Research Article

Adoption of improved groundnut production technology under front line demonstration

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SUMMARY : The present study was conducted in 4 villages of Deesa taluka where FLDs on groundnut crop were conducted by KVK. Groundnut is one of the most important crops among the different oilseed crops grown in Gujarat. The finding of the study indicated that the extent of adoption of the demonstrated groundnut production technology was medium to high among the majority of the respondents from beneficiary farmers (92.86%) and non-beneficiary farmers (81.42%). Significant difference between beneficiary and non-beneficiary farmers with respect to their extent of adoption of improved demonstrated groundnut production technology were found. Beneficiary farmers had higher level of adoption about improved groundnut crops practices as compared to non-beneficiary farmer. The present study concludes that education, social participation, farm size, annual income, extension participation, source of information, scientific orientation and knowledge of the beneficiary farmers were positively related with extent of adoption of improved demonstrated groundnut production technology.

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BACKGROUND AND OBJECTIVES

The Indian Council of Agricultural Research (ICAR) introduced the concept of "first line demonstration" under the "oilseed technology mission" during 1990-91. Later on this demonstration was termed as "front line demonstration" because the technologies are demonstrated first time on farmer's field by the scientists themselves, before taking it to the main extension system of the state department of the agriculture. The front line demonstration (FLD) is to demonstrate recommended crop production technologies and its' management practices by the scientist on farmers field under real farming situation.

Adoption is a mental process. In the modern era new things are being invented by agricultural scientists but all the innovations are not being adopted by many of the members of social system. Adoption of an innovation depends on many factors *viz.,* awareness and knowledge of

adopters, innovativeness, characteristics of an innovations etc. It is generally assumed that if an individual has more knowledge about different aspects of technologies, he is likely to adopt the innovations with higher speeds.

Groundnut is one of the most important crops among the different oilseed crops grown in India. Its oil is used for edible as well as non-edible purpose. It is widely used in human diet as a medium for cooking. Gujarat particularly Saurashtra region is ideally suited for the cultivation of groundnut. Now it is introduced in Banaskantha district under irrigated condition. It plays a vital role in improving the socio economic condition of the farming community in the operational area of the Banaskantha district.

Considering this, the study on "adoption of improved groundnut production technology under front line demonstration" organized by Krishi Vigyan Kendra scientists were conducted with following objectives:

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–To assess the extent of adoption of improved groundnut production technology demonstrated under front line demonstration by the beneficiary farmers and non-beneficiary farmers.

–To find out the relationship of personal, social, economics, situational, communicational and psychological attributes of beneficiary farmers and non-beneficiary farmers with extent of adoption of improved demonstrated groundnut production technology under front line demonstration.

RESOURCES AND METHODS

The present study was undertaken in four villages in Deesa taluka of Banaskantha district where front line demonstrations on *Kharif* groundnut crop were conducted by Krishi Vigyan Kendra, all these villages were selected purposively. A total of 70 beneficiary farmers were randomly selected from these four villages. In order to make comparison, 70 non-beneficiary farmers were selected from the same villages randomly.

Since the present study is a part of an evaluation study, it was felt necessary to select two groups *viz.,* beneficiary and non-beneficiary. The post-test only, equivalent group design suggested by Best (1978) was employed to compare the two groups. This design is one of the most effective in minimizing the threats to experimental variety.

Extent of adoption:

On the basis of literature available and personal discussion with extension personnel and scientists, various recommended packages of cultivation practices of the *Kharif* groundnut crop were listed to know their adoption by the beneficiary farmers. Finally 18 practices in groundnut crop were selected for adoption. A score of one was assigned for adoption of each practice.

The total score obtained by each individual was then worked out by summing up the score of all the practices. On the basis of mean (X) and S.D. the respondents were grouped into three categories *viz.,* low extent of adoption, medium extent of adoption and high extent of adoption.

Further, the comparison of beneficiary and non-beneficiary farmers regarding practice-wise adoption of improved demonstrated groundnut production technology was also made. Based on the responses from the respondents, frequency and percentage were worked out against the practice-wise adoption.

OBSERVATIONS AND ANALYSIS

The results of the present study as well as relevant discussions have been presented under following sub heads:

Extent of adoption of demonstrated groundnut production technologies by the beneficiary farmers as compared to non-beneficiary farmers:

An attempt was made to find out extent of adoption of improved demonstrated groundnut production technology by the beneficiary and non-beneficiary farmers. On the basis of score obtained by the beneficiary and non-beneficiary farmers were classified into three categories. The classification in this respect is presented in Table 1.

