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Knowledge and attitude of farmers towards groundnut production technology in Raigarh district of Chhattisgarh

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Abstract
The study was carried out on 160 groundnut growers. To conduct the study a simple random sampling technique was followed to draw a sample of 160 respondents (groundnut growers) from 20 purposively selected villages of four blocks of Raigarh district of Chhattisgarh state, to measure the level of knowledge and attitude towards recommended groundnut production technology. The findings revealed that majority of the groundnut growers were medium level of knowledge and moderately favourable attitude towards recommended groundnut production technology. In practice wise, most of the groundnut growers had high level of knowledge regarding harvesting practices, time of sowing, seed rate and the medium level of knowledge the practices were yield, intercropping, Preparation of land, fertilizer use, spacing, storage, insect pests management, in case of low level of knowledge the practices were earthing up, seed treatment, diseases management. Most of the variables such as education, caste, scientific orientation, annual income, contact with extension agencies, source of information, social participation were found positively and significant related with knowledge and attitude towards recommended groundnut production technology. In regression analysis, six variables i.e. education, social participation, annual income, scientific orientation, source of information, contact with extension agencies had significantly contributed towards knowledge of recommended groundnut production technology.

Keywords: Knowledge, groundnut and groundnut growers, Raigarh

Introduction

Among the different oilseed crops, groundnut (*Arachis hypogaea* L.) is third most important source of vegetable protein in the world and can play an important role in meeting the requirement of both protein and edible oil. It is not only an important oilseed crop of India but also an important agricultural export commodity [5, 6]. It is the 6th most important oilseed crop and 13th most important food crop of the world. Groundnut, 'the unpredictable legume' is also known as monkey nut, peanut, manilla nut and earthnut. It is believed to be native to South America and the Caribbean. It came to India in the half of the 16th century from the Pacific islands of China, where it was introduced from either Central or South America. It is grown throughout the tropics, and its cultivation also extends to the sub tropical regions lying between 45° N and 35° S and up to an altitude of 1000 metres. The crop can be grown successfully in places receiving a minimum rainfall of 1250 mm. The rainfall should be well distributed during the flowering and pegging of the crop [2]. Each part of the groundnut plant is useful either as food or feed. It is cultivated for kernel that is rich in oil and protein. It kernels have about 25% easily digestible protein which is 1.3 times, 2.5 times and 8 times higher than meat, eggs and fruits respectively. Its seeds are nutritional source of vitamin E, calcium, falacin, niacin, phosphorus, zinc, iron, magnesium, riboflavin, potassium and thiamine. The oil content in seed varies from 40-50% depending on the varieties and agronomic conditions and is extensively used for cooking (culinary oil) and for preparing vegetable oil (vanaspati) [2, 4]. About 81.6% of the total production is crushed and used for edible purpose. The remaining production goes for seed (12%), feed (5.3%) and exports (1.1%) [7]. In India, groundnut is cultivated in all seasons nearly 80% of the annual acreage and production comes from kharif crop. Kharif- 2018 all India groundnut acreage was 38,90,000 hectares and five states, Gujarat (14,67,600 ha; 37.7%), Andhra Pradesh (6,60,000 ha; 17%), Rajasthan (5,49,052 ha; 14.1%), Karnataka (3,82,940 ha; 9.8%) Maharashtra (1, 95,594 ha 5.0%) jointly accounted for 83.7% of the national acreage [5].

In Chhattisgarh, groundnut covers an area 67.7 thousand hectares with the production of 70.2 thousand tonnes and productivity 1036 kg/ha [1], among the all districts of Chhattisgarh state, Raigarh district is higher in both area and Production [3]. In spite of that the production of groundnut in Raigarh district is low.

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Therefore, the present study was designed with the following objectives

1. To measure the level of knowledge regarding recommended groundnut production technology.
2. To study the attitude of groundnut growers towards recommended groundnut production technology.
3. To find out the relationship between the selected characteristics of groundnut growers and knowledge and attitude towards recommended groundnut production technology.

