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Research Article

TECHNOLOGICAL GAP IN ADOPTION OF IMPROVED CULTIVATION PRACTICES BY *KHARIF* GROUNDNUT GROWERS

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Abstract- A study was conducted in South Saurashtra agro climatic zone of Gujarat state, to identify the technological gaps in adoption of *kharif* groundnut production technology. The ex-post-facto research design was used for the study. The size of the sample was 120 respondents which were purposively selected from eight villages namely Ishvariya, Adhdhya, Mota dadva and Sajdyali from Rajkot district and Vishavadar, Dhebar, Thanapipli and Vaspda from Junagadh district. The result of study shows that in case of overall technological gap, 62.50 per cent of farmers had medium technological gap followed by 20.83 per cent and 16.67 per cent had high and low technological gap about groundnut production technology, respectively. Whereas practice wise technology gap among various recommended technologies, there were high technological gap in plant protection (43.95 per cent), followed by improved variety (43.64 per cent), application of fertilizer (35.59 per cent), sowing time (31.74 per cent), weed management (31.66 per cent) and seed treatment (30.47 per cent). The finding also revealed that the selected independent variables *viz.* size of land holding, annual income, social participation, extension participation, mass media exposure, innovativeness, risk orientation and knowledge had negatively and highly significant, education was negative and significant and age was positively and highly significantly association with the technological gap in adoption of recommended practices of *Kharif* groundnut by groundnut growers. All the 12 independent variables contributed towards 93.63 per cent of variation in technological gap in adoption of *kharif* groundnut production technology by groundnut growers. The calculate 't' value for partial regression co-efficient was negative and significant with innovativeness and knowledge, positive and significant with age and cropping intensity on technological gap in adoption of recommended practices of *Kharif* groundnut by *kharif* groundnut growers.

Keywords- Kharif groundnut production technology, Groundnut growers, Correlation

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Introduction

Groundnut (*Arachis hypogaea*.), is important crop grown worldwide. It is cultivated in more than 100 countries. Groundnut is considered as the world's fourth largest source of edible oil and third most important source of vegetable protein. The groundnut is the most thrived age crop of Gujarat state. In Gujarat, total area of *Kharif* Groundnut during 2012-13 was 12.24 lakh hectares and production was 6.95 lakh tonnes [1]. Groundnut is expected to harvest recorded groundnut crop of 25.95 lakh tonnes during 2013-14 as the yield double over last year due to good rainfall [2]. Groundnut plays an important role in the agricultural and industrial economy of Gujarat state. Saurashtra region, which is known as "Groundnut Bowl of India" has greater importance for groundnut as it accounts for about 92 per cent of the total groundnut area of the state. Groundnut crop is grown mainly as rain fed crop in the state.

The groundnut is a principal crop of the Saurashtra, there is a wide gap between average yield of common farmers and actual potential yield. Production of a new technology is generally not the major problem now a day in our country. The agricultural scientists are capable of producing appropriate technology. The main problem is technological gap in adoption of new farm technologies among the farmers. The yield gap depends upon technological gap and the extent of technological gap in different production components of the technology contributes differently to the yield gap. Considering these fact, the present study entitled "Technological gap in groundnut production technologies by groundnut growers in South Saurashtra agro climatic zone of Gujarat State" is planned with following specific objectives.

Objectives

1) To determine the technological gap in adoption of improved groundnut production technologies by groundnut growers.
2) To ascertain the relationship between selected characteristics of groundnut growers and their overall technological gap in adoption of improved groundnut production technologies.
3) To predict the extent of variation in dependent variables caused by independent variables.