It stated that only 7.14 per cent beneficiary farmers had low adoption of improved demonstrated groundnut production technology. Contrary to this, 18.57 per cent non-beneficiary farmers had low extent of adoption. On the other hand, only 4.28 per cent non-beneficiary farmers had high adoption against 34.29 per cent in case of beneficiary farmers. Medium adoption was observed among 58.57 per cent and 77.14 per cent beneficiary and non-beneficiary farmers, respectively. Similar results were reported by Chhodavadia (2001) and Prajapati (2006).

The calculated 'Z' value (15.078**) was found to be significant indicating significant difference between beneficiary and non-beneficiary farmers with respect to their extent of adoption. It can be thus, concluded that majority beneficiary farmers of FLD had medium to high adoption of improved demonstrated groundnut production technology. The probable reason might be due to medium level of knowledge by most of the beneficiary farmers. Another reason might be due to sincere efforts put by implementing agency *i.e.* Krishi Vigyan Kendra to communicate the improved demonstrated groundnut production technology to beneficiary farmers of Deesa taluka.

Practice-wise adoption of beneficiary and non-beneficiary farmers regarding improved demonstrated groundnut production technology is depicted in Table 2.

The data presented in Table 2 revealed that the major

Table 1: Distribution of the respondents according to their extent of adoption level

Sr. No.	Category	Beneficiary farmers		Non-beneficiary farmers		'Z' value
		No.	Per cent	No.	Per cent	
1.	Low (Upto 8 score)	05	07.14	13	18.57	
2.	Medium (9 to 16 score)	41	58.57	54	77.14	
3.	High (Above 16 score)	24	34.29	03	04.28	15.078**
	Total	70	100.00	70	100.00	

Mean = 12.78   S.D. = 3.98   ** indicate significance of value at P=0.01

practices adopted by the beneficiary farmers were interculturing (88.57 %), method of fertilizers application (basal) (85.71 %), weeding (84.28 %), improved variety (82.85 %) and time of sowing (81.42 %). On the other hand, the major practices adopted by the non-beneficiary farmers were time of sowing (58.57 %), weeding (55.71 %), improved variety (54.28 %), method of fertilizers application (basal) (54.28 %), type of groundnut (52.85 %) and interculturing (52.85 %).

It can be concluded from the above distribution that beneficiary farmers had higher level of adoption about improved demonstrated groundnut crops practices as compared to non-beneficiary farmers.

Relationship between personal attributes of farmers with their level of extent of adoption of improved demonstrated groundnut production technology under front line demonstration:

Relationship between selected personal attributes of the beneficiary and non-beneficiary farmers, such as personal, social, economics, situational, communicational and psychological variables with their level of knowledge and extent of adoption of improved demonstrated groundnut production technology were worked out by calculating co-efficient of correlation. The results in regard are depicted in Table 3.

It could be inferred from Table 3, that the correlation co-efficient showing relationship of the personal attributes of beneficiary farmers *viz.,* education (0.34941), extension participation (0.35380), source of information (0.31904),

scientific orientation (0.30921) and knowledge (0.37296) with their extent of adoption of improved demonstrated groundnut production technology were found to be positively significant at 0.01 level of significance indicating positively significant relationship of these attributes with the extent of adoption. Further, three variables *viz.,* social participation (0.25790), farm size (0.24853) and annual income (0.24924) were found having positively significant at 0.05 level of significance indicating their positively significant relationship with beneficiary farmers' extent of adoption of improved demonstrated groundnut production technology. It can be concluded that education, social participation, farm size, annual income, extension participation, source of information, scientific orientation and knowledge of the beneficiary farmers were positively related with extent of adoption of improved demonstrated groundnut production technology.

Four attributes *viz.,* age, size of family, market orientation and source of irrigation could not establish any significant relationship with their extent of adoption of improved demonstrated groundnut production technology by the beneficiary farmers. It was indicating no significant relationship between age, size of family, market orientation and source of irrigation with their extent of adoption of improved demonstrated groundnut production technology by the beneficiary farmers. It can be also concluded that education (0.23982), source of information (0.26501), scientific orientation (0.26609) and knowledge (0.28753) of the non-beneficiary farmers were positively related with extent of adoption of improved demonstrated groundnut

Table 2 : **Distribution of beneficiary and non-beneficiary farmers regarding practice-wise adoption of improved demonstrated groundnut production technology**

