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Correlates of technological gap in recommended summer groundnut technology

P. S. KAPSE*, Y.K. PIMPRIKAR AND D.G. DUDHATE[1]
Department of Extension Education, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

ABSTRACT

An investigation was carried out in Parbhani block of Parbhani district of Maharashtra State to study level of composite technological gap in summer groundnut technology and to identify the personal, socio-economic and psychological characteristics affecting the technological gap. The data collected from 120 randomly selected respondents revealed that majority of the respondents belonged to medium level of composite technological gap followed by high and low level of composite technological gap. Further, results indicated that the variables viz., education, land holding, annual income, extension contact, social participation, risk preference, economic motivation and knowledge about technology showed negatively significant correlation with composite technological gap, whereas correlation of age with composite technological gap was positively significant. The statistical tests using multiple regression analysis revealed that among independent variables only knowledge about technology, education, economic motivation and risk preference were found to exhibit negatively significant contribution towards the dependent variable i.e. composite technological gap in summer groundnut cultivation technology.

Key words : Technological gap, Summer groundnut, Correlates.

INTRODUCTION

There has been a revolutionary change in the agricultural technology in recent years. Inspite of the various efforts from all sides, the agricultural improved technology is not generally accepted by the farmers in all respect. As such there always appear to be the gap between the recommended technology by the scientists and its use at farmer's level. This technological gap is major problem in the efforts of increasing agricultural production in the Country. India plays a prime role in the world market of protein oilseed. It occupies first place in the production of groundnut, second in sesame and castor and third in rapeseed and mustard. India is the largest groundnut growing country accounting for 40.00 per cent of the world's groundnut area and 34.00 per cent of the world's production. However, the yield levels in the country are low and have remained stagnant at around 900 kg/ha for the past few decades. In the irrigated area, majority of farmers is cultivating groundnut in summer season because of high average yield and low attack of insects, pests and diseases as compared to *rabi* and *kharif* season but its productivity was not good enough. This was only due to less adoption of improved summer groundnut production technology. The personal, socio-economic and psychological characteristics of growers directly influence the extent of adoption of improved agricultural technology. Hence, the present investigation was undertaken with the objectives to study the level of composite technological gap of summer groundnut technology and to ascertain correlates of technological gap in summer groundnut technology.

MATERIALS AND METHODS

The present study was confined to the Parbhani block of Parbhani district of Maharashtra State. The Parbhani block was purposively selected as it has sufficient area under summer groundnut crop. Six villages were selected purposively keeping in view the villages having more area under the summer groundnut crop and from each village, only 20 farmers were selected randomly. Thus a total 120 respondents were selected from these villages constituted the sample for the study. The data were collected from the respondents by personal interview schedule.

The technological gap in eight selected recommended practices *viz.*, soil and preparatory tillage, seed and sowing technique, seed treatment, use of chemical fertilizers, application of gypsum, intercultural operations, use of plant protection measures and utilization of irrigation water in summer groundnut cultivation were considered together for worked out composite technological gap. Then the respondents were categorizes viz., low, medium and high on the basis of mean $\pm$ S.D. The technological gap in selected recommended practices was calculated by

* Author for correspondence.
[1] Department of Agrl. Extension, Rajiv Gandhi Agrl. College, PARBHANI (M.S.) INDIA

following formula and expressed in terms of percentage.

$$\text{Gap index (\%)} = \frac{R - A}{A} \times 100$$

Where,
R = Use as per recommendations (Maximum possible score)
A = Actual use (Acquired score)

To analyze the association between characteristics of summer groundnut growers and technological gap of summer groundnut technology, correlation coefficient and multiple regression were carried out.

RESULTS AND DISCUSSION

Composite technological gap

Data in Table 1 revealed that majority of the respondent belonged to medium level of composite technological gap (53.33%) followed by high level (25.00%) and low level (21.67%) of composite technological gap in summer groundnut technology. The findings are in conformity with the findings of Shinde (1994), Dalvi (1995) and Shriram and Chauhan (2000).

Correlates of composite technological gap

Correlation coefficient was computed to findout the existence of relationship between characteristics of the respondents and composite technological gap. The results are presented in Table 2. It is observed from the Table 2 that out of nine independent variables, eight variables viz., education, land holding, annual income, extension contact, social participation, risk preference, economic motivation and knowledge about technology showed negative and significant relationship with composite technological gap, whereas age showed positively significant relationship with composite technological gap. The correlations observed in the present study are discussed below.

1. Age and technological gap:

Age is important factor in determining adoption of improved new technology. The young and middle age farmers will help in decreasing the technological gap. Age was showed the positive and significant relationship with technological gap. This might be due to young farmers having more exposure to extension contact with the different agencies. The extension personnel have to reach all the categories of summer groundnut growers who did not encourage the particular group but the results shows that young farmers are more eager to adopt new technology than old age group, because old age group are mostly laggards, merely literate.