Materials and Methods

The study was conducted in South saurashtra agro climatic zone of Gujarat state with ex-post facto research design. Rajkot and Junagadh districts from south saurashtra agro climatic zone were selected randomly. Two talukas from each selected district were selected randomly. From each selected taluka two villages

were selected by random sampling method. Total number of 120 farmers, 15 farmers from each selected village was selected by using purposive random sampling technique with a condition with a condition that the farmers have cultivated *kharif* groundnut at least since last three years. The data were collected through specially developed interview schedules. The collected data were classified, tabulated, analyzed and interpreted in order to make the findings meaningful. The statistical measures such as percentage, mean, standard deviation and co-efficient of correlation were used in the study.

Technological gap was operationalized as difference between technology adopted and specific technology recommended. To measure the extent of technological gap, a scale developed for the purpose was used. The technological gap was calculated and presented in terms of percentage.

Formula for Calculating Technological Gap:

$$T.G. = \frac{(R-A)}{R} \times 100$$

Where,

T.G. = Technological gap for each practice for each respondents

R = Recommended score for each practice

A = Adoption score of relative practice

To ascertain the practice wise technological gap in groundnut production technology by the respondents, the improved practices were grouped under 12 major practices and practice wise score was assigned, making a total of 100. On the basis of the practice wise score obtained by the respondents in adopting particular practices, the mean score were worked out for all the practices. These mean score were again converted into percentage for all the 12 practices and then difference between adoption and the recommended score for each practice in percentage were considered as technological gap of the recommended technology. On the basis of percent technological gap rank were assigned to each practice.

Result and Discussion

The data in [Table-1] clearly indicate that majority (62.50 per cent) of groundnut growers had medium technological gap, followed by low (16.67 per cent) and high (20.83 per cent) technological gap in adoption of improved groundnut cultivation practices.

The probable reason might be due to fact that majority of the respondents belonged to medium level of knowledge regarding recommended practices of *kharif* groundnut, medium social participation, medium risk orientation, medium income and medium extension participation also might have kept them in this circumstance

Table-1 *Distribution of respondents according to their overall technological gap in recommended practices of kharif groundnut*.

(n= 120)

Sr. No.	Category	Frequency	Percentage
1	Low technological gap (up to 21.48)	20	16.67
2	Medium technological gap (21.48 to 41.78)	75	62.50
3	High technological gap (above 41.785)	25	20.83
Total		**120**	**100**
Mean = 31.63		S.D. = 10.15	

Table-2 *Practice wise technological gap in adoption of recommended practices of kharif groundnut by kharif groundnut growers.*

(n= 120)

Sr. No.	Name of practices	Per cent Technological Gap	Rank
1	Soil preparation	18.40	XII
2	Improved variety	43.64	II
3	Seed treatment	30.47	VI
4	Seed rate	24.24	IX
5	Spacing	29.70	VIII
6	Sowing time	31.74	IV
7	Irrigation	29.95	VII
8	Application of fertilizer	35.59	III
9	Interculturing	20.00	XI
10	Weed management	31.66	V
11	Plant protection	43.95	I
12	Harvesting and threshing	22.09	X

The data presented in [Table-2] clearly indicated that the first rank was occupied by plant protection (43.95 per cent), followed by improved variety (43.64 per cent), application of fertilizer (35.59 per cent), sowing time (31.74 per cent), weed management (31.66 per cent) and seed treatment (30.47 per cent) were ranked second, third, fourth, fifth, sixth, respectively. While irrigation was the seventh rank (29.95 per cent), followed by spacing (29.70 per cent), seed rate (24.24 per cent), harvesting and threshing (22.09 per cent), inter-culturing (20.00 per cent) and soil preparation (18.40 per cent) were ranked eighth, nine, ten, eleven, twelve, respectively. The possible reason for these might be that majority of the groundnut growers were not aware about many practices. Further, due to many reasons like lack of knowledge and technical guidance, lack of finance, high cost of chemical fertilizers and insecticides, shortage of labour and irregular rainfall were their limitations and hence they could not adopt many improved groundnut cultivation practices.

