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ADOPTION OF RECOMMENDED GROUNDNUT PRODUCTION TECHNOLOGY BY THE GROUNDNUT GROWERS

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ABSTRACT

The study was conducted in Saurashtra region of Gujarat State. A multistage, purposive and random sampling technique was used for the study. Out of eleven district of Saurashtra region, total five districts were selected purposively where cluster frontline demonstration on groundnut crop under National Mission on Oilseed and Oil palm (NMOOP) was conducted by KVKs during last two years. Five districts of Saurashtra region were selected for the study. Two talukas from each selected districts were selected purposively where cluster frontline demonstrations are conducted by the KVKs during last two years. Thus, total 10 talukas were selected for the study. Villages from each taluka were selected purposively where maximum cluster frontline demonstrations are conducted by KVKs. Thus, total 16 villages were selected purposively. The random sampling technique was used for the selection of the respondents. 80 demonstrator and 80 non-demonstrator farmers were selected randomly from selected village for comparative study. Thus total 160 respondents were selected for this study. The data were classified, tabulated and analyzed with the help of frequency, percentage, mean and standard deviation and Z value. The analysis indicated that the independent sample 'Z' test showed that there was significant difference in the mean values of demonstrator and non-demonstrator groundnut growers in case of adoption of recommended groundnut production technology.

Keywords: *cluster frontline demonstrator, demonstrator and non demonstrator farmers, krishi vigyan kendra, NMOOP, saurashtra region*

INTRODUCTION

The peanut, also known as groundnut or monkey-nut and taxonomically classified as *Arachis hypogaea,* is a legume crop. the peanut belongs to the botanical family Fabaceae. 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. Groundnut (*Arachis hypogaea.*), is an important crop grown worldwide in more than 100 countries. 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. Groundnut is an important oilseed crop of India.

Government is promoting National Mission on Oilseeds and Oil Palm (NMOOP) during 2014-2015. National Mission on Oilseeds and Oil Palm (NMOOP) envisages increase the production of oilseeds, oil palm and TBOs from 7.06 million tonnes (average of 2007-08 to 2011-12) to 9.51 million tonnes by the end of Twelth Plan (2016-17).The scheme would be implemented in a mission mode through active involvement of all the stakeholders. Fund flow would be monitored to ensure that benefit of the Mission reaches the targeted beneficiaries in time to achieve the targeted results. There is a three component 1.MM I on Oilseeds 2.MM II on Oil Palm 3.MM III on TBOs. Funding pattern of NMOOP is Mostly 75: 25 between Central and State Governments and 100% to central agencies.

The lack of transfer of technology from research system to the client system is the main problem in increasing agricultural production in the developing world. Still there is a wide gap between attained technical know-how and its utilization in the field of common farmers. The present rate of agricultural production can be doubled if the available groundnut production technologies are brought to bear with production process and programme. This requires the steady flow of information from the scientist to the millions of farmers. Moreover, inputs are needed to be used scientifically. This is possible through the demonstration as it is an important and appropriate extension method which makes it possible to disseminate technology to the user farmers. Keeping this fact in view with the government of India launched frontline

demonstration programme for oilseed crop under auspicious of oilseed mission. It has played significant role in increasing the knowledge and adoption of recommended groundnut production technologies by the groundnut growers. Considering this, the present investigation was carried out to know the adoption of farmers regarding the groundnut production technology.

OBJECTIVE

To know the adoption of recommended groundnut production technology by the groundnut growers

METHODOLOGY

Ex-post facto research design was followed for carrying out the study. For drawing the sample for the study multistage, purposively, proportionate and random sampling techniques were used. Jamnagar, Amreli, Bhavnagar, Gir-somnath and Rajkot districts from Saurashtra region of Gujarat state was purposively selected for the study among them total 12 talukas were selected purposively and selected talukas total 16 villages were selected purposively for the study. The proportionate random sampling technique was used for the selection of the respondents. 80 demonstrator farmers and 80 non-demonstrator farmers were selected randomly from selected village. Thus total 160 respondents were selected for this study.

