

Original Research Article

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Correlates Attitude towards Adoption and Re-Invention Technology of Small Rubber Farmers in Dhalai District of Tripura, India

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ABSTRACT

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Rubber constitutes one of the main cash crops in tiny state of Tripura owing to favorable climatic condition. The use of production technologies are being generalized in rubber smallholdings though the extent of its adoption and re-invention remains quite variable. In this paper, an attempt was made to correlates the farmers' adoption and re-invention attitude of small rubber farming community in Manu block under Dhalai district of Tripura. The study revealed that majority of the rubber growers are show Favorable attitude towards adoption rubber farming and the correlation analysis depicts that variables like age, education, farm mechanization, off farm income and annual income have been found significant which facilitated the appropriation of the reinvention and that fostered its adoption.

Introduction

Rubber is one of the major plantation crops in Tripura since it was raised for the first time in Tripura in 1963 by the State Forest Department. Tripura Forest Development & Plantation Corporation Ltd. (TFDPC), a State Government Undertaking established in 1976, adopted rehabilitation of degraded forests through rubber plantation as its primary objective. Rubber has been identified as one of the thrust areas in Tripura, in view of its suitability to the terrain and the acceptability amongst the people. Tripura now stood as a second largest rubber growing state of India after Kerala both in terms of area as well as

production and has emerged as the forerunner among the non-traditional rubber growing regions with 61231 ha of plantation and 37277 tonnes of production in 2012-13 (Govt of Tripura, 2015). Rubber plantation has taken a paradigm shift in shaping the standards of livelihood systems and thus secured a way for farmers to gain constant income. The relative success of rubber in Tripura can be attributed to its economic viability; effective extension and institutional support in production and marketing by the Rubber Board; along with the decline and uncertainty in tea and horticulture crops

(Viswanathan and Bhowmik, 2014). Even though the rubber cultivation has spread up in the state over the past decades, socio-economic factors are not been carried out. In this view, the study was designed with the specific objectives to identify and determine the independent variables or characteristics affecting the values towards adoption and re-invention of cultivation practices and to study the relationships and interdependency between personal and socio-economic of the respondents.

Materials and Methods

The area of investigation of this study is situated in the state of Tripura located in the northeastern part of India. The purposive as well as simple random sampling techniques were adopted for the study. It may be termed as multistage random sampling procedure. The districts, blocks and villages were purposively selected for the study. The Dhalai district and the block Manu were considered. Under the Manu block Moinama, Lambabil and Kukilmani villages were selected. From these villages 77 respondents were selected by using random sampling method. The data were collected using pretested structured schedule by personal interview method. Age (X_1), Education (X_2), Family size (X_3), Farm mechanization(X_4), Cropping intensity(X_5), Homestead(X_6), Own land(X_7), Area under rubber(X_8), Annual income-farm (X_9), Income from rubber (X_{10}), Annual-income off farm (X_{11}), Economic status (X_{12}), Material possession (X_{13}), Scientific orientation (X_{14}), Orientation towards adoption (X_{15}) were selected as independent variables for the purpose of the study. Dependent variable value towards adoption (Y_1) has been measured using Likert scale with scores of items and categories ranging from strongly agree to strongly disagree and Re-invention (Y_2) was measured with the scale consists of few statements made by respondents and each

statement was of 10 point scale and asked to the respondents to give preference score out of 10. In both dependent variables, the score for each respondent were obtained by summing the score for each statement divided by total statement. Statistical tools namely correlation and regression analysis is used for the study purpose.

Results and Discussion

The data in Table 1 revealed that out of total growers, majority (75.32%) of the respondents fall under 'medium' adoption category, whereas 10.39 per cent and 14.29 per cent are fall under 'low' and 'high' adoption category status respectively.

Co-efficient of correlation analysis

Acquiring knowledge and adoption of technologies are the multiple functions of personal, social, psychological and economic attributes associated with the individuals.

These attributes either alone or in combination attributed for the desire, conviction and action towards adoption of improved practices. Attempt was therefore made in the study to analyze the interrelationship of some selected variables covered under study.

It is revealed from the Table 2 that the variables namely Age (X_1), Education(X_2) and Farm mechanization (X_4) of the respondents has been found positive and significant correlation with the values towards adoption of rubber cultivation technologies. The positive coefficient of educational level implied that the increase in age, educational and farm mechanization level of respondents showed a relationship to an increase in tendency towards adoption of technology. The result is in agreement with the result of *Rajput and Saxena (2002)* for education.

Similar findings were reported by Augustine *et al.*, (2008) This table also reveals that some variables namely Annual income (X₉) and Economic status (X₁₂) have shown significant but, negatively correlation with values towards adoption of scientific rubber cultivation practices which means decrease in annual income and economic status of the respondents are related to the not adopting the available rubber plantation technology.

