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Factors Influencing the Profile Characteristics Among the Tribal Farmers with Adoption of Indigenous Agricultural Practices in Kalrayan Hills of Tamil Nadu

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ABSTRACT

The study was undertaken to understand the relationship of association and contribution to assess the strength of the adoption of indigenous agricultural practices. The 15 profile characteristics of the tribal respondent of Kalrayan hills were analyzed by using Zero-order correlation and multiple linear regression with a sample of 300 respondents. The analysis gives a detailed picture about the contribution and association with 1 per cent level of significance and 5 per cent level of significant relationship to the factor influencing the adoption of indigenous agricultural practices.

Key words: Profile characteristics, Tribal farmers, Extent of adoption, Indigenous agricultural practices

Indigenous knowledge is one of the tacit types of knowledge which evolved by the local people with the experience of progenitors passed from one person to another person. Indigenous knowledge is a continuous process by using creativity thought of using a traditional method in their local availability resources [1]. This knowledge system interacts with the local people frequently to collaborate with the adoption of the culture and without affecting the environmental conditions in their tribal communities. This type of knowledge had proven that the local resources were utilized the agricultural practices, as they related to varied cultural norms, social patterns or their physical situations. This type of practical wisdom was constantly reinforced their experience in trial error methods with the league of their tribal community [2]. Even though the knowledge is practiced by their learning experience with the repetition, which is defining a trait of tradition. As a result, the purpose of the study was to determine the contribution and association of tribal farmer's characteristics with their adoption of indigenous agricultural practices.

MATERIALS AND METHODS

Based on the hypothesis and objectives the study was conducted to assess the knowledge level of tribal respondents in indigenous agricultural practices to run the

study to give a clear picture of the locale. The study was conducted in Kalrayan Hills of Villupuram District of Tamil Nadu State. Kalrayan Hill was selected purposively because of locale varieties crop being cultivated in the area. The Kalrayan Hill consists of fifty revenue villages among the fifty revenue villages based on the highest tribal population twelve villages were selected from the entire hilly zone. In this study, 300 tribal respondents were selected by a proportionate random sampling method. The first-hand information was collected and send to the judge's opinion from various SAU Scientists, Professors, State Agricultural Department, Research Station and KVK to prepared well-structured interview schedule. The data were collected and analyzed by appropriate statistical tools and examined the results.

RESULTS AND DISCUSSION

The zero-order correlation was computed to know the relationship of characteristics of the respondents with their extent of adoption of indigenous agricultural practices. The results are presented in (Table 1). An empirical model showing the relationship of characteristics of tribal farmers with their extent of adoption of indigenous agricultural practices is shown in (Fig 1).

Data depicted in (Table 1, Fig 1) shows that out of 15 characteristics of the tribal farmers, the variables namely, age, information source utilization, information sharing behaviour were found that 5 percent level of positive significant relationship with their adoption of indigenous agricultural practices. The variables namely, education, farming experience attitude towards agricultural farmers and

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fatalism had shown 1 percent level of positive and significant relationship with the extent of adoption of indigenous agricultural practices. The remaining variables namely, occupation, annual income, nature of family, farm

size, social participation, mass media exposure and achievement motivation were found that a non-significant relationship with their extent of adoption of indigenous agricultural practices [3].



Fig 1 Empirical model indicating the relationship between the characters of the tribal farmer and their adoption of indigenous agricultural practices

However, age, information source utilization, information sharing behaviour showed a highly positive and significant relationship with 5 per cent level of probability. While education, farmers experience, attitude towards farming experience and fatalism showed a positive significant relationship with their extent of adoption of indigenous agricultural practices at 1 per cent level of probability. It is quite normal that a tribal agricultural farmer who had more experience in indigenous practices show more enthusiasm in adoption of indigenous agricultural practices to a greater level of adoption [4].

It may be observed that age, information source utilization and information sharing behaviour showed 5 per

cent level of positive and significant relationship with their adoption of indigenous agricultural practices. It is quite natural that old age tribal farmers adopt the indigenous agricultural practices to a greater extent. As the adoption, many of the indigenous practices the tribal farmers involved more to take care of the crops and animals by the collection of resource material with the high level of skill in their experience. It is quite obvious that old aged tribal farmers had greater extent of communication skill in their community in utilization and sharing behaviour to adopt the indigenous practices to a greater extent [5].

Educational status, farming experience, attitude towards agricultural farmers and fatalism showed 1 per cent

level of positive and significant relationship with the extent of adoption of indigenous agricultural practices. As most of the tribal agricultural farmers were illiterate and they were not aware of the scientific knowledge in agriculture. Hence most of them only adopted the indigenous agricultural practices by the way of experience passed from their

ancestors [6]. The other variables like occupation, annual income, nature of family, farm size, social participation, socio-economic status, mass media exposure and achievement motivation indicate a non-significant relationship in the adoption of indigenous agricultural practices.

