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# Socio Personal Characteristics of Scheduled Caste Farmers Practicing Indigenous Technical Knowledge under Wetland Paddy Cultivation in Cuddalore District, Tamil Nadu

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## ABSTRACT

For centuries, farmers have planned agricultural production and conserved natural resources by adopting indigenous knowledge. The development of indigenous knowledge systems, including management of natural environment, has been a matter of survival to the people who generated these systems. A study was conducted in Cuddalore district to investigate indigenous agricultural practices using local knowledge by researchers. The challenges from the study contain socio personal characteristics of the Scheduled Caste farmers include sixteen independent variables. It showed inefficiency of some indigenous knowledge methods. The study concludes by recommending that indigenous knowledge and practices are useful, must be integrated with contemporary research agenda to enable farmers compete and respond to global opportunities and challenges respectively.

**Key words:** Indigenous technical knowledge, Wetland, Paddy cultivation, Socio personal characters

Through the long path from primitive agriculture to the modern farming people have developed a number of farming techniques through their own age-old experiments by trial and error in their attempt to overcome numerous problems faced during the farming operations [1]. This knowledge is based on many generations of insight gained through close interaction within the natural and physical micro-environments [2]. This form of knowledge in today's parlance is popularly known as Indigenous Technical knowledge (ITK) or Indigenous Knowledge System (IKS). Tamil Nadu is a treasure land of indigenous practices in agriculture. ITKs based practices are being still adopted by the farmers in this area because of their well adaptability. Various Indigenous technical knowledge-based farming practices are followed by the Scheduled Caste farmers particularly in the Cuddalore district of Tamil Nadu.

## MATERIALS AND METHODS

The present study was conducted in 13 selected blocks of Cuddalore district in the state of Tamil Nadu. A sample size of 300 Scheduled Caste farmers was selected for the study. The data were collected from the respondents with

the help of a well-structured and pretested interview schedule. A total number of sixteen independent variables were found, viz., age, educational status, family size, occupational status, annual income, area under paddy cultivation, farming experience, social participation, fatalism, attitude towards ITKs, decision making behaviour, extension agency contact, mass media exposure, innovativeness, risk orientation and cosmopolitanism were identified to study the selection of Indigenous Scheduled Caste farmers in Cuddalore district of Tamil Nadu in India. The statistical tools used in the study were Percentage analysis, Cumulative frequency method, Correlation, Multiple regression, Garret ranking.

## RESULTS AND DISCUSSION

This study is to know the profile characteristic of the respondents which serve as a base for understanding about the subjects. The information about the profile characteristics would help in deriving exact results from the data. In this study, sixteen characteristics were taken up for analysis. This represents the description of selected independent variables, their influence on dependent variables and their association with extent of adoption.

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*Age:* Age gives mental maturity of an individual to take decisions for achieving their needs. It also plays a vital role in demanding the risk proneness for taking up farming. It could be seen from the (Table 1) that more than half (51.33%) of the respondents were belonged to old age group

and just nearly two-fifth (18.34%) of them belonged to young age group [3].

Table 1 Distribution of respondents based on their age (n=300)

Category	Number	Percentage
Young (Upto 35 years)	55	18.34
Middle (35- 45 years)	91	30.33
Old (More than 45 years)	154	51.33
Total	300	100.00

*Educational status:* Educational status of an individual plays a vital role in enhancing their knowledge level by motivating him towards knowing new things and understanding the things learnt. It could be understood from (Table 2) that three-fourth (78.32%) of the respondents was found to be from the category of illiterate to primary level of education and none of them were found in the category of collegiate education [4].

Table 2 Distribution of respondents based on their educational status (n=300)

Category	Number	Percentage
Illiterate	42	14.00
Functionally literate	104	34.66
Primary education	89	29.66
Middle school education	31	10.34
Secondary education	34	11.34
Collegiate education	00	00.00
Total	300	100.00

*Occupational status:* Occupational status was measured to the extent to which the respondents were agriculturally occupied to get major income out of it. It is apparent from the (Table 3) that three-fifth (63.33%) of the respondents had taken up farming along with agricultural labour as their profession. Only least percentage (02.34%) of respondents was seen in farming + business [5].