Research Methodology
The study was conducted in Raigarh district of Chhattisgarh state. Raigarh district has nine blocks, out of which only four blocks i.e. Baramkela, Pussor, Sarangarh and Raigarh were purposively selected. Five villages from each block were selected purposively, thus the total 20 villages from four blocks were selected. Eight groundnut growers were selected randomly from each selected village. In this way total 160 groundnut growers (8X20=160) were considered as respondent for this study and the data were collected personally through pre-tested interview schedule. The collected data were tabulated and analysed by using appropriate statistical tools i.e. mean, standard deviation, frequency, per cent, coefficient of correlation and multiple regression *etc*. Attitude of groundnut growers towards the recommended groundnut production technology was measured with the help of scale developed by Sastry *et al.* (1992) was used with slight modifications. The scale followed the Linkert scaling pattern. The response pattern were strongly agree, agree, undecided, disagree and strongly disagree with the weightages of 5, 4, 3, 2 and 1 for positive statements and reverse for the negative statements respectively. To measure the level of knowledge towards recommended groundnut production technology. The important practices (29 items) were listed and responses for each practice was given score 3, 2 and 1 for Complete knowledge, Partial knowledge and No knowledge respectively. The knowledge 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:

a) Low level of knowledge: $< \overline{X} - S.D.$

b) Medium level of knowledge: in between $\overline{X} \pm S.D.$

c) High level of knowledge: $> \overline{X} + S.D.$

Results and Discussions
The level of knowledge of the respondents regarding recommended groundnut production technology

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

S. N.	Level of knowledge	Frequency	Per cent
1.	Low (up to 57 score)	27	16.87
2.	Medium (58-71 score)	101	63.13
3.	High (72 and above score)	32	20.00
	Total	160	100.00

$\overline{X}$ = 64.49   S.D. = 7.05

It is clearly indicated from the data presented in Table-1 that out of total respondents majority (63.13%) of them were belong to medium level of knowledge about recommended groundnut production technology, whereas 20.00 and 16.87 per cent of them were belong to high and low level of knowledge respectively.

So it reveals that a majority of the respondents (80.00%) were found to possess low to medium knowledge level. Thus, there is an urgent need to increase the knowledge level groundnut growers towards recommended groundnut production technology, through exhibition, kisan mela, proper utilization of sources of information and extension contacts. Similar findings were reported by Markana *et al*. (2016) [7].

Practice wise level of knowledge of the respondents regarding recommended groundnut production technology

Table 2: Distribution of respondents according to practice wise level of knowledge n=160

S. N.	Practices	Level of knowledge		
		Low f (%)	Medium f (%)	High f (%)
1.	Preparation of land	12 (7.50)	116 (72.50)	32 (20.00)
2.	Time of sowing	00 (00.00)	20 (12.50)	140 (87.50)
3.	Use of improved varieties	41 (25.62)	73 (45.63)	46 (28.75)
4.	Seed treatment	76 (47.50)	70 (43.75)	14 (08.75)
5.	Seed rate	30 (18.75)	18 (11.25)	112 (70.00)
6.	Spacing	21 (13.12)	109 (68.13)	30 (18.75)
7.	Intercropping	22 (13.75)	124 (77.50)	14 (08.75)
8.	Use of manure	32 (20.00)	68 (42.50)	60 (37.50)
9.	Fertilizer use	35 (21.87)	107 (66.88)	18 (11.25)
10.	Water management	21 (13.12)	67 (41.88)	72 (45.00)
11.	Weed management	14 (08.75)	78 (48.75)	68 (42.50)
12.	Earthing up	103 (64.37)	45 (28.12)	12 (7.50)
13.	Insect pests management	43 (26.87)	79 (49.38)	38 (23.75)
14.	Diseases management	56 (35.00)	76 (47.50)	28 (17.50)
15.	Harvesting practices	00 (00.00)	12 (7.50)	148 (92.50)
16.	Yield (q/ha)	00 (00.00)	130 (81.25)	30 (18.75)
17.	Storage	18 (11.25)	93 (58.13)	49 (30.62)

f - (Frequency),   (%) (Per cent)