Table 1 Zero-order correlation of the profile characteristics among the tribal farmers with their extent of adoption of indigenous agricultural practices (n-300)

S. No.	Variables	Standardized regression co-efficient	't' value
X ₁	Age	1.578	0.127*
X ₂	Education	0.945	0.179**
X ₃	Occupation	0.278	0.047NS
X ₄	Annual income	0.796	0.092NS
X ₅	Nature of family	1.478	0.107NS
X ₆	Farm size	0.442	0.039NS
X ₇	Farming experience	2.492	0.165**
X ₈	Social participation	-1.098	0.019NS
X ₉	Socio-economic status	0.516	0.051NS
X ₁₀	Mass media exposure	0.665	0.096NS
X ₁₁	Information source utilization	1.998	0.129*
X ₁₂	Information sharing behaviour	2.665	0.140*
X ₁₃	Attitude towards agricultural farmers	0.846	0.166**
X ₁₄	Achievement motivation	0.145	-0.079NS
X ₁₅	Fatalism	1.796	0.172**
a = 15.515		R ² = 0.546	F = 6.76**

NS: Non- significant

* Significant at 5% level

**Significant at 1% level

Table 2 Multiple linear regression of the characteristics among the tribal farmers with their extent of adoption of indigenous agricultural practices (n-300)

S. No.	Variables	Standardized regression co-efficient	't' value
X ₁	Age	1.578	1.761*
X ₂	Education	0.945	2.500**
X ₃	Occupation	0.278	1.317 NS
X ₄	Annual income	0.796	1.215 NS
X ₅	Nature of family	1.478	1.275 NS
X ₆	Farm size	0.442	1.169 NS
X ₇	Farming experience	2.492	2.496**
X ₈	Social participation	-1.098	-1.100 NS
X ₉	Socio-economic status	0.516	1.296 NS
X ₁₀	Mass media exposure	0.665	1.074 NS
X ₁₁	Information source utilization	1.998	1.665*
X ₁₂	Information sharing behaviour	2.665	2.009*
X ₁₃	Attitude towards agricultural farmers	0.846	2.677**
X ₁₄	Achievement motivation	0.145	1.180 NS
X ₁₅	Fatalism	1.796	2.763**
a = 15.515		R ² = 0.546	F = 6.76**

NS: Non- significant

* Significant at 5% level

**Significant at 1% level

Correlation analysis would explain the nature of association of profile characteristics of the respondents with the adoption of indigenous agricultural practices. In order to find the relative contribution of each variable towards adoption of indigenous agricultural practices a multiple regression analysis was performed to analyze the association of the independent and dependent variables and the results are presented in (Table 2, Fig 2).

The result persuades that a regression co-efficient and 't' value in (Table 2), indicates that out of fifteen characteristics, only seven variables, namely age (X₁), educational status (X₂), farming experience (X₇),

information source utilization (X₁₁), information sharing behaviour (X₁₂), attitude towards agricultural farmers (X₁₃) and fatalism (X₁₅) had shown 5 per cent level of positive significant association in relationship towards the adoption of indigenous agricultural practices of the respondents. Among the fifteen variables, four variables had shown a highly significant and positive relationship at one per cent level of probability [7]. They were educational status (X₂), farming experience (X₇), attitude towards agricultural farmers (X₁₃) and fatalism (X₁₅). Another three variables viz., age (X₁), information source utilization (X₁₁) and information sharing behaviour (X₁₂), associated a positive

significant at five per cent level of probability towards the adoption of indigenous agricultural practices of tribal farmers. The predictive power of linear multiple regression was estimated with the help of the co-efficient of multiple determination ($R^2=0.546$). The R^2 value indicated that all the fifteen variables taken to explain together as much as 54.60 per cent of variation in the adoption of indigenous agricultural practices [8-9]. The 'f' value founded that a significant level at one per cent level of probability. Hence, the higher R^2 value might be due to the significant and positive correlation co-efficient of variables, namely educational status (X_2), farming experience (X_7), attitude towards agricultural farmers (X_{13}) and fatalism (X_{15}). Hence

it may be concluded that a unit increase in namely age, educational status, farming experience, information source utilization, information sharing behaviour, attitude towards agricultural farmers and fatalism might increase the adoption of indigenous agricultural practices by 1.761, 2.500, 2.496, 1.665, 2.009, 2.677 and 2.763 units respectively [10]. It could be concluded that age (X_1), educational status (X_2), farming experience (X_7), information source utilization (X_{11}), information sharing behaviour (X_{12}), attitude towards agricultural farmers (X_{13}) and fatalism (X_{15}) was the crucial variables with influencing the adoption of indigenous agricultural practices of tribal farmers [11].



