test was dichotomized into correct and incorrect responses with the scores of two and one. Maximum score one could obtain in the test was 70 and the minimum score was 35. Maximum score would indicate high level of knowledge of the respondents. The respondents were categorized into low, medium and high by using cumulative frequency method.

RESULTS AND DISCUSSION

Overall knowledge level

Knowledge is the pre-requisite for adoption of paddy cultivation practices. To assess the overall knowledge level possessed by respondents in paddy cultivation technology, necessary data were collected and are furnished in (Table 1).

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

Category	Number of respondents	Per cent
Low	30	25.00
Medium	74	61.67
High	16	13.33
Total	120	100

The results in the, Table 1 indicates that majority of the respondents (61.67per cent) had medium level of knowledge about the recommended paddy technologies followed by 25.00 per cent and 13.33 per cent of the respondents with low and high levels of knowledge respectively. As majority of the respondents possessed medium level of innovativeness, mass media exposure and information seeking behavior, they might have gained only medium level of knowledge on paddy cultivation [5].

Practice-wise knowledge level of the respondents on recommended paddy technologies

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

Table 2 Distribution of respondents according to their practice wise knowledge 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	115	95.83
III	Seed rate		
1.	Recommended seed rate	84	70.00
IV	Seed treatment		
1.	Recommended fungicides	69	57.50
2.	Recommended quantity of fungicides	64	53.33
3.	Bio-fertilizers recommended for seed treatment	56	46.67
4.	Quantity of bio-fertilizer per hectare for seed treatment	53	44.16
	Mean percentage		50.42
V	Plant population		
1.	Size of the nursery area required per hectare	78	65.00
2.	Nursery of hills per metric square	66	55.00
3.	Recommended seedling planted per hill	43	35.83
	Mean percentage		51.94
VI	Spacing		
1.	Recommended spacing	86	71.67
VII	Fertilizer management for nursery		
1.	Recommended quantity of FYM/nursery area/ha	57	47.50
2.	Recommended quantity of N, P, K for nursery area	55	45.83
	Mean percentage		46.66
VIII	Main Field preparation		
1.	Method of land preparation	62	51.67
2.	Recommended number of ploughing/ha	59	49.16
3.	Recommended quantity of FYM/ha	47	39.16
	Mean percentage		46.66
IX	Irrigation management		
1.	Recommended maintenance of water level from transplantation to tillering stage	95	79.17
2.	Recommended time of irrigation	68	56.67
3.	Recommended water level after panicle initiation till maturity	64	53.33
	Mean percentage		63.06
X	Fertilizer management for main field		
1.	Stages of application of fertilizers	99	82.50

2.	Recommended doses of N, P, K/ha for basal application	96	80.00
3.	Recommended doses of N, K/ha for top dressing	62	51.67
	Mean percentage		71.39
XI	Weed management		
1.	Recommended time for first weeding	72	60.00
2.	Recommended time for second weeding	67	55.83
3.	Recommended herbicides	59	49.16
4.	Quantity of recommended herbicides	53	44.16
	Mean percentage		52.29
XII	Pest management		
1.	Recommended pesticide for the management of BPH	59	49.16
2.	Recommended quantity of pesticide for controlling BPH	45	37.50
3.	Recommended pesticide for the management of stem borer	37	30.83
4.	Recommended quantity of pesticide for controlling stem borer	34	28.33
5.	Recommended number of light traps per ha	72	60.00
6.	Recommended pesticide for the management of gall midge	59	44.16
	Mean percentage		42.50
XIII	Disease management		
1.	Recommended fungicide for controlling of leaf blast	63	52.50
2.	Recommended quantity of fungicide for controlling of leaf blast	52	43.33
	Mean percentage		47.92
IX	Harvesting		
1.	Recommended time of harvesting	110	91.67

Season

From the results in (Table 2) it could be seen that the knowledge level for season was found to be per cent (100.00). It could be inferred that all the paddy farmers had knowledge on the recommended season for cultivation of paddy crop.

Varieties

The knowledge level for the recommended varieties is found to be high (95.83 per cent). This signifies that above ninety per cent of the respondents had knowledge on the recommended varieties for paddy cultivation.

Seed rate

It could be observed from (Table 2) that the knowledge level for seed rate is high (70.00 per cent). It could be concluded that more than seventy per cent of the farmers had knowledge on the recommended seed rate required for one hectare.

Seed treatment

The mean knowledge level of seed treatment was found to be (50.42 per cent). Among the sub-items under seed treatment, seed treatment with fungicide was known to 57.50 per cent of the respondents. Recommended quantity of fungicide was known to 53.33 per cent of the respondents, seed treatment with bio-fertilizers was known to 46.67 per cent of the respondents and recommended quantity of bio-fertilizer was known to 44.16 per cent of the respondents.

