

Techno-economic Developments Consequent upon Adoption of Selected Agricultural Practices in Tribal Farming System.

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Consequences are the changes that occur to an individual or to social system as a result of adoption or rejection of an innovation. High adoption of improved farm practices was associated with high adoption of housing and home equipment items and of other selected home practices. Changes occurred in the life of most of the villages were : food habits, clothing pattern, farming life, material possession, agricultural practices, girl's education and yield levels of crops.

To study the techno-economic developments consequent upon adoption of selected agricultural technology in tribal farming system, the present study was taken up. The present investigation was planned with the following objectives :

OBJECTIVES

1. To study the techno-economic developments consequent upon adoption of selected agricultural practices in tribal farming system.
2. To study the relationship of different characteristics of tribal farmers and techno-economic change score by them.
3. To know the predicting ability of different characteristics to explain variation on techno-economic change score by the tribal farmers.

METHODOLOGY

This study was undertaken in the Kinwat tribal area of Maharashtra. The resultant changes after adoption of improved cotton technology in the form of techno-economic changes were considered as consequences. The techno-economic change was measured in terms of seven aspects, namely, change in cropping pattern, yield level, increase in land, purchase of livestock, food habits, clothing pattern and housing condition. The 'before' and 'after' approach was followed. The raw scores of each aspect was divided by their respective standard deviations and then all the standard scores were added to get the total techno-economic change score. Pearson's co-efficient correlation was computed to find out the relationship between the characteristics and techno-economic change. The multiple regression analysis was done to know the combine effect of all independent variables.

RESULTS AND DISCUSSION

1. **Techno-economic change and adoption of agricultural technology**

The comparison of the level of techno-economic change and extent of adoption of agricultural technology is presented in Table 1.

The data presented in Table 1

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Table 1. Extent of adoption of agricultural technology and the level of techno-economic change.

(N = 210)

Sr. No.	Level of Techno-economic change	Extent of adoption of technology				Total
		Non Adopter (0 Score)	Low Adopter (1 to 33)	Medium Adopter (34 to 66)	High Adopter (67 and above)	
1.	Low (upto 3.385)	28 (100.00)	04 (5.40)	02 (2.35)	00 (00.00)	34 (16.19)
2.	Medium 3.386 to 15.780)	00 (00.00)	65 (87.84)	68 (80.00)	12 (52.18)	145 (69.05)
3.	High (15.781 and above)	00 (00.00)	05 (6.76)	15 (17.65)	11 (47.82)	31 (14.76)
Total		28 (100.00)	74 (100.00)	85 (100.00)	23 (100.00)	210 (100.00)

(Figures in parantheses indicate percentage)

indicate that only 14.76 per cent farmers were in high level of techno-economic change and 16.19 and 69.05 per cent respondents were in low and medium level of techno-economic change categories, respectively. Further data revealed that less than half of the high adopters (47.82 per cent) were in high level of techno-economic change. Thus, the data in Table 1 revealed that, in general, the level of techno- economic change of tribal was found medium.

The mean score of different aspects of techno-economic change was found highest in case of cropping pattern (2.55) followed by food habit (2.40) yield level of

crops (2.12), clothing pattern (1.51), housing condition (1.42), purchase of livestock(0.85) and purchase of land (0.64).

2. Relationship of independent variables with techno-economic change of the respondents :

In order to know the relationship between characteristics and techno-economic change score, correlation coefficient 'r' was calculated. The results are furnished in Table 2.

Table 2 indicates that out of 17 independent variables, 14 variables, i.e. education, social participation, land hold-

Table 2. Relationship of independent variables with the techno- economic change score by the tribal farmers.