Sr. No.	Name of practices	Beneficiary farmers (n = 70)	%	Non-beneficiary farmers (n = 70)	%
1.	Type of groundnut	52	74.28	37	52.85
2.	Improved variety	58	82.85	38	54.28
3.	Seed rate	46	65.71	31	44.28
4.	Seed treatment (DM-45)	25	35.71	10	14.28
5.	Time of sowing	57	81.42	41	58.57
6.	Sowing distance	43	61.42	31	44.28
7.	FYM	24	34.28	16	22.85
8.	Fertilizers	49	70.00	31	44.28
9.	Method of fertilizers application (Basal)	60	85.71	38	54.28
10.	Method of fertilizers application (Top dress)	46	65.71	24	34.28
11.	Use of sulphur	36	51.42	18	25.71
12.	Weeding	59	84.28	39	55.71
13.	Interculturing	62	88.57	37	52.85
14.	Irrigation	42	60.00	30	42.85
15.	Seed treatment (For white grub)	53	75.71	34	48.57
16.	Dose of insecticide	43	61.42	30	42.85
17.	Disease control	41	58.57	19	27.14
18.	Pest control	55	78.57	35	50.00

Table 3: Relationship of personal attributes with extent of adoption of improved demonstrated agricultural technology

Sr. No.	Attributes	Correlation co-efficient ('r' value)	
		Beneficiary farmers	Non-beneficiary farmers
1.	Age	-0.02863 [NS]	-0.04435 [NS]
2.	Education	0.34941**	0.23982*
3.	Size of family	-0.07898 [NS]	-0.09805 [NS]
4.	Social participation	0.25790*	0.11515 [NS]
5.	Farm size	0.24853*	-0.02753 [NS]
6.	Annual income	0.24924*	0.09122 [NS]
7.	Market orientation	0.04266 [NS]	-0.16584 [NS]
8.	Source of irrigation	-0.06214 [NS]	0.00783 [NS]
9.	Extension participation	0.35380**	-0.03799 [NS]
10.	Source of information	0.31904**	0.26501*
11.	Scientific orientation	0.30921**	0.26609*
12.	Knowledge	0.37296**	0.28753*

*and ** indicate significance of values at P=0.05 and 0.01, respectively
NS=Non-significant

production technology. Some of the similar results have identified by Chhodavadia (2001), Lakhera and Sharma (2002) and Prajapati (2006).

Conclusion:

It was found that the extent of adoption of the demonstrated groundnut production technology was medium to high among the majority of the respondents from beneficiary farmers (92.86%) and non-beneficiary farmers (81.42%).

The major practices of improved demonstrated groundnut production technology adopted by beneficiary farmers were, interculturing, method of fertilizers application (basal), weeding, improved variety and time of sowing. While non-beneficiary farmers had adoption about practices *viz.,* time of sowing, weeding, improved variety, method of fertilizers application (basal), type of groundnut and inter-culturing.

It was observed that the correlation co-efficient showing relationship of the independent variables of beneficiary farmers *viz.,* education, extension participation, source of information, scientific orientation and knowledge with their extent of adoption of improved demonstrated groundnut production technology were found to be positively and significantly at 0.01 level of significance. Further, three variables *viz.,* social participation, farm size and annual income were found positively significant at 0.05 level of significance. Remaining variables; age, size of family, market orientation and source of irrigation were failed to establish any significant relationship with their extent of adoption of improved demonstrated groundnut production technology by the beneficiary farmers.

Among non-beneficiary farmers, the calculated correlation co-efficient value in case of education, source of information, scientific orientation and knowledge had positively significant relationship with extent of adoption at 0.05 level of significance. Remaining variables *viz.*, age, size of family, social participation, farm size, annual income, market orientation, source of irrigation and extension participation could not established any significant relationship with their extent of adoption of improved demonstrated groundnut production technology.

Recommendation:

The beneficiary farmers' extent of adoption of improved demonstrated groundnut production technology was medium. For increasing the level of adoption of improved demonstrated groundnut production technology among farmers, implementing authority of front line demonstration should pay special attention.

Education, social participation, farm size, annual income, extension participation, source of information and scientific orientation showed significant relationship with adoption of improved demonstrated groundnut production technology. Hence, while, selecting beneficiary farmers of FLD programme, the farmers having higher education, medium to big land holding, higher annual income and higher extension participation should be selected. Further, they should be motivated to participate more in various social organizations and be involved actively in various extension activities.

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