



Research Article

ADOPTION OF RECOMMENDED GROUNDNUT PRODUCTION TECHNOLOGY BY THE FARMERS OF RAIGARH DISTRICT OF CHHATTISGARH STATE

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Received: January 01, 2017; Revised: January 09, 2017; Accepted: January 10, 2017; Published: January 18, 2017

Abstract- The study was conducted in 20 purposively selected villages of four blocks of Raigarh district of Chhattisgarh state. A total of 160 respondents were randomly selected from the selected villages to assess the extent of adoption of recommended groundnut production technology by the groundnut growers. The findings revealed that majority of the groundnut growers were medium adoption category (61.88%). In case of practice wise level of adoption, majority of the groundnut growers had high level of adoption regarding time of sowing (75.00%), seed rate (68.12%) and harvesting (66.25%), whereas medium level of adoption the practices were preparation of land (76.25%), spacing (62.50%) and use of fertilizer (61.88%) and regarding low level of adoption the practices were earthing up (68.12%) and intercropping (62.50%). Among the selected independent variables, six variables i.e. education, land holding, annual income, contact with extension agencies, sources of information and knowledge towards groundnut production technology had positive and highly significantly correlated with the extent of adoption of recommended groundnut production technology. In case of regression analysis of selected independent variables only one variable knowledge towards groundnut production technology showed highly significant and positive contribution towards adoption at 0.01 per cent level of significance.

Keywords- Extent of Adoption, Groundnut Growers, Groundnut Production Technology.

Citation: Prasad Govind, et al., (2017) Adoption of Recommended Groundnut Production Technology by the Farmers of Raigarh District of Chhattisgarh State. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 9, Issue 3, pp.-3700-3702.

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Introduction

Groundnut (*Arachis hypogaea* L.) is sixth ranks among oilseed crops and thirteenth among the food crops of the world. It's provide high quality oil (48–50%), digestible protein (26–28%), seven essential minerals and around sixth essential vitamins necessary for normal human growth, it produces high quality fodder for livestock. Thus, its plays an important role in the livelihoods of marginal and small farmers through nutritional security and generate of source of income [1]. It's grown on nearly 22 million ha. worldwide with the total production was estimated at 38.61 million metric tons and an average yield of 1.8 tons /ha. (FAOSTAT 2011) and developing countries have 95 % share of global production [2]. The major groundnut-producing countries of the world are India, China, Nigeria, Senegal, Sudan, Myanmar and the USA. Out of the global groundnut acreage of 18.90 million hectares producing an annual harvest of 17.8 million tons, these countries account for 69 per cent of the area cultivated and 70 per cent of the yearly crop [3].

In India, among the different oilseed crops, groundnut is one of the excellent sources of high quality protein and edible oil and can play an important role in the requirement of both protein and edible oil. Mahatma Gandhi, the father of the nation referred groundnut as “*Deshi Badam*” means almond of poor. It has a distinct position among the oilseeds as it can be consumed and utilized in diverse ways [4]. India is the second largest producer of groundnut after China and has an area of over 5.31 million hectares with production of 6.93 million tons and productivity 1305 kg /hectare and major groundnut growing states are Gujarat, Tamil Nadu, Andhra Pradesh, Rajasthan and Karnataka which cover the 85 % of the area and 84 % of the groundnut production and minor producing states are

Maharashtra, M.P., U.P., Orissa, Chhattisgarh and others [5]. In Chhattisgarh groundnut covers an area around 29397 hectare with the production of 40504 MT, among the all districts of Chhattisgarh state, Raigarh district is higher in both area and production which covers an area 7572 hectare and production 9930 MT [6]. The production of groundnut of Raigarh district is low, may be due to lack of adoption of improved technology, hence it is essential to ascertain the technological gaps in groundnut production, in terms of its adoption. Therefore, the present study was designed and conducted with the objective of extent of adoption of recommended groundnut production technology and to ascertain the association of adoption of recommended groundnut production technology with the selected characteristics of respondents.

Materials and Methods

The present study was conducted during the year 2013-2014 in Raigarh district of Chhattisgarh state. Out of nine blocks of the district, only four blocks i.e. Baramkela, Pussor, Sarangarh and Raigarh were selected purposively. Further, five villages from each block were selected purposively and eight groundnut growers were selected randomly from each selected village. Thus the total 160 groundnut growers were considered as respondents for this study and the data were collected personally through pre-tested interview schedule. The collected data were tabulated and analyzed by using appropriate statistical tools i.e. mean, standard deviation, frequency, percent, coefficient of correlation and multiple regressions etc.

