

## Adoption of Recommended Practices of *Kharif* Groundnut Growers in Saurashtra Zone of Gujarat

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### ABSTRACT

*Groundnut is a principal crop of the Saurashtra region of Gujarat State and is grown extensively since 1910. However, a wide gap exists between the average yield of common farmers and actual potential yield. The present study was conducted in the South Saurashtra Agro Climatic Zone of Gujarat State using ex-post facto research design. Four talukas were randomly selected and from each selected taluka, three villages were selected randomly. Thus, 12 villages were selected. Total 120 respondents, 10 respondents from each selected village were selected by using multistage random sampling technique with a condition that the farmers should have cultivated kharif groundnut at least since last two years. About 65.83 per cent of the respondents had medium extent of adoption of recommended practices of kharif groundnut. The characteristics of the respondents like education, extension participation, social participation, size of land holding, innovativeness, mass media exposure, risk orientation and cropping intensity had positive and highly significantly association with the adoption of recommended practices of kharif groundnut. The data on practice-wise adoption revealed that the level of adoption was found very high (more than 70%) in practices like, gap filling (rank I), intercropping (rank II), preparatory tillage (rank III), sowing distance (rank IV), seed rate (rank V), weed control (rank VI) and FYM / compost application (rank VII).*

**Key words:** Adoption; Association; Groundnut;

**M**ahatma Gandhi, the father of the nation referred groundnut as “*Deshi Badam*” means almond of poor. Groundnut has a distinct position among the oilseeds as it can be consumed and utilized in diverse ways. It is a rich source of edible oil (44-55%), high quality protein (22-32%) and carbohydrates (8-14%) and hence, it is valued both for edible oil and confectionery purposes. Groundnut kernels are consumed as raw, boiled, roasted or fried products and also used in a variety of culinary preparations like peanut candies, peanut butter, peanut milk and chocolates. Groundnut (*Arachis hypogaea*), is an important crop grown worldwide in more than 100 countries. Groundnut is considered as the world’s fourth largest source of edible oil and the third most important source of vegetable protein. It is also a major oilseed legume crop in India and meets about 30 per cent of the edible oil requirements in the country. The botanical name for groundnut, *Arachis hypogaea* L. is derived from two Greek words, *Arachis* means a legume and *hypogaea* means below ground, referring to the

formation of pods in the soil. The groundnut is generally distributed in the tropical, sub-tropical and warm temperate zones. The principal groundnut growing states in India are Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra, which accounts for more than 85 per cent of the Indian production as well as area.

Thus, it is very much essential to ascertain the technological gaps in groundnut production, in terms of adoption. It would be useful to develop sequential concept of groundnut production technologies with a special reference to the identification of factors responsible for the technological gaps. Accordingly the study focused on the extent of adoption of the respondents about recommended practices of *kharif* groundnut and to ascertain the association of adoption of recommended practices of *kharif* groundnut with the selected characteristics of respondents. Thus, adoption of recommended practices of *kharif* groundnut is one of the ways to increase production per unit of land, water and capital. It is also expected that the

findings will be helpful to extension workers, planners and policy makers in formulation of strategies to raise the agricultural production and income per unit area of land.

## METHODOLOGY

The study was conducted in the South Saurashtra agro-climatic zone of Gujarat State for the following reasons: The area has ideal conditions for the successful cultivation of *Kharif* groundnut; The soil and climatic conditions are very favorable for the cultivation of *Kharif* groundnut. Similar research study was not conducted in the area under study.

The study was conducted under *ex-post facto* research design. It is systemic empirical enquiry in which the scientist does not have direct control over the independent variables because their manifestations have already occurred or they are inherently not manipulated (Kerlinger, 1969). A multistage random sampling technique was followed for this study.

The sampling technique is described as under. The South Saurashtra Zone consists of 26 talukas spread over five districts of the state having common agro-climatic conditions. Out of the 26 talukas, four talukas were randomly selected.

From each selected taluka, three villages were selected randomly. Thus, 12 villages were selected. A total 120 respondents, at 10 respondents from each selected village were selected by using multistage random sampling technique with a condition that the farmers have cultivated *kharif* groundnut at least since last two years.

The level of adoption was studied for 17 recommended practices of *kharif* groundnut selected in consultation with experts/scientists/extension workers working in groundnut in that area. A comprehensive list of all the practices adopted by farmers? sub heads was prepared. The different weightage was given to each practice.

The weightage of a particular practice was determined by seeking the opinions of the expert scientist/extension workers, considering the total score as 100. The farmers were asked about the practices they followed on their farm and their responses were recorded. Based on the responses obtained, mean and standard deviation were calculated and the respondents were grouped into three categories..

**Table 1. The weight age given to different practices in the scale**

Name of practices	Total score (100)
Soil testing	4.30
Preparatory tillage	4.50
Improved varieties	7.50
Seed treatment	5.00
Seed rate	8.50
Sowing time	9.00
Sowing distance	8.60
Sowing method	6.00
Organic manure/F.Y.M./Compost	3.80
Sowing d C Chemical fertilizer	5.00
Gap filling	3.45
Interculturing	5.35
Weed control	6.80
Supplementary Irrigation	7.50
Plant protection measures	4.20
Harvesting and Threshing	5.50
Grading and Storage	5.00
Total	100.00

For measuring the adoption of recommended practices of *Kharif* groundnut, the adoption index was developed and used. The scale developed by Chattopadhyay (1974) was used with slight modification.

$$AQ = \frac{\left(\frac{e_1}{P_1}\right)W_1 + \left(\frac{e_2}{P_2}\right)W_2 + \dots + \left(\frac{e_n}{P_n}\right)W_n}{W \times N} \times 100$$

Where,

- AQ. = Adoption quotient  
 $e_1 \dots e_n$  = Extent of adoption in terms of score obtained by the farmers for particular recommended practices of *Kharif* groundnut.  
 $P_1 \dots P_n$  = Potentiality of the respondents in terms of score obtained for the particular practices.  
 $W_1 \dots W_n$  = Weightage of the particular practice, for adoption score 1 and non-adoption score 0.  
 W = Summation of the weightage of all practices included.  
 N = Number of years for which adoption quotient was calculated.