Table 3 Distribution of respondents based on their occupational status (n=300)

Category	Number	Percentage
Farming as sole profession	93	31.00
Farming + agricultural labour	190	63.33
Farming + business	7	02.34
Farming + services (Salaried persons)	10	03.33
Total	300	100.00

Table 4 Distribution of respondents based on their farming experience (n=300)

Category	Number	Percentage
Low (less than 15 years)	57	19.00
Medium (15 - 30 years)	78	26.00
High (more than 30 years)	165	55.00
Total	300	100.00

*Farming experience:* Experience in farming was measured in terms of total years of the individuals had engaged in farming activities. It is evident from the above that half (55.00%) of the farmers had more than 30 years of farming experience seems to have high experience in farming. Medium level of experience and of about one-fifth

(19.00%) of farmers had only less than 15 years of farming experience [6].

*Family type:* The family type of paddy farmers was measured as nuclear and joint family and the results have been presented in (Table 5). Nearly three-fourth (71.33%) had lived under joint family system, whereas 28.67% was found in nuclear families [7].

Table 5 Distribution of respondents based on their family type (n=300)

Family type	Number	Percentage
Nuclear	86	28.67
Joint	214	71.33
Total	300	100.00

*Annual income:* Annual income was measured in terms of the gross earnings obtained by respondents from both agricultural and additional occupation per year. Majority (81.66%) of them were in medium level of annual income. Only (03.34%) percentage of respondents had low level of annual income [8].

Table 6 Distribution of respondents based on their annual income (n=300)

Category	Number	Percentage
Low (Upto Rs. 50,000)	10	03.34
Medium (Rs. 50,000 to 100,000)	245	81.66
High (Above Rs. 100,000)	45	15.00
Total	300	100.00

*Area under paddy cultivation:* This variable was measured in terms of number of acres of land which the respondents brought exclusively under paddy cultivation at the time of interview. It could be understood from (Table 7) that majority (94.33%) of the scheduled caste farmers had less than 2.5 acres for paddy cultivation, whereas very meager (02.34%) portions of scheduled caste farmers had 2.6-5 acres [9].

Table 7 Distribution of respondents based on their annual income (n=300)

Category	Number	Percentage
Less than 2.5 acres	283	94.33
2.6 – 5 acres	10	03.33
More than 5 acres	07	02.34
Total	300	100.00

*Social participation:* Participation in social organization would naturally help the farmers to get an opportunity for interaction with fellow respondents. From the Table 8 More than two-third (69.66%) of the respondents had low level of social participation. Around (05.00%) of the respondents had high level of social participation [10].

Table 8 Distribution of respondents based on their social participation (n=300)

Category	Number	Percentage
Low	209	69.66
Medium	74	24.67
High	17	05.67
Total	300	100.00

*Fatalism:* Fatalism was measured in terms of how far the farmer believes that human situations and acts are pre-determined by some super natural power and can never or be little influenced by violation or by acts of anyone else. From the (Table 9) more than (45.00%) percentage of the respondents had high level of fatalism were as, (12.00%) percentage of the respondents had low level of fatalism [11].

Table 9 Distribution of respondents according to fatalism (n=300)

Category	Number	Percentage
Low	36	12.00
Medium	129	43.00
High	135	45.00
Total	300	100.00

*Attitude towards ITKs:* Attitude towards influence of ITKs was measured with the help of the statements assigned. More than one-third (34.00%) of the respondents were found to possess highly favourable attitude towards ITKs. Only (10.00%) were attitude towards influence of ITKs in highly unfavourable [12].

