

Differential Characteristics of Adopter and Non-Adopter Small Farmers Growing Paddy

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The adopter small farmers belonged to middle age group higher in socio-economic status and had more urban contact than non-adopters. The adopter small farmers were relatively more localite in their value orientation than non-adopters.

The adopter small farmers were low in their risk orientation than non-adopters. The adopters were high in their knowledge with more favourable attitude and more scientific orientation than their counterparts. "Knowledge about the cultivation of High Yielding Varieties of Paddy" was the most discriminating variable between the adopter and non-adopter small farmers.

The average size of operational land holdings in Tamil Nadu is 1.49 hectares and the small holdings below two hectares account for about 75 per cent of the total holdings, cultivating nearly 33 per cent of the total area. Even at the national level, 69 per cent of the operational holdings are small. Considering the predominance of small farmers in Indian agriculture, it has come to be recognised that special efforts should be made to bring them into the mainstream of agricultural development so as to achieve the objective of growth for social justice.

Though the small farmers in general are trying to survive in a rapidly advancing technological parade on the frayed ends of custom and tradition, small farmers adopting scientific agriculture are not uncommon. Since the characteristics of farmers are found to be associa-

ted with their adoption behaviour, a precise knowledge of the differential characteristics of the adopter and the non-adopter small farmers will enable the extension works to locate the potential small farmers and work with them effectively. The present study is, therefore, in this direction with the following objectives:

i) To select such of the characteristic variables of small farmers which could differentiate adopter small farmers from non-adopter small farmers.

ii) To study the differential characteristics of adopter and non-adopter paddy growing small farmers.

iii) To identify the most discriminating characteristics of adopter and non-adopter small farmers.

Ernest (1973) found age to be negatively associated with the adoption of

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practices by small farmers. Muthiah (1971) and Ernest (1973) found that education was positively and significantly related with adoption of high yielding varieties. Patel (1965) reported that small farmers depended upon secondary occupation. Pandey (1974) reported significant association of farm size with participation of marginal farmers in the development activities. Jha (1974), Ernest (1973), Ramachandran (1974) and Singh (1975) have shown that certain socio-personal and socio-psychological characteristics of farmers are associated with adoption of improved agricultural practices.

MATERIAL AND METHODS

A list of differentiating variables, prepared in consultation with available literature on adoption of practices and small farmers characteristics was communicated to 40 judges of extension teachers and extension students with a request to rate each of the variables against a three point rating scale, namely, 'most discriminating, 'can discriminate' and 'least discriminating, to indicate the degree to which that particular variable can discriminate small farmers adopting high yielding paddy variety from non-adopter small farmers.

The ratings were quantified by giving a score of 3, 2 and 1 for most to least discriminating points. By adding up the scores for each variable on the rating scale for all the 40 judges, the "degree of discrimination score" was calculated separately for all the variables. All the 15 variables, comprising 8 socio-personal and 7 socio-psychological variables which got a minimum 80 per cent of the maximum discrimina-

tion score i.e., 96 out of 120 were selected for the study.

This study was conducted in randomly selected seven villages of two community development blocks under MFALDA, Salem in Tamil Nadu. Following the probability proportionate random sampling procedure, 57 adopter small farmers and 83 non-adopter small farmers were selected for final study. The measurement techniques and measures available were used in respect of independent variables like education, occupation, social participation, socio-economic status localite-cosmopolite value orientation economic motivation, risk orientation, scientific orientation knowledge (Ernest, 1973) and attitude. Age was measured in terms of chronological age of the respondents. Farm size was quantified by assigning 1 score for each of the acre of land and also by multiplying this, with the respective weightages of 1, 2 or 3 for nature of irrigation they possessed namely, no irrigation, only well and canal irrigation. Schedules were developed to quantify urban contact with extension agency and market perception. Independent 't' test and Mahalanobis Discriminant Function (D^2) were used to test the differential characteristics and to find out the discriminating characteristics between adopters and non-adopters respectively.

RESULTS AND DISCUSSION

The results of 't' test are given in Table I. The mean scores of all the fifteen characteristic variables, except age

TABLE 1. The mean score and 't' value of the characteristic variables of adopter and non-adopter small farmers

