

A Study of Some Socio-economic Factors Influencing the Adoption of Technological Change in Agriculture

BY

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ABSTRACT

The factors influencing the adoption of technological change by farmers have been studied with special reference to the growing hybrid cumbu. Of eight socio-economic factors tested, size of farm, area sown to cumbu, and literacy of farm family showed significant difference between adopters and non-adopters.

INTRODUCTION

Technological change in agriculture consists of adoption of farming techniques developed through research introduction of new high yielding strains of paddy and hybrid millets has led to a spurt in interest among the farmers to adopt modern scientific farming. In spite of proven success of these techniques the farmers are somewhat tardy to accept and adopt new technology in their farms. The decision is influenced by economic social and personal considerations. A study of the factors that lead to quick adoption of the technological inputs is therefore, of social significance in the context of the present food situation of the country. This study was undertaken to examine the socio-economic factors which hinder or facilitate the process of diffusion and adoption of technological change in agriculture.

MATERIALS AND METHODS

The study was carried out in Coimbatore Taluk of Coimbatore District. A random sample of ten villages were selected, out of the 81 revenue villages in the taluk. The study was restricted to farms growing irrigated cumbu to maintain homogeneity of sample. From a list of farmers who had grown hybrid cumbu, classified as adopters, six holdings were selected at random in each village making a total of 60 holdings. From another list of farmers who had not grown hybrid cumbu - classified as non-adopters, four farmers were selected at random in each village, thus making a total of 40 farmers to serve as control for comparison. The data related to the agricultural year, 1966 - 67 (Fasli, 1376). The data were collected by survey method.

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TABLE 1. Factors influencing technological change in agriculture

Factors	Adopters	Non-adopters	Difference between adopters and non-adopters
Economic Factors			
Size of holding operated (acres)	23.29	9.94	13.35 *
Area under cumbu cultivation (acres)	2.74	1.20	1.54 *
Percentage of operated area irrigated	71.30	68.94	2.36
Intensity of cropping	119.71	120.61	- 0.90
Social Factors			
Literacy index	4.75	3.72	1.03 *
Size of family	4.96	4.60	0.36
Age of the operator (years)	42.1	43.9	- 1.8
Experience in farming (years)	17.1	19.9	- 2.8

* Significant at 0.05 level

** Significant at 0.01 level

RESULTS AND DISCUSSION

Among the large number of socio-economic factors which motivate the farmers to increase the level of production by adopting the technological innovations, the following factors which are of utmost importance were taken up for detailed study and analysis.

Size of operational holding

The study indicated that the average size of farm of the adopter and

non-adopter was 23.29 and 9.94 acres, respectively and that the difference between them was highly significant. This showed that cultivators with larger sized farms more rapidly adopted the given technological change while the cultivators with smaller holdings did not do so. Further, it could be seen that adopters were operating holdings more than double that of non-adopters. These findings were in agreement with the studies conducted by Choudhary (1965), Choudhary and Maharaja (1966) and Directorate of Economics and Statistics, Government of India (1967).

Area under cumbu cultivation

The area sown to cumbu per holding was higher by 125 per cent in the case of adopters than the non-adopters. The adopters brought more area under hybrid cumbu as they were convinced that a new change in agricultural technology would yield increased returns. However, Lal Gupta and Singh (1966) reported that when a farmer had adopted an improved practice, he had done so even on a small area.

Percentage of operated area irrigated

The study indicated no significant difference in the percentage of area under irrigation among both the groups of farmers even though the percentage of area under irrigation to total area of the farm in the case of adopters was higher than that of non-adopters. Thus, irrigation had no specific influence on the adoption of the technology and similar observation has been made by the Directorate of Economics and Statistics on the High Yielding Varieties Programme (Anonymous, 1967).

Cropping intensity

Intensity of cropping showed no significant difference in this study between the two groups. The intensity of cropping did not exceed 120 per cent. This showed that even though the adopters were operating large size farms and were supposedly richer, did not take to intensive cultivation.

Literacy

It is generally assumed that literacy is a pre-condition for any technological change. In this study, instead of limiting the observations to the literacy standard of the farmer alone as a factor responsible for adoption of an improved practice, the literacy standard of the whole farm family was studied. In order to compare the two groups in this respect a literacy index for the farm family was devised as was done by Desai and Sharma (1966). The index was prepared using the scores - graduate 10, high school level 7, middle school level 5, primary school level 3, and illiterate zero. The family literacy index was prepared as a weighted average of the related scores, the weight used being the number of members under each score. Children below five years were excluded in computing the index.

The study indicated that the literacy index of adopter families were significantly higher than that of non-adopter families. The literacy index for adopters was about 30 per cent more than that of non-adopters. Thus the adopters found to have relatively better educational level.

Size of family

The size of family was arrived at by considering two juveniles as equivalent to an adult ignoring children below 5 years of age. The study indicated that the difference in size of family between adopters and non-adopters was not significantly different. This showed that the size of

family had no influence on the adoption or non-adoption of a given technological change.

Age of the operator

The factor, age of the operator showed no significant difference between the two groups. The average of both the groups was above 40 years. This contradicted the hypothesis that adopters would be younger than non-adopters but was in line with Chand and Gupta (1966) who concluded that age of the farmers may not influence the adoption of improved farm practices.

Years of experience in farming

In order to determine the association between adoption of improved practices and years of experience in farming, the information regarding the period when the respondent assumed the actual entrepreneurial responsibility was taken into account. This was done because only then the farmer could have been in a position to implement his decisions when he was convinced about the utility of an innovation.

The study showed that experience in farming was not significantly different between the two groups even though adopters were slightly less experienced in farming than non-adopters. Thus adoption of a technological change had no relevance to the experience of farmers.

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