Table-3 *Correlation between technological gap of the respondents about recommended practices of kharif groundnut and independent variables*

(n = 120)

Sr. No	Name of the independent variables	'r' value
1	Age	0.92**
2	Education	-0.595*
3	Size of land holding	-0.832**
4	Annual income	-0.883**
5	Social participation	-0.743**
6	Extension participation	-0.893**
7	Mass media exposure	-0.857**
8	Innovativeness	-0.883**
9	Risk orientation	-0.828**
10	Irrigation potentiality	-0.13NS
11	Cropping intensity	0.0192NS
12	Knowledge	-0.942**

*= Significant at 0.05 level r = 0.532, ** = Significant at 0.01 level r = 0.661

NS = Non significant

The characteristics of the respondents like size of land holding, annual income, social participation, extension participation, mass media exposure, innovativeness, risk orientation and knowledge had negative and highly significant relationship with the technological gap in adoption of recommended practices of *kharif* groundnut. The characteristics of the respondents like education had negative and significant relationship with the technological gap in adoption of recommended practices of *kharif* groundnut. Age was positively and highly significantly related with the technological gap in adoption of recommended practices of *kharif* groundnut. While, irrigation potentiality and cropping intensity were non-significantly related with the technological gap in adoption of recommended practices of *kharif* groundnut.

The R^2 was found to be 0.9363 from [Table-4], which indicated that twelve independent variables contributed towards 93.63 per cent of variation in technological gap in adoption of *kharif* groundnut production technology by groundnut growers.

[Table-4] clearly indicated that the calculated 't' value for partial regression co-efficient was positive and significant at 1 per cent level of probability in case of age and cropping intensity. The innovativeness (-3.794) was negatively and significant at 1 per cent level of probability, knowledge (-2.212) was negatively and significant at 5 per cent level of probability, while remaining variables did not show significant effect on technological gap in adoption of groundnut production technology.

Conclusion

It can be concluded that, the nearly two-third (62.50 per cent) of *kharif* groundnut

growers had medium technological gap. In case of practice wise technological gap, highest technological gap was observed in adoption of plant protection measures (43.95 per cent) and was ranked the first followed by improved variety (43.64 per cent), application fertilizer (35.59 per cent), sowing time (31.74 per cent) and weed management (31.66 per cent) with ranked II, III, IV and V, respectively. The independents variable studied *viz.*, Size of land holding, annual income, social participation, extension participation, mass media exposure, innovativeness, risk orientation and knowledge had negatively and highly significant, education was negative and significant association with the technological gap in adoption of recommended practices of *Kharif* groundnut by groundnut growers. Age was positively and highly significantly related with the technological gap in adoption of recommended practices of *Kharif* groundnut by groundnut growers. The calculated 't' value for partial regression co-efficient was positive and significant at 1 per cent level of probability with age and cropping intensity on technological gap of groundnut production technology by groundnut growers. While innovativeness and knowledge were negatively and significantly associated with technological gap in groundnut production technology at 1 per cent and 5 per cent, respectively.

Table-4 *Multiple regression analysis between extent of adoption and selected independents variable*

(n = 120)

Sr. No	Name of the independent variables	Regression coefficient ('b' value)	Standard error	't' value
1	Age	6.865	1.128	6.081**
2	Education	-0.060	0.310	-0.196NS
3	Size of land holding	-0.214	0.912	-0.234NS
4	Annual income	0.148	0.953	0.155NS
5	Social participation	-0.244	0.390	-0.625NS
6	Extension participation	-0.061	0.053	-1.141NS
7	Mass media exposure	0.121	0.122	0.989NS
8	Innovativeness	-1.697	0.447	-3.794**
9	Risk orientation	-0.186	0.159	-1.165NS
10	Irrigation potentiality	0.168	0.207	0.809NS
11	Cropping intensity	0.051	0.015	3.268**
12	Knowledge	-0.240	0.108	-2.212*

R^2 = 0.9363, NS = Non – significant * = Significant at 0.05 level (1.84)
** = Significant at 0.01 level (2.35)

Conflict of Interest: None declared

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