To measure the extent of adoption of recommended groundnut production technology. The important practices (16 items) were listed and responses for each

practice was given score 3, 2 and 1 for high, medium and low respectively. The adoption index score of each grower was then worked out using the formula; total score obtained by the respondent divided by maximum score that could be obtained multiplied by 100. Further the respondents were classified into three categories:

- Low level adoption: $< \bar{X} - S.D.$
- Medium level adoption: in between $\bar{X} \pm S.D.$
- High level of adoption: $> \bar{X} + S.D.$

Results and Discussion

Overall adoption of recommended groundnut production technology

Table-1 Distribution of respondents according to overall adoption level regarding recommended groundnut production technology n=160

S.No.	Level of adoption	Frequency	Per cent
1.	Low (up to 46 score)	31	19.37
2.	Medium (47-59 score)	99	61.88
3.	High (60 and above score)	30	18.75
	Total	160	100.00

$$\bar{X} = 53.05$$

$$S.D. = 6.78$$

Overall adoption level is clearly indicated from the data presented in [Table-1]. Out of total respondents majority (61.88%) of them had medium level of adoption about recommended groundnut production technology, whereas 19.37 and 18.75 per cent of them had low and high level of adoption respectively. Similar findings were reported by Hadiya *et al.* (2014) [4], Vekaria, *et al.* (2000) [7]

Table-2 Distribution of respondents according to their practice wise level of adoption regarding recommended groundnut production technology n=160

S.N.	Practices	Level of adoption		
		Low f (%)	Medium f (%)	High f (%)
1.	Preparation of land	21 (13.12)	122 (76.25)	17 (10.62)
2.	Time of sowing	00 (00.00)	40 (25.00)	120 (75.00)
3.	Use of improved varieties	76 (47.50)	39 (24.37)	45 (28.12)
4.	Seed rate	30 (18.75)	21 (13.13)	109 (68.12)
5.	Seed treatment	95 (59.38)	52 (32.50)	13 (08.12)
6.	Spacing	32 (20.00)	100 (62.50)	28 (17.50)
7.	Use of manure	54 (33.75)	81 (50.62)	25 (15.63)
8.	Use of Fertilizer	44 (27.50)	99 (61.88)	17 (10.62)
9.	Water management	57 (35.63)	48 (30.00)	55 (34.37)
10.	Intercropping	100 (62.50)	48 (30.00)	12 (07.50)
11.	Weed management	36 (22.50)	81 (50.63)	43 (26.87)
12.	Earthing up	109 (68.12)	41 (25.62)	10 (06.25)
13.	Insect pest management	57 (35.63)	75 (46.87)	28 (17.50)
14.	Disease management	48 (30.00)	76 (47.50)	36 (22.50)
15.	Harvesting practices	08 (05.00)	46 (28.75)	106 (66.25)
16.	Storage	23 (14.38)	98 (61.25)	39 (24.37)

f- Frequency

(%) - Per cent

adoption level of recommended groundnut production technology, through extension contacts and proper utilization of sources of information. Exhibition, kisan mela and training programme should be conducted in different aspects of groundnut production technology by the concerned agencies.

Practice-wise level of adoption of groundnut production technology

Practice-wise adoption of groundnut production technology is presented in the [Table-2] and [Fig-1] Total sixteen practices were taken for the present study and level of adoption was seen for each practices. The findings revealed that the respondents had low level of adoption regarding selected practices of groundnut production technology i.e. Earthing up (68.12%), Intercropping (62.50%), Seed treatment (59.38%), Use of improved varieties (47.50%), Water management (35.63%), Insect pests management (35.63%), Use of manure (33.75%), Diseases management (30.00%), Use of Fertilizer (27.50%), Weed management (22.50%), Spacing (row to row) (20.00%), Seed rate (18.75%), Storage (14.38%), Preparation of land (13.12%), Harvesting (05.00) and none of the respondents had low level of adoption regarding Time of sowing.

In case of medium level of adoption category it was found that majority of the respondents (76.25%) had adopted preparation of land to medium extent, followed by Spacing row to row (62.50%), Use of Fertilizer (61.88%), Storage (61.25%), Weed management (50.63%), Use of manure (50.62%), Diseases management (47.50%), Insect pests management (46.87%), Seed treatment (32.50%), Water management (30.00%), Intercropping (30.00%), Harvesting (28.75%), Earthing up (25.62%), Time of sowing (25.00%), Use of improved varieties (24.37%) and Seed rate (13.13%).

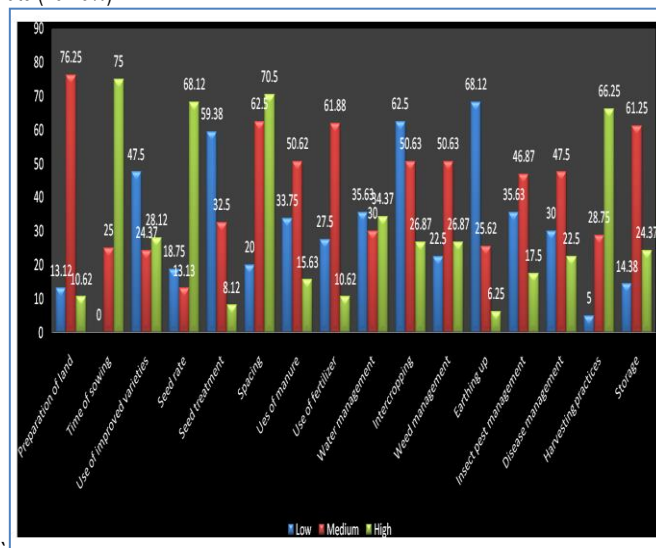


Fig-1 Distribution of respondents according to practice wise level of adoption regarding recommended groundnut production technology

In categories of high level extent of adoption by the groundnut growers were reported in practices like Time of sowing (75.00%), Seed rate (68.12%), Harvesting (66.25%), Water management (34.37%), Use of improved varieties (28.12%), Weed management (26.87%), Storage (24.37%), Disease management (22.50%), Spacing (row to row) (17.50%), Insect pest management (17.50%), Use of manure (15.63%), Preparation of land (10.62%), Use of Fertilizer (10.62%), Seed treatment (8.12%), Intercropping (07.50), and Earthing up (06.25%).