The data presented in Table 2 revealed that the respondents had low level of knowledge regarding selected practices of groundnut production technology i.e. Earthing up (64.37%),

Seed treatment (47.50%), Diseases management (35.00%), Insect pests management (26.87%), Use of improved varieties (25.62%), Fertilizer use (21.87%), Use of manure (20.00%),

Seed rate (18.75%), Intercropping (13.75%), Water management (13.12%), Spacing (row to row) (13.12%), Storage (11.25%), Weed management (8.75%), Preparation of land (7.50) and none of the respondents had low level of knowledge regarding Time of sowing, Harvesting practices, Yield of groundnut crop, whereas the respondents who had medium level of knowledge regarding groundnut production technology i.e. Yield (q/ha) (81.25%), Intercropping (77.50%), Preparation of land (72.50%), Fertilizer use (66.88%), Spacing (row to row) (68.13%), Storage (58.13%), Insect pests management (49.38%), Weed management (48.75%) and Diseases management (47.50%), use of improved varieties (45.63%), Seed treatment (43.75%), Use of manure (42.50%), Earthing up (28.12%), Water management (41.88%), Time of sowing (12.50%), Seed rate (11.25%) and Harvesting practices (7.50%).

In case of high level of knowledge category it was found that majority of the respondents (92.50%) had knowledge about harvesting practices, followed by Time of sowing (87.50%), Seed rate (70.00%), Weed management (42.50%), Water management (45.00%), Use of manure (37.50), Storage (30.62%), Use of improved varieties (28.75%), Insect pests management (23.75%), Preparation of land (20.00%), Spacing row to row (18.75%), Yield (q/ha) (18.75%), Diseases management (17.50%), Fertilizer use (11.25%), Intercropping (8.75), Seed treatment (8.75%) and Earthing up (7.50%).

Attitude of respondents towards recommended groundnut production technology

Table 3: Distribution of respondents according to their attitude towards recommended groundnut production technology n=160

S. No.	Attitude	Frequency	Percent
1.	Unfavourable (Up to 21 score)	36	22.50
2.	Moderately favourable (22 – 24 score)	99	61.88
3.	Favourable (25 and Above score)	25	15.62
	Total	160	100.00

$\overline{X}$ = 22.84   S.D. = 1.87

In the above Table 3 reveals that majority of the respondents (61.88%) were found to possess moderately favourable attitude regarding groundnut production technology, whereas 22.50 per cent were found unfavourable attitude category towards the groundnut production technology and only 15.62 per cent of the respondents showed favourable attitude towards the groundnut production technology.

It can be inferred from above finding that one-sixth of groundnut growers had favourable attitude towards the groundnut production technology, the majority of groundnut growers had moderately favourable towards the groundnut production technology. The reason for moderately favourable attitude may be the lack of detailed knowledge about recommended groundnut production technology. The lack of knowledge might have resulted in lack of interest and conviction. Therefore, there is a need to modify the attitude of

the groundnut growers through proper training and guidance, persuasion and conducting skill oriented demonstration on different aspect of groundnut production technology in the farmer's field to show their effectiveness and create interest among them to groundnut promotion to the farmers.

