Agriculture Update
Volume **9** | Issue 2 | May, 2014 | 197-200 |eISSN-0976-6847; Open Access-*www.researchjournal.co.in*|

Research Article

Technological gap in adoption of recomended practices in farmers about papaya cultivation

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ARTICLE CHRONICLE :
Received :
15.11.2013;
Revised :
30.03.2014;
Accepted :
08.04.2014

SUMMARY : The present study on the technological gap in adoption of recommended practices of papaya cultivation was carried out in Gulbarga districts of Karnataka State during 2013. The study revealed that 41.33 per cent of the respondents belonged to medium technological gap category followed by 32.00 per cent and 26.67 respondents belonged to high and low technological gap categories, respectively. Higher technological gap was observed regarding control of diseases.

How to cite this article : Basanayak, Rajashekhar T., Kale, S.M. and Chougala, Sunil (2014). Technological gap in adoption of recomended practices in farmers about papaya cultivation. *Agric. Update,* **9**(2): 197-200.

KEY WORDS:
Technological gap,
Papaya cultivation

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BACKGROUND AND OBJECTIVES

India has achieved self-sufficiency in food grain production but not in fruit production. In recent years, greater attention is being paid to horticulture for better utilization and development of waste lands, which are not suitable for economic cultivation of field crops (Agribusiness and Food Industry, February 2008). Horticultural crops particularly fruits, have great export potential and can earn foreign exchange in the sizeable quantum, if the existing resources are tapped to a fullest extent. India exports papaya mainly to countries like Bangladesh, Urban EMTS Malaysia, UK, Pakistan, Srilanka, Nepal (*www.nhb.gov.in*).

Although, scientific research in agriculture is moving fast and new techniques are being added continuously, so far only 20 per cent of the available technology has been adopted by farmers that too only among 10 per cent of farming population. The basic input for achieving higher productivity in the assimilation of technological knowledge is one of the important components of behaviour and as such it plays a major role in covert and overt behaviour of human beings. The adoption of any innovations depends on the individual development and acceptance of modern agricultural technology is the prime attention for increasing crop production. Keeping in view these points, an attempt was made to study about the technological gap in adoption of recomended practices about papaya cultivation in the northern part of Karnataka.

RESOURCES AND METHODS

The research design adopted for the study was expost-facto since the phenomenon had already occurred. The study was conducted during 2013 in selected talukas of Gulbarga district of North Karnataka. Out of seven talukas, five talukas were selected which covered major area under papaya cultivation. From each selected taluka five villages have been selected with highest area of papaya cultivation considered as the criteria. Six farmers from each village were selected for the study. Thus, the total sample size was 150 respondents.

The teacher made knowledge test was developed to measure the knowledge level of farmers about recommended practices of papaya

cultivation. The test constituted 11 knowledge questions. The answers to the questions were quantified by giving one score to correct answer and zero score to the incorrect answer. The summation of scores for the correct answer for a particular respondent indicates his knowledge level about recommended practices of papaya cultivation. The respondents were grouped into low, medium and high categories using mean and standard deviation as measures.

Technological gap:

Technological gap has been defined as the proportion of gap in the adoption of recommended practices and it is expressed in percentage (Ray *et al.*,1995). In the present study technological gap was operationalised on the decision in adoption of selected recommended papaya cultivation practices by the farmers and expressed in percentage.

The technological gap of a particular practice expressed in percentage was:

$$\text{Technological gap} = \frac{\text{No.of recommended practices} - \text{No. of adopted practices}}{\text{No. of recommended practices}} \times 100$$

Package of practices recommended by the Dharwad Agricultural University was considered as standard for calculating gaps. The respondents were then divided into three categories *viz.*, low, medium, and high based on their overall mean technological gap.

OBSERVATIONS AND ANALYSIS

It is evident from the data in Table 1 that 41.33 per cent of the respondents belonged to medium technological gap category followed by 32.00 per cent and 26.67 respondents belonged to high and low technological gap categories, respectively. The possible reasons for medium over all technological gap of the respondents may be medium knowledge of the respondents regarding recommended papaya cultivation practices. This clearly showed that there was immense scope for an intensified extension effort to increase the papaya production. This brings to focus the need for strengthening the extension efforts by the concerned extension agency to increase the knowledge and in turn increase adoption of recommended cultivation practices and ultimately reducing technological gap. The findings of the study are in agreement with the results obtained by Kiran (2003) and Santosh (2006).

It is revealed from the Table 2. In case of selected practices the technological gap in pit size and spacing was 54.12 per cent and 48.80 per cent, respectively. It was due to the unskilled laboures and low knowledge level regarding pit size and spacing.

Regarding planting season technological gap was 35.78 per cent, it is found that majority of the farmers planting in the rainy season and they were aware of the fact that planting in rainy season minimizes the death rate of plants and requires less irrigation.