In the present study an attempt was made to develop an adoption index, which could scientifically measure the extent of adoption of groundnut production technology by groundnut growers in Saurashtra region. The adoption of recommended groundnut production technology was divided in to 16 different practices. These selected practices were circulated among 30 experts who had minimum five-year experience in the field of research or extension. A comprehensive list of all the practices adopted by the farmers under above sub heads was prepared. The different weightage was given to each practice. The weightage of particular practices was determined by seeking the opinions of the expert/extension workers considering the total score 100 (Table 2). The farmers were asked about the practices they followed on their farm. Their responses were recorded in the schedules. The responses obtained from respondents were analyzed. The mean and standard deviation were calculated.

Table 1 : The respondents were grouped in to three categories on the basis of mean and standard deviation.

Sr. No.	Categories	Range
1	Low level of adoption	<Mean – S.D
2	Medium level of adoption	In between Mean $\pm$ S. D
3	High level of adoption	>Mean + S.D

Table 2 : The weightage given to the different practices in the scale

Sr. No.	Name of practices	Total score (100)
1	Soil testing	3.90
2	Preparatory tillage	4.90
3	Improved varieties	12.90
4	FYM / Compost	7.40
5	Chemical fertilizers	7.30
6	Seed rate	5.00
7	Seed treatment	5.00
8	Sowing time	5.00
9	Sowing distance	4.90
10	Gap filling	2.25
11	Interculturing	5.50
12	Weed control	10.00
13	Plant protection measures	9.80
14	Irrigation	6.80
15	Harvesting	4.10
16	Post harvesting	5.25

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

Where,

AQ=	Adoption Quotient
e_1……. en =	Extent of adoption in terms of score obtained by the farmers for particular groundnut production technology.
P_1……. Pn =	Potentiality of the respondents in terms of score obtained for the particular practices.
W_1……. Wn =	Weightage of the particular practices, 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 DISUSSION

Extent of adoption of recommended groundnut production technology

As discussed in the methodology, adoption index was developed and used to measure the adoption of groundnut growers. The extent of adoption of respondents was calculated based on the score obtained by them. The respondents were classified into three categories on the basis of mean and standard deviation. These data regarding adoption about recommended groundnut crop production technology are presented in Table 1.

Table 1 : Distribution of respondents according to their extent of adoption of recommended groundnut crop production technology (n = 160)

Sr. No	Extent of adoption category	Category of respondents			
		Demonstrator (n=80)		Non-demonstrator (n=80)	
		Frequency	Per cent	Frequency	Per cent
1	Low level adoption	13 (below 64.92)	16.25	23 (below 55.12)	28.75
2	Medium level adoption	51 (64.92 to 78.12)	63.75	45 (55.12 to 79.07)	56.25
3	High level adoption	16 (Above 78.12)	20.00	12 (Above 79.07)	15.00
Mean		71.52		67.09	
S.D.		6.59		11.97	
Z cal		3.24*			
Z tab at 95% los		2.81			

The data presented in Table 1, revealed that majority 63.75 per cent of demonstrator farmers was in medium extent of adoption of recommended groundnut production technology, whereas 20.00 per cent had high and 16.25 per cent had low extent of adoption of recommended groundnut production technology, respectively. In case of non-demonstrator farmers, 56.25 per cent had medium level of adoption, whereas 28.75 per cent and 15.00 per cent had low and high level of adoption of recommended groundnut production technology, respectively.

The probable reason might be that the demonstrator respondents were more benefited by different extension activities, input supply and acquired guidance from research scientists. Moreover, demonstrator farmers were educated, having good contact with NGOs, other progressive farmers and received farm literature from KVK. While in case of Non-demonstrator farmers had less contact with research scientist and less extension participation as compare to demonstrator farmers and their education level was also not good and hence, the extent of adoption of recommended groundnut production technologies was low.