Table 10 Distribution of respondents based on their attitude towards ITKs (n = 300)

Attitude of farmers	Number	Percentage
Highly unfavourable	30	10.00
Unfavourable	39	13.00
Neutral	46	15.34
Favourable	83	27.66
Highly favourable	102	34.00
Total	300	100.00

*Decision making behaviour:* Decision making on the farm and home activities had been measured with the help of the activities and with whom the respondents consult for decision making (Table 11). More than half (56.33%) of the respondents had medium level of decision-making behaviour. One-tenth (09.66%) of respondents had high level of decision-making behaviour [13].

Table 11 Distribution of respondents according to decision making behaviour (n = 300)

Category	Number	Percentage
Low	102	34.00
Medium	169	56.33
High	29	09.67
Total	300	100.00

*Extension agency contact:* Extension agency contact refers to the contact of the respondents with the extension functionaries. Extension workers help the farmers to become aware of the relevant new technologies and also keep them to gain adequate knowledge about the technologies.

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Table 12 Distribution of respondents according to extension agency contact (n = 300)

Category	Number	Percentage
Low	240	80.00
Medium	53	17.66
High	07	02.34
Total	300	100.00

*Mass media exposure:* Mass media plays an important role in transfer of technology from technocrats to farmers. Particularly, when a farmer is unable to contact the change agents frequently, media comes to rescue to some extent by taking the role of bringing the timely information to the cultivators. It is evident from the (Table 13) that half (55.33%) of the respondents had a medium level of exposure. Only (17.00%) of the respondents had high level of media exposure [15].

Table 13 Distribution of respondents according to extension agency contact (n = 300)

Category	Number	Percentage
Low	83	27.67
Medium	166	55.33
High	51	17.00
Total	300	100.00

*Innovativeness:* It is a socio-psychological characteristic of an individual to get linked or closely associated with change, adopting innovative ideas and practices. The majority (88.66%) of the respondents had low level of innovativeness. Only (02.33%) of the respondents had high level of innovativeness [16].

Table 14 Distribution of respondents according to their innovativeness (n = 300)

Category	Number	Percentage
Low	266	88.66
Medium	27	09.00
High	07	02.34
Total	300	100.00

*Risk orientation:* In general, farmers are always facing risk and uncertainty in adopting new ideas in farming, since agriculture largely depends on natural weather parameters, which is an unpredictable phenomenon. From (Table 15) it was observed that more than three-fourth (79.66%) of the respondents had low level of risk orientation followed by 14.34% had medium level and 06.00% had high level of risk orientation [17].

Table 15 Distribution of respondents according to their risk orientation (n = 300)

Category	Number	Percentage
Low	239	79.66
Medium	43	14.34
High	18	06.00
Total	300	100.00

*Cosmopolitaness:* Cosmopolitaness indicates the frequency and purpose of visits made by the respondents for collecting agricultural and non-agricultural information that makes them aware of relevant new technologies. It is apparent from the (Table 16). More than half (54.66%) of the scheduled caste farmers had low level of

cosmopolitanism. Only a meager proportion (14.67%) of the scheduled caste farmers possessed high level of cosmopolitanism [18].

Table 16 Distribution of respondents according to cosmopolitanism (n = 300)

Category	Number	Percentage
Low	164	54.66
Medium	92	30.67
High	44	14.67
Total	300	100.00

The (Table 17) revealed that out of the sixteen characteristics eleven variables viz. age, educational status, occupational status, farming experience, family type, area under paddy cultivation, fatalism, attitude towards ITKs, mass media exposure, innovativeness and risk orientation were associated with the extent of adoption of ITKs. Further disclosed that co-efficient of multiple regression ( $R^2$ ) for scheduled caste farmers was 0.4435, which revealed that 44.35 percent of variation in the extent of adoption of ITKs was explained by the sixteen independent variables selected for this study. The 'F' value (2.24) was significant at 5% level of probability.