Table 1: Distribution of respondents according to their overall technological gap **(n=150)**

Sr. No.	Category	Respondent	
		Frequency	Percentage
1.	Low (<9.89)	38	26.67
2.	Medium (9.89-11.58)	59	41.33
3.	High (>11.58)	53	32.00
	Total	150	100
	Mean =10.74, S.D. =1.98		

Table 2: Technological gap with respect to selected recommended package of practices **(n=150)**

Sr. No.	Selected recommended practices	Mean technological gap (%)
1.	Variety	00.00
2.	Pit size	54.12
3.	Plating season	35.78
4.	Spacing	48.80
5.	FYM	46.98
6.	Fertilizer application	58.87
7.	Irrigation method	46.56
8.	Plant protection measures	
	Pest- management	56.78
	Disease management	68.56

In case of application of FYM technological gap was 46.98 per cent, non availability of organic manure, its high cost, involved in its transportation may be the reasons for not applying the recommended levels of FYM in field. Although farmers used to maintain lot of cattle's earlier, but because of the high maintenance cost the farmers were not maintain the cattle's.

Fertilizer management calls greater attention as the result indicated the technological gap of 58.87 per cent. The non availability of fertilizers in time and illiteracy not aware of the calculation of fertilizer doses and also the high cost of the fertilizers were the main reasons for higher technological gaps in fertilizer applications.

Technological gap in irrigation was quite low *i.e.* 46.56 per cent, this was evident by their high knowledge level. Moreover, of the farmers were practicing drip irrigation.

Technological gap in plant protection like pest management (56.78) and disease management (68.56%) also deserves attention. Farmers showed a tendency to use concentration levels more than the recommended levels. This was mainly due to lack of knowledge and guidance regarding the use of those chemicals. This is potential danger as it can cause pest resurgence. It was also observed that sprayings were not need based, but rather "routine sprays" were given. Many farmers do not know about difference between insecticides and fungicides. A large majority did not know about integrated pest management (IPM). The results and observations of the study stressed the need for better education of farmers in this regard.The results are in close agreement with the findings of Kiran (2003).

Relationship of personal characteristics of papaya growers with their technological gap:

It could be seen from Table 3 that out of ten variables studied, variables, 4 variables namely, education, extension participation, innovativeness and information source consultancy were found to have negative and significant relationship with the technological gap. While, the variables age, cosmopolitness, annual income, risk orientation, economic orientation and farm experience showed positive but non- significant relationships with the technological gap in adoption of recommended papaya cultivation practices.

Social psychologists, management experts and economists have confirmed that factors such as farming experiences education, annual income, motives and aspirations of an individual can modify his adoption behaviour ultimately resulting in low technological gap. In other words, ones extent of technological gap cannot be understood and accounted for without reference to his social environment and to the character of his social environment to the character of his interpersonal relations.

The data revealed that education, extension participation innovativeness and information source consultancy were negatively and significantly related with technological gap of papaya growers, while others variables such as age, annual income, cosmopolitness, risk orientation, economic orientation, and farming experience had no significant relationship.

Education develops mental and psychological ability to understand, decide and adopt ideas and practices. It also helps in using printed mass media literatures and uses them to seek and understand scientific use of new ideas and technology. Profile study indicated a good number of respondents who were highly educated up to graduate level.

Extension participation helps farmers to interact with scientists, subject matter specialists and enable them to use the practice in natural settings and helps to learn new skills through demonstrations, trainings and exhibitions. Interaction with extension functionaries helps them in better relations to their needs. The data indicated a regular to occasional extensional participation of the respondents in various activities.

Table 3: Correlation co-efficient (r) between characteristics and technological gap of papaya farmers (n=150)

Sr. No.	Variables	'r' values
1.	Age	0.068^{NS}
2.	Education	-0.017^{*}
3.	Farm experience	0.023^{NS}
4.	Annual income	0.010^{NS}
5.	Cosmopolitnes	0.047^{NS}
6.	Extension participation	-0.039^{NS}
7.	Information source consultancy	-0.11^{NS}
8.	Innovativeness	-0.017^{*}
9.	Risk orientation	0.11^{NS}
10.	Economic motivation	0.006^{NS}

* indicate significance of values at P=0.05 and 0.01, respectively, NS = Non - significant

A better education, higher information source consultancy and extension participation always helps to seek and understand a new practices or idea in a better way to satisfy his needs. This further helps him/her to be prone in adopting new technologies: hence, innovativeness, executed a significant relationship with technological gap. Higher the innovativeness to understand and to adopt the new idea, practice or skill higher will be the adoption of practice which ultimately leads to lower technological gap.

Conclusion:

The lower technological gap in case of no cost and low cost technologies like spacing, application of FYM, pit size, planting season etc. is pointer towards possibility of better yield realization without additional investment in cost of cultivation. Along with this, the Government has to consider the problems faced by the papaya growers like providing electricity supply, varieties, fertilizers and low cost machines in the papaya growing areas. So, the policy makers, administrators have to make concerted efforts in an integrated manner to solve the problems.

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