Table 4: Correlation analysis of selected characteristics of groundnut growers with Knowledge and attitude towards recommended groundnut production technology

S. N.	Independent variables	Knowledge	Attitude
1.	Education	0.780**	0.234**
2.	Caste	0.238**	0.155*
3.	Social participation	0.200*	0.160*
4.	Land Holding	0.458**	-0.017 NS
5.	Occupation	0.151 NS	0.122 NS
6.	Annual income	0.445**	0.197*
7.	Credit acquisition	0.090 NS	0.150 NS
8.	Contact with extension agencies	0.730**	0.236**
9.	Source of information	0.198*	0.278**
10.	Scientific orientation	0.667**	0.289**

**Significant at 0.01 level of probability *Significant at 0.05 level of probability, NS - Non- Significant

To find out the relationship between the selected characteristics and knowledge towards recommended groundnut production technology, the analysis was done and results are given in Table-4. The finding indicated that out of ten independent variables, six variables i.e. education, caste, land holding, annual income, contact with extension agencies, and scientific orientation were found positively and highly significantly correlated at 0.01 per cent level of significance, whereas social participation and source of information were found positively and significantly correlated at 0.05 per cent level of significance, while other variables like occupation and credit acquisition showed statistically non significant relationship with knowledge towards recommended groundnut production technology.

The relationship between the selected characteristics and attitude towards recommended groundnut production technology also given in Table 4, only four variables i.e. education, contact with extension agencies, scientific orientation and source of information were found positively and highly significantly correlated at 0.01 per cent level of significance, and the three variables such as caste, social participation and annual income were found positively and significantly correlated at 0.05 per cent level of significance. Other variables, land holding, occupation and credit acquisition showed no significant relationship with attitude towards recommended groundnut production technology.

These findings clearly indicated that most of the selected independent variables had positively and significant related with knowledge and attitude towards recommended groundnut production technology.

Multiple regression analysis between knowledge of groundnut growers with Independent variables

Table 5: Multiple regression analysis between knowledge of groundnut growers with Independent variables

S. N.	Independent variables	Regression Coefficient "b" value	"t" value
1.	Education	1.519**	6.146
2.	Caste	0.119	0.354
3.	Social participation	0.561*	1.200
4.	Land Holding	0.044	0.461
5.	Occupation	-0.213	-1.178
6.	Annual income	0.451**	2.745
7.	Credit acquisition	-0.590	-0.914

8.	Contact with extension agencies	1.126**	4.511
9.	Source of information	0.524*	1.982
10.	Scientific orientation	0.613**	4.520

** Significant at 0.01 level of probability $R^2 = 0.6848$ * Significant at 0.05 level of probability

The data presented in Table-5 reveals that four variables education, annual income, contact with extension agencies and scientific orientation showed highly significant and positive contribution towards level of knowledge at 0.01 per cent level of significance and only two variable i.e. social participation, source of information showed significant and positive contribution towards knowledge level at 0.05 per cent level of significance. The remaining four variables *viz.* caste, land holding, occupation and credit acquisition did not contribute significantly in the level of knowledge towards recommended groundnut production technology. It is also seen that all the ten independent variables jointly contributed towards 68.48 per cent of the variation in the level of knowledge of groundnut growers about recommended groundnut production technology.

Conclusion
From the findings, majority of the groundnut growers showed medium level of knowledge about recommended groundnut production technology, and medium to high level of knowledge may be due to the fact that the groundnut grower were educated, timely Contact with extension agencies, belonged to higher income group, had better sources of information and better orientation towards scientific technologies. Majority of the respondents also indicate the moderately favourable attitude towards recommended groundnut production technology. In practice wise level of knowledge, most of the groundnut growers had high level of knowledge regarding harvesting practices, time of sowing, seed rate, whereas medium level of knowledge the practices were yield, intercropping, preparation of land, fertilizer use, spacing, storage, insect pests management, while in case of low level of knowledge the practices were earthing up, seed treatment, diseases management. The knowledge and attitude of groundnut growers were positively and significantly associated with education, caste, annual income, contact with extension agencies, scientific orientation, source of information, social participation. Two variables, occupation, credit acquisition and three variables namely land holding, occupation, credit acquisition were found non-significant relationship with knowledge and attitude respectively. In multiple regression analysis, six variables namely education, social participation, annual income, contact with extension agencies, scientific orientation, source of information had significantly contributed towards knowledge of recommended groundnut production technology.

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