Variables	Mean score		Difference between mean	t value
	Adopters (n=57)	Non-adopters (n=83)		
Socio-personal				
Age	41.96	49.47	-7.51	3.51**
Education	2.37	1.82	0.53	1.83
Occupation	2.11	1.96	0.15	0.51
Farm size	7.54	7.10	0.44	1.61
Social participation	1.12	1.05	0.07	0.58
Socio-economic-status				
Urban contact	4.49	3.29	1.20	2.85**
Contact with extension agency	3.28	2.49	0.79	1.49
Socio-psychological				
Market perception	3.30	2.94	0.36	1.54
Localite-cosmopolite value orientation	15.47	14.06	1.41	6.36**
Economic motivation	33.65	33.20	0.45	1.54
Risk orientation	25.26	26.60	-1.34	2.44**
Knowledge about the cultivation of high yielding varieties of paddy				
Attitude towards high yielding variety	11.61	6.95	4.66	6.38**
Scientific orientation	39.56	31.78	7.78	5.84**
Scientific orientation	27.58	23.07	4.51	4.42**

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

and risk orientation were more in the case of the adopter small farmers. But, the differences between the mean scores of the adopter and the non-adopter small farmers were statistically significant only with reference to three socio-personal characteristics, namely, age, socio-economic status and urban contact and five socio-psychological characteristics, namely, knowledge, attitude, localite-cosmopolite value orientation, risk orientation and scientific orientation.

The mean difference for education, occupation, farm size, social participation, contact with extension agency, economic motivation and market perception was not statistically significant.

The significant difference between the adopters and the non-adopters as above needs no explanation since in many of the studies, these variables were reported to have influenced the adoption behaviour of farmers. The non-significant characteristics were discussed below.

Based on the mean score for education, it could be inferred that both the categories of small farmers were low in their education. It might be due to the fact that the low level of education was a characteristic of small farmers as reported by Patel (1965), Singh (1975), Ernest (1973) and Ramachandran (1974).

Considering this small size of holdings and low income nature, the small farmers would have been forced to have subsidiary occupations and hence they did not differ in their occupation. This is in conformity with the findings of Patel (1965). Low farm size was also an established characteristic of small farmers.

The pre-condition imposed village co-operatives during fertilizer shortage period to become members in co-operatives to avail fertilizer facilities may be the reason for the reported non-significant difference in the social participation.

The supply of fertilizer only to fertilizer card holders on the strength of the recommendations of Gramasevaks being practised during 1973-74 in the study area would have imposed an obligation on the part of farmers to come in contact with extension workers, if they wanted to use fertilizer irrespective of the variety they cultivated. This could be the probable reason for the reported contact with extension agency by both the category of farmers.

The adopters and the non-adopters showed more or less equal economic motivation. This is similar to the observations made in the studies of Wellhausen (1970) and Hodgdon (1971) who asserted that small farmers even in traditional societies are as motivated, responsive and rational (within their situation) as their more fortunate counterparts.

In spite of low risk orientation, the adopter small farmers adopter IR. 20

paddy variety. This might be due to their high knowledge and favourable attitude clubbed with relatively more socio-economic status.

The coefficients and D^2 thus, obtained by Discriminant Function are given in Table II.

TABLE II. Values of coefficients and the Discriminant Function

Variables	Coefficients	D^2
Age	0.3762	
Education	0.0843	
Occupation	0.0526	
Farm size	-0.1069	
Social participation	-0.0253	
Socio-economic status	-0.0581	
Urban contact	0.0363	2.4275
Contact with extension agency	0.0242	
Market perception	0.0697	
Localite-cosmopolite value orientation	-0.1180	
Economic motivation	0.0488	
Risk orientation	0.1280	
Knowledge	-0.2143	
Attitude	-0.0806	
Scientific orientation	-0.0200	

F value = 4.0140;

Significant at 0.01 level of probability.

The results in Table II show that the value of D^2 based on all the fifteen variables together and its F value were 2.4275 and 4.9140 respectively. The F value was significant at 0.01 level of probability. This confirmed that all the fifteen variables combined in the interactional situation significantly differentiated the adopter small farmers from the non-adopter small farmers.

The percentage contribution of each of these variables for the total discrimination was also calculated. To pinpoint the most contributing variables

for effective discrimination, arbitrarily a minimum of 10 per cent contribution for the total discrimination was used as a standard in this study. The variables which contributed 10 per cent and above for the total discrimination are given in a descending order of magnitude in Table III.

TABLE III. Percentage of contribution for total Discrimination by Most Discriminating Characteristic Variables

Variables	Percentage of contribution
Knowledge	41.15
Attitude	26.01
Age	10.85

It may be seen from Table III that only three variables out of 15 were substantially contributed for the discrimination. Of all, knowledge was the foremost discriminating variable with 41.15 per cent contribution for the total discrimination. Next to this, attitude contributed 26.01 per cent for total discrimination which was followed by age with 10.85 per cent contribution. Balakrishna and Iyer (1968) applied discriminant function approach for their family planning adoption study and also reported that young age was one of the significant discriminator between the groups of adopters and non-adopters of family planning innovation.

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