The data in Table 1, it can be observed that the Z calculated is more than Z tab. Therefore, it is inferred that there is significant difference on adoption level of demonstrator and non-demonstrator farmers. The study of Table 1a said that there is a significance difference among the adoption level of respondents. Thus from Table 1 and Table 1a it can be concluded that the demonstrator farmers had statistically significant higher adoption level than non-demonstrator farmers. Therefore, it can be concluded that CFLDs conducted by the KVKs was able to create a significant advantage to adoption level of respondents. This finding was in conformity with the findings of Koli (2012),

Patoliya (2013), Chanu *et al.* (2014), Raviya (2017), Rai and Kanak (2020), Bhimani et al. (2022), Bora *et al*. (2022), Gajera *et al.* (2022) and Jalu *et al.* (2022).

Table 1a: Independent sample t- test

	Equal variances assumed		Adoption Level	
			Equal variances not assumed	
Levene's Test for Equality of Variance	F		0.189	-
	Sig.		0.256	-
t- test for Equality of Means	t		2.789	2.789
	df		158	157.959
	Sig. (2-tailed)		.000	.000
	Mean Difference		4.25000	4.25000
	Std. Error Difference		1.52368	1.52368
	95% Confidence Interval of the Difference	Lower	1.24060	7.25940
		Upper	1.24060	7.25940

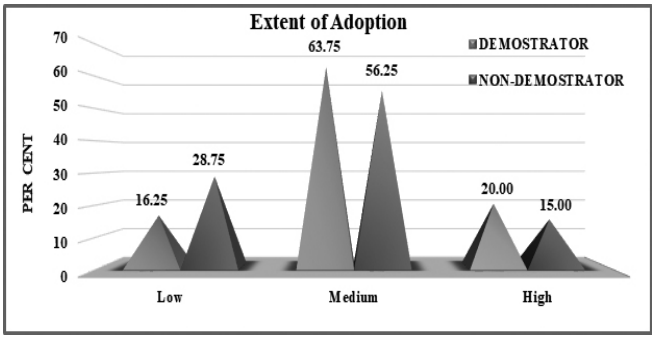

Fig. 1 : Extent of Adoption of recommended groundnut production technology by groundnut growers

Practice wise adoption of recommended groundnut production technology

To ascertain the practice-wise extent of adoption of recommended groundnut production practices by the respondents, the recommended groundnut production practices were divided into 16 practices and weightages of all practices were assigned to make a total of 100 for all recommended practices. On the basis of practice wise scores obtained in adopting a particular practice, the mean score was worked out for all the individual practice from all the respondents. These mean scores were again converted into percentage for all the recommended practices. The ranks were assigned to each practice. The results are presented in Table 2.

Table 2: Practice wise distribution of respondents regarding their adoption recommended groundnut production technology (n = 160)

Sr. No.	Name of Practices	Total score (100)	Category of respondents					
			Demonstrator (n=80)			Non-demonstrator (n=80)		
			Mean Score Achieved	Per cent	Rank	Mean Score Achieved	Per cent	Rank
1	**Soil testing**	03.90	01.62	41.53	XIV	01.68	43.07	XIII
2	**Preparatory tillage**	04.90	04.38	89.38	**III**	03.78	77.14	VII
3	**Improved variety**	12.90	11.10	86.04	V	10.95	84.88	IV
4	**FYM/ Compost fertilizer**	07.40	05.45	73.64	X	04.90	66.21	IX
5	**Chemical fertilizers**	07.30	06.65	91.09	**II**	06.30	86.30	**III**
6	**Seed rate**	05.00	04.32	86.40	IV	02.90	58.00	X
7	**Seed treatment**	05.00	02.40	48.00	XIII	01.40	28.00	XIV
8	**Sowing time**	05.00	04.10	82.00	VI	04.56	91.20	**II**
9	**Sowing distance**	04.90	03.65	74.48	IX	02.15	43.87	XII