Sr. No.	Independent variables	Techno-economic change score
		Zero order correlation co-efficient
X1	Age	0.022
X2	Educación	0.235**
X3	Size of family	0.023
X4	Type of family	0.105
X5	Social participation	0.472**
X6	Land holding	0.275**
X7	Annual income	0.534**
X8	Market orientation	0.329**
X9	Credit orientation	0.328**
X10	Innovativeness	0.337**
X11	Achievement Motivation	0.351**
X12	Knowledge about technology	0.265**
X13	Attitude towards farming	0.384**
X14	Extension contact	0.431**
X15	Source of information	0.406**
X16	Innovation decision process	0.533**
X17	Extent of Adoption of Technology	0.605**

** Significant at 0.01 level of probability.

ing, annual income, market orientation, credit orientation, innovativeness, achievement motivation, knowledge about technology, attitude towards farming, extension contact, sources of information, innovation-decision process and extent of adoption of technology had positive and significant relationship with the respondents' level of techno-economic change at 0.01 level of probability while, age, size of family and type of family of respondents did not indicate any relationship with their techno-economic change. Hence, it was concluded that out of 17

variables, 14 variables were significantly and positively related with the techno-economic change and there was no significant relationship between three variables of the respondents and their techno-economic change. These findings were in line with the findings of Sangle (1977) and Mahajan (1980).

3. Multiple regression analysis for techno-economic change score :

The multiple regression analysis was carried out to know the important variables with their predicting ability in explaining the

variation in techno-economic change score by the tribal farmers.

In multiple regression analysis, 17 independent variables were fitted to explain the variation in the techno-economic change score of the respondents. The detailed results are given in Table 3.

It is observed from Table 3 that 51.08 per cent of the total variation in level of techno-economic change was explained through 17 variables considered for regression equation.

The 'F' value was found highly sig-

nificant at 0.01 level. The unexplained variation was 48.92 per cent, which may be due to extraneous factors.

From the regression analysis, it was concluded that out of 17 variables, three variables namely size of land holding, annual income and extent of adoption of technology had significant effect on the level of techno-economic change of the respondents. Regression co-efficient, indicated that one unit change in these variables would effect 1.0638 units, 0.1286 units and 0.1080 units change in the level of techno-economic change of the respondents.

Table 3. Multiple regression analysis of techno-economic change score of the tribal farmers.

Sr. No.	Independent variables	Techno-economic change	
		Regression Co-efficient(b)	't' value
X ₁	Age	0.0257	0.648
X ₂	Education	-0.0081	-0.030
X ₃	Size of family	0.2389	1.273
X ₄	Type of family	0.1755	0.220
X ₅	Social participation	0.6648	1.771
X ₆	Land holding	1.0638	4.364**
X ₇	Annual income	0.1286	2.497*
X ₈	Market orientation	0.0438	0.381
X ₉	Credit orientation	-0.1241	-1.789
X ₁₀	Innovativeness	-0.2730	-0.841
X ₁₁	Achievement Motivation	0.1665	1.502
X ₁₂	Knowledge about technology	-0.2237	-2.979
X ₁₃	Attitude towards farming	0.0906	1.142
X ₁₄	Extension contact	0.1456	0.996
X ₁₅	Source of information	-0.0598	-0.442
X ₁₆	Innovation decision process	0.1415	1.254
X ₁₇	Extent of Adoption of Technology	0.1080	4.236**
R ² = 0.5108 R = 0.7147		F = 11.7931**	

* Significant at 0.05 level of probability.

** Significant at 0.01 level of probability.

The 't' value for land holding and extent of adoption of technology was highly significant at 0.01 level, whereas annual income was found significant at 0.05 level.

This implies that size of land holding, annual income and extent of adoption of improved technology had indicated consistent effect on the level of techno-economic change of tribal respondents.

IMPLICATIONS

The finding of the study indicated that the level of techno- economic change

among tribal farmers was found at medium level. These changes seems to depend directly upon adoption of improved agricultural technology. This implies that proper varietal recommendations, fertilizer management, plant protection measures, water management and post harvest management are among the major programmes that extension agency may undertake in order to increase the extent of adoption of production technology.

REFERENCE

- Mahajan, B.S. 1980. A study of factors affecting adoption of Agricultural technology and accruing socio-economic consequences in Jayakwadi command area (Maharashtra) Ph.D. thesis, New Delhi: IARI.
- Sangle, G.K. 1977. Technological growth and rural change in dry farming versus irrigated farming system in Marathwada region of Maharashtra. Ph.D. thesis Ludhiana : PAU.