Fig 2 Empirical model indicating the relationship of association in the characteristics among the tribal farmers with their extent of adoption of indigenous agricultural practices

The other variables also showed the non-significant effect on the adoption of indigenous agricultural practices of tribal farmers. The prediction equation was as follows:

$$Y = 15.515 + 1.578X_1 + 0.945X_2 + 0.278X_3 + 0.796X_4 + 1.478X_5 + 0.442X_6 + 2.492X_7 - 1.098X_8 + 0.516X_9 + 0.665 + 1.998X_{11} + 2.665X_{12} + 0.846 X_{13} - 0.145 X_{14} + 1.796 X_{15}$$

The results rejected the null hypothesis which stated that there was no existed relationship in the characteristics of the respondents with adoption of indigenous agricultural practices of tribal farmers viz., age (X_1), educational status (X_2), farming experience (X_7), information source utilization (X_{11}), information sharing behaviour (X_{12}), attitude towards agricultural farmers (X_{13}), fatalism (X_{15}) [12].

CONCLUSION

The result vividly concluded that in correlation analysis, among the fifteen independent variables the age, information source utilization, information sharing behaviour were found that 5 percent level of positive significant relationship with their adoption of indigenous agricultural practices. The variables education, farming experience attitude towards agricultural farmers and fatalism, had shown 1 percent level of positive and

significant relationship with the extent of adoption of indigenous agricultural practices. About multiple linear regression among fifteen independent variables only seven variables, namely age (X_1), educational status (X_2), farming experience (X_7), information source utilization (X_{11}), information sharing behaviour (X_{12}), attitude towards agricultural farmers (X_{13}) and fatalism (X_{15}) had shown 5 per cent level of positive significant association in relationship towards the adoption of indigenous agricultural practices of the respondents. Four variables had showed a highly significant and positive relationship at one per cent level of probability namely, educational status (X_2), farming experience (X_7), attitude towards agricultural farmers (X_{13}) and fatalism (X_{15}). Another three variables viz., age (X_1), information source utilization (X_{11}) and information sharing behaviour (X_{12}), associated a positive significant at five per cent level of probability towards the adoption of indigenous agricultural practices of tribal farmers.

LITERATURE CITED

1. Singha AK, Baruah MJ. 2011. Farmers' adoption behaviour in rice technology: An analysis of adoption behaviour of farmers in rice technology under different farming systems in Assam. *Jr. Hum. Ecol.* 35(3): 167-172.
2. Kazmi T, Chaudhry AG, Ahmed A, Khan SE. 2014. farmers beliefs about indigenous farming practices and sustainable agricultural development. *Pakistan Jr. Agric. Research* 27(1): 51-57.
3. Kranthi Kumari. B, S.V. Prasad, V. Sailaja, B. Aparna and G. Mohan Naidu (2017). Relationship between Profile Characteristics of the Farmers with Extent of Adoption of Indigenous Agricultural Practices in Rayalaseema Region of Andhra Pradesh. *Bull. Env. Pharmacol. Life Sci.*, Vol 6 Special issue 1, 2017: 278-281.
4. Kranthi Kumari BK, Prasad SV, Sailaja V, Aparna B, Naidu GM. 2017. Relationship between profile characteristics of the farmers with extent of adoption of indigenous agricultural practices in Rayalaseema region of Andhra Pradesh. *Bull. Env. Pharmacol. Life Sci.* 6(1): 278-281.
5. Breen R, Karlson KB, Holm A. 2018. Interpreting and understanding logits, probits, and other nonlinear probability models. *Annu. Rev. Sociology* 44: 39-54.
6. Jayakumar. N & M. Sundaramari (2020). Influence of Socio-Personal Characteristics on the Attitude of Farmers towards Indigenous Wetland Agricultural Practices. *International Journal of Agricultural Science and Research (IJASR)* ISSN (P): 2250-0057; ISSN (E): 2321-0087 Vol. 10, Issue 3, Jun 2020, 13–20
7. Dessart FG, Barreiro-Hurlé J, Van Bavel R. 2019. Behavioural factors affecting the adoption of sustainable farming practices: A policy-oriented review. *Eur. Rev. Agric. Econ.* 46: 417-471.
8. Maraddi GN, Hirevenkanagoudar LV, Angadi JG, Babalad HB. 2007. Extent of adoption of selected sustainable cultivation practices by sugarcane growers. *Karnataka Jr. Agric. Sciences* 20(3): 560-563.
9. Dmytro S, Fiona T, Zein K, McCarthy SN, 2020. Factors influencing adoption of sustainable farming practices in Europe: A systemic review of empirical literature. *Sustainability* 12: 9719; doi:10.3390/su12229719
10. Malathesh GB, Shivamuthy M, Lakshman Reddy BS, Ramakrishna Rao L. 2009. Socio-economic factors and extension use efficiency of the farmers in selected farming systems. *Karnataka Jr. Agric. Sciences* 22(2): 363-367.
11. Lahmar R. 2010. Adoption of conservation agriculture in Europe: Lessons of the KASSA project. *Land Use Policy* 27: 4-10.
12. Vengatesan P, Sundaramari M. 2013. Socio-economic correlation with extent of adoption of indigenous tribal agricultural practices. *Agriculture Update* 8(1/2): 110-114.