Correlation coefficient analysis of independent variables with adoption of recommended groundnut production technology

To determine the correlation analysis of selected variables with adoption of recommended groundnut production technology, the analysis was done and results are given in [Table-3]. The finding revealed that out of 12 independent variables, only six variables i.e. education, land holding, annual income, contact with extension agencies, sources of information and knowledge towards groundnut production technology were found positively and highly significantly

So it reveals that a majority of the respondents (81.25%) were found to possess low to medium adoption level. Thus, there is an urgent need to increase the

correlated at 0.01 per cent level of probability, whereas attitude and scientific orientation were found positively and significantly correlated at 0.05 per cent level of probability while other variables like caste, social participation, occupation, and credit acquisition showed statistically non significant relationship with adoption of recommended groundnut production technology.

Table-3 Correlation analysis of independent variables with adoption of recommended groundnut production technology

S.N.	Independent variables	Coefficient of correlation "r" value
1.	Education	0.658**
2.	Caste	0.143
3.	Social participation	0.115
4.	Land Holding	0.476**
5.	Occupation	0.131
6.	Annual income	0.492**
7.	Credit acquisition	0.127
8.	Contact with extension agencies	0.345**
9.	Source of information	0.460**
10.	Knowledge	0.791**
11.	Attitude	0.180*
12.	Scientific orientation	0.200*

** Significant at 0.01 level of probability

* Significant at 0.05 level of probability

Multiple regression analysis of independent variables with adoption of recommended groundnut production technology.

Table-4 Multiple regression analysis of independent variables with adoption of recommended groundnut production technology

S.N.	Independent variables	Regression Coefficient "b" value	"t" value
1.	Education	0.813*	2.143
2.	Caste	-0.336	-0.732
3.	Social participation	0.026	0.051
4.	Land Holding	0.009	0.066
5.	Occupation	-0.183	-0.738
6.	Annual income	0.918*	2.140
7.	Credit acquisition	1.082	1.221
8.	Contact with extension agencies	0.374	1.025
9.	Source of information	0.636*	1.985
10.	Knowledge	0.886**	7.873
11.	Attitude	0.055	0.261
12.	Scientific orientation	0.195	0.983

** Significant at 0.01 level of probability

R²= 0.6587

* Significant at 0.05 level of probability F value of r = 24.43

The data presented in [Table-4] reveals that out of the twelve variables under study, only one variable knowledge towards groundnut production technology showed highly significant and positive contribution towards adoption at 0.01 per cent level of significance and three variables namely education, annual income and source of information showed significant and positive contribution towards adoption at 0.05 per cent level of significance. The remaining eight variables viz. caste, social participation, land holding, occupation, credit acquisition, contact with extension agencies, attitude and scientific orientation did not contribute significantly in the adoption of recommended groundnut production technology. It is also seen that all the 12 independent variables jointly explained the variation to the extent of 65.87 per cent in adoption of recommended groundnut production technology.

Conclusion

It can be conclude from the above findings that majority of the groundnut growers showed medium level of adoption regarding recommended groundnut production technology and medium to high adoption may be due to the fact that the respondents were educated, possessed large land holdings, belonged to higher

income group had better utilization of information sources and better orientation towards scientific technologies. In case of practice wise level of adoption, most of the groundnut growers had high level of adoption regarding time of sowing, seed rate and harvesting, whereas medium level of adoption the practices were preparation of land, spacing (row to row), use of fertilizer, storage, use of manure, weed management, diseases management, While in case of low level of adoption the practices were earthing up intercropping, seed treatment, use of improved varieties, water management, insect pest management. Out of selected 12 independent variables, eight variables i.e. education, land holding, annual income, contact with extension agencies, sources of information, knowledge towards groundnut production technology, attitude and scientific orientation were found significant and positively correlated with extent of adoption of recommended groundnut production technology. In regression analysis only four variables i.e. education, annual income, source of information and knowledge towards groundnut production technology had significantly contributed towards adoption of recommended groundnut production technology.

Acknowledgement: Thanks to all Groundnut growers, DDA of Raigarh, for their valuable responses regarding my research.

Author Contributions: Govind Prasad, K.K. Shrivastava, Y. S. Dhruv

Abbreviations: Fig. (Figure), MT (Metric Tons), R.A.E.O. (Rural agriculture Extension Officer) and ha. (Hectare).

Conflict of Interest: None declared

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