Multiple regression analysis

Regression is the determination of a statistical relationship between two or more variables further attempt have been made to locate the important socio-economic variables to assess the causal impact on the consequent factors. The results obtained from the multiple regression analysis have been reflected in Table below

Table.1 Distribution of respondents according to adoption category

Category	Numbers	Percentage
Low adoption	8	10.39
Medium adoption	58	75.32
High adoption	11	14.29
Total	77	100

Mean=24.76 SD=16.14 and CV=65.18

Table.2 Co-efficient of correlation between values toward adoption (Y₁) with independent variables

Variables	r value
1.Age(X ₁)	-0.261*
2.Education(X ₂)	.249*
3.Family size(X ₃)	.138
4.Farm mechanization(X ₄)	.268*
5.Cropping intensity(X ₅)	-.096
6..Homestead land(X ₆)	-.016
7.Own land(X ₇)	-.079
8.Area under Rubber (X ₈)	-.071
9.Annual income(X ₉)	-.255*
10. Income from rubber(X ₁₀)	-.058
11.Off farm income X ₁₁)	.173
12.Economic status(X ₁₂)	-0.315**
13.Material possession(X ₁₃)	.072
14.Scientific orientation(X ₁₄)	.105

* Significant at 5% level of probability, **Significant at 1% level of probability

Table.3 Regression analysis: causal effect of independent variables on values towards adoption the consequent variable

Variables	β -Value	Regression Co-efficient	t-Value
1. Age(X ₁)	.153	.007	.886
2. Education(X ₂)	.293	.131	1.631
3. Family size(X ₃)	.122	.041	.678
4. Farm mechanization(X ₄)	.259	.023	2.059*
5. Cropping Intensity (X ₅)	-.152	-.003	-1.141
6. Homestead land (X ₆)	.017	.031	.135
7. Own land(X ₇)	.056	.027	.255
8. Area under Rubber (X ₈)	-.107	-.072	-.413
9. Annual Income (X ₉)	-.215	-1.185E-5	-1.419
10. Income from Rubber (X ₁₀)	.139	1.040E-5	.709
11. Off-farm income (X ₁₁)	.124	2.274E-5	.939
12. Economic status (X ₁₂)	.033	.141	.234
13. Material possession (X ₁₃)	-.009	-3.462E-6	-.070
14. Scientific Orientation (X ₁₄)	-.005	-.005	-.039

R square=0.627, Adjusted R square=0.052, * Significant at 5% level of probability

Table.4 Co-efficient of correlation between Re-invention (Y₂) with Independent Variables

Variables	r value
1. Age(X ₁)	-0.193
2. Education(X ₂)	0.248*
3. Family size(X ₃)	0.088
4. Farm mechanization(X ₄)	0.052
5. Cropping Intensity(X ₅)	0.158
6. Homestead land(X ₆)	-0.265
7. Own land(X ₇)	-0.014
8. Area under Rubber (X ₈)	-0.038
9. Annual Income (X ₉)	-0.033
10. Income from Rubber (X ₁₀)	-0.014
11. Off-farm income (X ₁₁)	0.255*
12. Economic status (X ₁₂)	-0.173
13. Material possession (X ₁₃)	0.002
14. Scientific Orientation (X ₁₄)	0.047

* Significant at 5% level of probability

Table.5 Regression analysis: causal effect of independent variables on re invention the consequent variable

Variables	β -Value	Regression Co-efficient	t-Value
1. Age(X_1)	-0.202	-0.008	-1.133
2. Education(X_2)	0.000	0.000	0.003
3. Family size(X_3)	0.396	0.120	2.229*
4. Farm mechanization(X_4)	-0.173	-0.014	-1.298
5. Cropping Intensity (X_5)	0.142	0.002	1.037
6. Homestead land (X_6)	-0.209	-0.339	-1.555
7. Own land(X_7)	0.146	0.062	0.654
8. Area under Rubber (X_8)	0.129	0.077	0.489
9. Annual Income (X_9)	0.031	0.015	0.183
10. Income from Rubber (X_{10})	0.093	0.062	0.461
11. Off-farm income (X_{11})	0.297	0.048	2.238
12. Economic status (X_{12})	-0.167	-0.642	-1.192
13. Material possession (X_{13})	-0.132	-0.043	-0.940
14. Scientific Orientation (X_{14})	-0.077	-0.072	-0.593

R square=0.511, Adjusted R square=0.097, * Significant at 5% level probability

Table 3 reveals that causal variable farm mechanization (X_4) has been found significant and can be stated as adoption towards rubber technology is affected by how well the rubber farming is mechanized. R^2 value being 0.627, it is concluded that with the combination of all these 14 causal variables, 62.7 per cent variance in values toward adoption has been explained.

The data revealed that the best fitted regression equation could explain 62.7 % of the total variance in influencing the in values toward adoption of respondents.

It is concluded from Table 4 that causal variables Education(X_2) and Off-farm income (X_{11}) of the respondents has been found positive and significant correlation with the re-invention that respondents having higher level of education and off farm income are more prone towards re-invention of cultivation practices

Table 5 presents the causal effect of independent variables on re-invention. The

variable family size(X_3) has got highest percentile contribution to re-invention of rubber farming technology which indicates re-invention of cultivation practices are decisively influenced by family size. R^2 value being 0.511, it is concluded that with the combination of all these 14 causal variables, 51.1 per cent variance in re-invention has been explained.

The outcome of the study reveals that farm mechanization, economic status, and annual income and off farm income are found to be the major determining factor in values towards adoption and re-invention of cultivation technologies. Among personal and socio-psychological variables age and education are also found to be significant.

Thus, it can be suggested that those significant variables under rubber farming systems need to given due attention and concerted efforts while formulating various developmental strategies and programmes which in turn will benefit the large section of farming community at large.

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