Table 17 Correlation and multiple regression analysis of socio-personal characteristic of independent variable

Variable No.	Name of the variable	'r'	Regression	Standard error	't' value
X <sub>1</sub>	Age	0.39399*	0.1018	0.2984	2.3411*
X <sub>2</sub>	Educational status	- 0.28020*	- 0.6582	0.2611	- 2.5208*
X <sub>3</sub>	Occupational status	0.29065*	6.0721	0.4310	2.4092*
X <sub>4</sub>	Farming experience	0.27926*	0.1235	0.3018	2.2636*
X <sub>5</sub>	Family type	0.23785**	0.8043	2.7951	0.2877
X <sub>6</sub>	Annual income	0.04099 <sup>NS</sup>	0.3146	0.4312	0.7295 <sup>NS</sup>
X <sub>7</sub>	Area under paddy cultivation	0.32465*	0.4002	0.1712	2.3380*
X <sub>8</sub>	Social participation	0.01494 <sup>NS</sup>	1.1157	0.6281	0.0214 <sup>NS</sup>
X <sub>9</sub>	Fatalism	0.34418*	0.1715	0.2568	2.6678*
X <sub>10</sub>	Attitude towards ITKs	0.37869*	0.8113	0.5013	2.5225*
X <sub>11</sub>	Decision making behaviour	0.01273 <sup>NS</sup>	0.0641	0.0490	0.1387 <sup>NS</sup>
X <sub>12</sub>	Extension agency contact	0.01468 <sup>NS</sup>	0.0840	0.2851	0.2946 <sup>NS</sup>
X <sub>13</sub>	Mass media exposure	-0.23556**	- 0.0361	0.0579	0.2072 <sup>NS</sup>
X <sub>14</sub>	Innovativeness	- 0.24129*	- 0.0251	0.3253	2.3024*
X <sub>15</sub>	Risk orientation	- 0.27243*	- 0.0068	0.0292	2.2952*
X <sub>16</sub>	Cosmopolitanism	0.02067 <sup>NS</sup>	0.0164	0.0433	0.5796

$R^2 = 0.4435$

\*\*Significant at 1 per cent level

$a = 66.51$

\*Significant at 5 per cent level

$F = 2.24^*$

NS = Non-significant

The significant value of age (2.3411) indicated that an increase of one unit in age score *Ceteris paribus* resulted in an increase of 2.3411 units in the extent of adoption of ITK practices by the scheduled caste farmers in paddy cultivation under wetland farming system. The regression co-efficient of other seven variables viz. occupational status, farming experience, area under paddy cultivation, fatalism, attitude towards ITKs, innovativeness and risk orientation were also positively significant, which revealed that an increase of one unit in their score *Ceteris paribus* resulted in an increase of 2.4092, 2.0636, 2.3380, 2.6678, 2.5225, 2.0024 and 2.1952 units in the extent of adoption of ITK practices by the scheduled caste farmers in paddy cultivation under wetland farming system, respectively.

As ITK practices are generally traditional in nature or rooted from traditional knowledge, aged farmers may be expected to have high degree of farming experience and fatalism. Those who had more experience in farming activity ultimately experienced ITKs in wetland farming system. Hence, the age, occupational status, farming experience, family type, area under paddy cultivation,

fatalism and attitude towards ITKs had influenced the adoption towards ITKs this would have induced higher degree of adoption. Since modern technologies are associated with higher educational status, mass media exposure, innovativeness and risk orientation, these variables have negatively influenced the dependent variable of extent of adoption of ITK practices.

## CONCLUSION

The Scheduled caste farmers in the study area make use of improved wetland paddy farming practices but at the same time they apply their rich traditional knowledge in paddy cultivation. The SC farmers find the ITKs used by them very beneficial but for enhancing the authenticity of the same and make this knowledge scientifically rational, it becomes necessary to validate the knowledge scientifically. ITK practices are cheaper and locally available. Thus, it can be concluded that Indigenous technical knowledge possessed by the farmers shall be identified and given due importance and recognition.

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