2. Education and technological gap :

It was observed that education was negatively and significantly related with technological gap. This shows

Table 1 : Distribution of the respondents according to their level of composite technological gap of summer groundnut technology (N=120)

Level of technological gap	Frequency	Per cent
Low (5.45 and below)	26	21.67
Medium (5.46 to 45.08)	64	53.33
High (45.09 and above)	30	25.00

Table 2 : Coefficient of correlation between the characteristics and technological gap of summer groundnut technology

S. No	Independent variables	Coefficient of correlation ('r' value)
1.	Age	0.585 **
2.	Education	-0.929**
3.	Land holding	-0.458**
4.	Annual income	-0.786**
5.	Extension contact	-0.698**
6.	Social participation	-0.746**
7.	Risk preference	-0.854**
8.	Economic motivation	-0.891**
9.	Knowledge about technology	-0.933**

** Significant at 0.01 level of probability.

that as the education level of respondents increases, there will be decrease in the technological gap. The probable reason might be that low educated persons cannot understand new technology quickly and easily. They have not faith in new research. Education gives scope and provides direction to the thinking process of the respondent and obviously its significant influence has been observed in the adoption of new technology.

3. Land holding and technological gap :

Land holding of the respondents also indicated negative and significant relationship with technological gap. This shows that as the land holding of the respondents increases, there will be decrease in the technological gap. The prosperity and economic development of the farming community depend upon the land use pattern, hence land holding place an important role in adoption of summer groundnut technology.

4. Annual income and technological gap:

In case of annual income of the respondents as it also shows negatively significant association with technological gap. It is logic that as the respondents having better income can afford the expenditure on new technology, also have capacity to bear risk and loss incurred if any, in adoption of summer groundnut technology. Higher annual income also help in optimum and timely procurement on inputs, proper use of information sources and desired technical guidance which are important contributing factors for the adoption of summer groundnut technology.

5. Extension contact and technological gap:

It was further reported that extension contact was found to be negatively significant correlation with technological gap. This clearly establishes that increasing extension contact by the farmers encourage them to adopt modern agricultural technology to greater extent.

6. Social participation and technological gap:

It could be inferred that social participation of the respondent had negative and significant relationship with the technological gap. Thus, it is revealed that the greater the social participation of respondents, lower the technological gap. It shows that the respondents having more participation in different organizations perceived the information. Social participation provides an opportunity to see that other people do and thereby motivate to adopt the new practices adopted by them in the organization. Greater social participation might also boost the confidence of the respondents.

7. Risk preference and technological gap:

Correlation of risk preference with technological gap found to be negative and significant. The reason could be that the farmers who are more prone to take the risk and faces the challenges to get maximum returns, their adoption of recommended new practices was ultimately more.

8. Economic motivation and technological gap:

Economic motivation was negatively and significantly related with technological gap. It indicated that as the score of economic motivation variable increases, there is decrease in technological gap. In other words, the farmers who are having high economic motivation in farming, adopted more new technology.

9. Knowledge about technology and technological gap:

It was noteworthy that knowledge of the respondents about technology and technological gap was negatively and significantly correlated with each other. Knowledge of the modern technology is considered pre-requisite for the acceptance of modern technology. Productivity of summer groundnut crop and agriculture are depending on farmer's knowledge about the improved technology. This can be attributed to a common observation that knowledgeable persons tend to get more knowledge through continuous contacts with agricultural university, extension workers, agricultural officers etc. that helps in adopting new technology at an earlier phase as compared to low knowledgeable persons. Similar findings were reported by Patil (1993) and Dalvi (1995).

Multiple regression

The multiple regression analysis was also done to appraise the contribution of selected nine independent variables to the dependent one i.e. composite technological gap in summer groundnut cultivation technology and the results are presented in Table 3.

Table 3 indicates that the value of R^2 was 0.917 which indicated that the selected nine independent variables explained to the extent of 91.70 per cent variation in the composite technological gap. Among the nine variables, four variables *viz.,* knowledge about technology, education, economic motivation and risk preference had negative and significant contribution towards the dependent variable i.e. composite technological gap. The findings are in line with the results of Chitnis (1983) and Naiknaware (1991).

It can be concluded that majority of the respondents belonged to medium level of composite technological gap

Table 3 : Multiple regression between composite technological gap and independent variables

S. No	Independent variables	Regression Co-efficient	't' value
1.	Age	0.1251	1.2588
2.	Education	-4.6394	-3.5442**
3.	Land holding	0.2303	0.7695
4.	Annual income	-0.1583	-1.7069
5.	Extension contact	0.0004	0.0006
6.	Social participation	-0.5615	-0.4901
7.	Risk preference	-0.6141	-2.2114*
8.	Economic motivation	-0.9408	-2.8215**
9.	Knowledge about technology	-2.0729	-5.8385**

R^2 value = 0.917
* Significant at 0.05 level of probability.
** Significant at 0.01 level of probability.

followed by high level and low level of composite technological gap. It was also found that out of nine independent variables, eight variables viz., education, land holding, annual income, extension contact, social participation, risk preference, economic motivation and knowledge about technology showed negative and significant relationship with composite technological gap, whereas age showed positively significant correlation with composite technological gap. Among the nine variables, four variables viz., knowledge about technology, education, economic motivation and risk preference were important variables affecting the technological gap, respectively. Manipulation of these variables will be very effective in minimizing the technological gap and these variables will help extension workers to modify their endeavours accordingly for better socio-economic growth of the farming community by organizing exhibition, field tours, farmers discussion, farmers field school and by exposing them to changing agricultural world through specialist which ultimately results in more adoption and minimizing the technological gap.

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