Relationship between profile characteristics of the paddy growers and their knowledge level

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

Table 3 The relationship between profile characteristics of the paddy growers with their knowledge level (n=120)

Var. No.	Variables	'r' value	Regression co-efficient	Standard error	't' value
X_1	Age	0.191^{*}	0.162	0.085	1.916^{*}
X_2	Educational status	0.197^{*}	0.466	0.235	1.976^{*}
X_3	Farm size	-0.015^{NS}	0.047	0.033	0.423^{NS}
X_4	Experience in paddy farming	0.086^{NS}	0.013	0.080	0.158^{NS}
X_5	Annual income	-0.135^{NS}	-0.053	0.085	-0.549^{NS}
X_6	Social participation	0.265**	0.900	0.490	1.836^{*}
X_7	Extension agency contact	-0.144^{NS}	-0.146	0.132	-1.723^{NS}
X_8	Mass media exposure	0.198^{*}	1.450	0.700	2.072^{*}
X_9	Information seeking behaviour	0.016^{NS}	-0.192	0.016	-1.947^{NS}
X_{10}	Innovativeness	-0.020^{NS}	0.275	0.038	-1009^{NS}
X_{11}	Scientific orientation	0.168^{NS}	-0.192	0.015	-1.947^{NS}
X_{12}	Economic motivation	-0.071^{NS}	-0.045	0.337	-0.526^{NS}
X_{13}	Risk orientation	0.244^{*}	2.100	0.800	2.626^{**}
X_{14}	Decision making pattern	-0.027^{NS}	0.071	1.092	0.761^{NS}

**Significant at 1 per cent level
*Significant at 5 per cent level

$R^2 = 0.514$
$F = 7.849^{**}$

Association of characteristics of respondents with their knowledge level on paddy growers

The results in (Table 3) exhibited that out of fourteen variables studied only five variables viz., age, educational status, social participation, mass media exposure, risk orientation was found to have significant and positive relationship with knowledge level of respondents. Among the significant variables, the variable social participation was found to be significant at one per cent level of probability. The remaining variables viz., age, educational status, mass media

exposure, risk orientation was significant at five per cent level of probability. All the other variables were found to be non-significant with the knowledge level. Social participation showed a positive and significant relationship with knowledge. Better social participation provides more chances to farmers to interact and exchange farm information with other farmers. This might have helped the respondents to acquire knowledge about recommended paddy production technology [6-7]. Age showed a positive and significant relationship with knowledge level on paddy cultivation practices at 5 per cent level probability. As older farmer had more experience on paddy cultivation practices, they might have gained adequate knowledge level on paddy cultivation practices [8].

Educational status was positively and significantly related to the knowledge of recommended technology in paddy. It quite natural that the educated person would have been more enthusiastic in gathering information. More over the educated farmers could learn the latest technologies at a faster rate this might have enabled them to gain knowledge relatively better when compared to uneducated farmers [9-10-]. Mass media exposure should have a positive and significant relationship with knowledge. This implied that the farm broadcast, telecast, farm magazines, farm pages had got direct influence on the knowledge of paddy technologies [11]. Risk orientation showed a positive and highly significant relationship with knowledge among the respondents. Acquiring knowledge about improved technologies from various sources involves some risk and hence respondents with high-risk orientation alone would have more knowledge towards recommended paddy production technologies [12].

Contribution of the characteristics of respondents towards their knowledge level of paddy growers

In order to find out which of the independent variables explained the variation in the knowledge level and also to known the extent of contribution made by these variables multiple regression analysis was carried out and the results are presented in (Table 3). It could be observed from the (Table 3) that all the fourteen variables together explained51.40 per cent of the variation in the knowledge level. The 'F' value was found to be significant [13]. 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 risk orientation significantly and positively at one per cent level of probability. Age, educational status, social participation and mass media exposure of respondents had contributed significantly and positively at five per cent level of probability towards knowledge level. All other variables were found to be non-significant. Hence it may be concluded that a unit increasing in age, educational status, social participation, mass media exposure and risk orientation would increase the knowledge level by 1.916, 1.976, 1.836, 2.072 and 2.626 units respectively. Hence, it could be inferred that knowledge level of paddy growers could be positively influenced by age, educational status, social participation, mass media exposure and risk orientation [14]. The positive and significant relationship of independent variables with knowledge level of paddy growers may discussed on the same line as already given under simple correlation of this variables with knowledge level.

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.

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