Sr. No.	Name of Practices	Total score (100)	Category of Respondents					
			Demonstrator (n=80)			Non-demonstrator (n=80)		
			Mean Score Achieved	Per cent	Rank	Mean Score Achieved	Per cent	Rank
10	**Thinning and gap filling**	02.25	00.75	33.33	XVI	00.15	06.66	XV
11	**Inter culturing**	05.50	03.25	59.09	XI	03.12	56.72	XI
12	**Weed control**	10.00	07.67	76.70	VIII	08.12	81.20	V
13	**Plant protection measures**	09.80	09.45	96.42	**I**	09.40	95.91	**I**
14	**Irrigation**	06.80	03.45	50.73	XII	05.32	78.23	VI
15	**Harvesting**	04.10	03.15	76.82	VII	03.08	75.12	VIII
16	**Post harvesting**	05.25	01.90	36.19	XV	01.45	27.61	XV

The data in Table 2 indicated that different rates of adoption by various 16 practices followed by respondents for recommended groundnut production technologies.

In case of demonstrator farmers, it was observed that the first rank was occupied by plant protection measures (96.42 per cent), followed by chemical fertilizer (91.09 per cent), preparatory tillage (89.38 per cent), seed rate (86.40 per cent), improved variety (86.04 per cent), sowing time (82.00 per cent), were ranked second, third, fourth, fifth, sixth, respectively. While, harvesting was the seventh rank (76.82 per cent), followed by weed control (76.70 per cent), sowing distance (74.48 per cent), FYM/compost fertilizers (73.64per cent), inter culturing (59.09 per cent), irrigation (50.73 per cent), seed treatment (48.00 per cent), soil testing (41.53 per cent), post harvesting (36.19 per cent) thinning and gap filling (33.33 per cent), were ranked eighth, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen respectively.

In case of non-demonstrator farmers, it was observed that the first rank was occupied by plant protection measures (95.91 per cent), followed by sowing time (91.20 per cent), chemical fertilizer (86.30 per cent), improved variety (84.88 per cent), weed control (81.20 per cent), irrigation (78.23 per cent), preparatory tillage (77.14 per cent) were ranked second, third, fourth, fifth and sixth and seventh, respectively. While harvesting (75.12 per cent) was ranked eighth followed by FYM/compost (66.21 per cent), seed rate (58.00 per cent), inter culturing (56.72 per cent), sowing distance (43.87 per cent), soil testing (43.07 per cent), seed treatment (28.00 per cent), post harvesting (27.61 per cent) Thinning and gap filling (6.66) were ranked nine, ten, eleventh, twelve, thirteen, fourteen, fifteen, sixteen, respectively.

It could be summarized that the practices *viz;* plant protection measures, chemical fertilizer, improved variety, predatory tillage, were highly adopted by demonstrator farmers. While other practices *viz;* inter culturing, thinning and gap filling, seed treatment, irrigation, occupied almost last position in adoption. The probable reason might be that the demonstrator farmers have more knowledge about different practices and they know which practices used at proper time and by proper method and they have more innovativeness, high-risk orientation, more extension contact, and social participation. In case of non-demonstrator farmers, they have less knowledge about use and proper method of different practices and they have less innovativeness, less risk orientation and less extension contact and social participation as compare to demonstrator farmers

CONCLUSION

It is concluded that increase in adoption status among the demonstrator farmers is being observed due to exposure in various capacities building programme conducted under NMOOP by Krishi Vigyan Kendra. From the analysis it can be concluded that there was significant difference between the demonstrator and Non demonstrator groundnut growers in case of adoption of recommended groundnut production technology i.e. majority of the demonstrator (63.75 per cent) and non-demonstrator (56.25 per cent) farmers had medium level of adoption of recommended groundnut production technology. Whereas, 20.00 per cent of demonstrator and 15.00 per cent of non-demonstrator farmers had high level of extent of adoption about recommended groundnut production technology, respectively. While only 16.25 per cent of demonstrator and 28.75 per cent of non-demonstrator farmers had low level of extent of adoption about recommended groundnut production technology.

CONFLICT OF INTEREST

This is to declare that there is “No conflict of interest” among researcher.

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