## RESULTS AND DISCUSSION

In the present study, an attempt was made to understand the extent to which farmers adopted the recommended practices of *kharif* groundnut on their farm and what factors influenced the adoption behaviour. This will enable to predict the behaviour of the farmers, to control the known factors in a desired manner and

channelize the course of farmers' actions in desirable direction. From the perusal of the data in Table 2 clear that 65.83 per cent of the respondents had medium extent of adoption about recommended practices of *kharif* groundnut. The considerable amount (19.17 and 15.00%) of respondents was in low and high adoption group. Since the output of the figure would be in B&W, change it accordingly.

**Table 2. Distribution of respondents based on their adoption about recommended practices of *Kharif* groundnut (N= 120)**

Categories	Adoption score	No.	%
Low	Below 53.05	23	19.17
Medium	53.05 to 77.71	79	65.83
High	Above 77.71	18	15.00

Mean = 65.38 S.D. = 12.33

**Table 3. Practice wise adoption of the respondents about recommended practices of *Kharif* groundnut (N= 120)**

Name of practices	TS	MS	%	Rank
Soil testing	4.30	1.06	24.65	XVII
Preparatory tillage	4.50	3.92	87.11	III
Improved varieties	7.50	5.08	67.73	XI
FYM/compost	5.00	3.69	73.80	VII
Chemical fertilizers	8.50	5.93	69.76	VIII
Seed rate	9.00	7.15	79.44	V
Seed treatment	8.60	5.54	64.65	XII
Sowing time	6.00	3.84	64.00	XIII
Sowing distance	3.80	3.15	82.89	IV
Sowing methods	5.00	3.46	69.20	IX
Gap filling	3.45	3.18	92.17	I
Interculturing	5.35	4.84	90.46	II
Weed control	6.80	5.25	77.20	VI
Plant protection	7.50	4.15	55.33	XIV
Irrigation	4.20	1.58	37.62	XVI
Harvesting	5.50	3.75	68.18	X
Grading & Storage	5.00	2.28	45.60	XV

The data presented in Table 3 clearly indicated that the level of adoption was found very high (more than 70%) in practices like, gap filling (rank I), interculturing (rank II), preparatory tillage (rank III), sowing distance (rank IV), seed rate (rank V), weed control (rank VI) and FYM/Compost (rank VII). Moderate level of adoption (more than 50%) was found in practices like chemical fertilizers (rank VIII), sowing method (rank IX), harvesting (rank X), improved variety (rank XI), seed treatment (rank XII), sowing time (rank

XIII), plant protection measures (rank XIV). Low level of adoption (less than 50%) was found in practices like grading & storage (rank XV), irrigation (rank XVI), soil testing (rank XVII).

**Table 4. Correlation between adoption of recommended practices of *Kharif* groundnut and independent variables of respondents (N= 120)**

Variables	'r' value
Age	-0.1798*
Education	0.3027**
Size of land holding	0.2686**
Annual income	0.2002*
Social participation	0.4414**
Yield index	0.1803*
Extension participation	0.3472**
Mass media exposure	0.4036**
Innovativeness	0.3017**
Risk orientation	0.4352**
Irrigation potentiality	0.2004*
Cropping intensity	0.2785**

\*= Significant at 0.05 level r = 0.1740,

\*\*= Significant at 0.01 level r = 0.2280

The characteristics of the respondents like education, extension participation, social participation, size of land holding, innovativeness, mass media exposure, risk orientation and cropping intensity had positive and highly significant association with the adoption of recommended practices of *Kharif* groundnut (Table 4). The characteristics of the respondents like annual income, yield index and irrigation potentiality had positive and significant association with the adoption of recommended practices of *Kharif* groundnut. Age was negatively and significantly related with the adoption of recommended practices of *Kharif* groundnut.

**CONCLUSION**

Majority (65.83%) of the respondents had medium adoption about the recommended practices of *Kharif* groundnut. Whereas, 19.17 per cent had low and 15.00 per cent had high extent of adoption of recommended practices of *Kharif* groundnut, respectively.

Where adoption was found very high the probable reason for the fact might be that all above practices are low cost and have high importance for getting higher yield and adoption found low the probable reason for the facts might be that lack of godown or store room for storage as well as scarcity of farm labour may lead

them for non-adoption of grading & storage and also they may not get sufficient market price for grading product, lack of technical guidance, high price of insecticides/pesticides and fungicides and lack of sufficient rainfall as well as big river and pond facility in studied area. The soil testing laboratory is situated at district level. So, it is difficult to get the soil analysis report in time. Hence, this practice was less adopted by the respondents.

To increase the *Kharif* groundnut growers adoption of recommended practices of *Kharif* groundnut they

should be facilitated with latest technical know - how and motivated to participate in the extension activities. Besides, the extension agencies and input agencies working in the area should make concentrated efforts to organize extension activities such groundnut crop demonstration, farmers' day, farmers' training and to persuade them to participate actively in these activities. They should also be advised to participate more actively in the social organizations.

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