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Research Article

Comparative evaluation of characteristics of farmers and perceived constraints and suggestions in adoption of groundnut production technology

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SUMMARY : Groundnut (*Arachis hypogaea* L.), is an important oilseed crop grown worldwide in more than 100 countries. Groundnut is considered as the world's fourth largest source of edible oil and 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 of the country. The frontline demonstration is an important method of transfer of latest package of practices in totality to farmers. Through it, farmers learn latest technologies of oilseed and pulse production under real farming situations at their own fields. In order to realize the demonstrators and non-demonstrators profile characteristics, constraints and suggestions perceived by them, a sample of 120 groundnut growers, representing 46 villages of 16 talukas of Junagadh and Rajkot districts of Gujarat state were drawn by multistage random sampling techniques.

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KEY WORDS:
Personal, Socio-economic, Psychological characters, FLD, Constraints, Suggestion

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BACKGROUND AND OBJECTIVES

India was exporter of oilseeds and vegetables oils till world war II and reasonably self-sufficient till 1960's, but with the passage of time and rapidly increasing high population growth rate and the growers are diverting towards cereal crops. Hence, the low availability of edible oil through field crops is not in position to fulfill the present requirement of people and industry. Though there is large area under oilseeds crops including field and fruit, but still the increase in area under oilseed cultivation is a challenge due to lack of arable land and competition from food grains and other cash crops. During last couple of years, India's domestic production of oilseeds has not grown in line with edible oil demand; the main reason behind this is competition with food grains for acreage and increasing population. The gap between the production and demand of edible oil in India has increased sharply in recent years. Since 2000-01, production of oilseeds grew at the rate of 4.7 per cent per annum, but edible oil consumption increased at the rate of 6.5 per cent per annum. Due to above noted reasons and failure of monsoon in last two years there is increase in the import of edible oils. It is expected that to meet the demand of edible oil, India will import around 9 million tons of edible oil in the current year; however, the import of edible oil in 2000-01 was only 5.2 million tons which is increasing regularly.

The main objective of frontline demonstration is to demonstrate newly released crop production and protection technologies and management practices at the farmers' fields under different agro climatic regions and farming situations. While demonstrating the technologies in the farmers' fields, the scientists are required

to study the factors contributing to higher crop production, field constraints of production and thereby generating production factors and feedback by them. Front line demonstrations are conducted in a block of two acres of land in order to have better impact of the demonstrated technology on the farmers' fields

The benefit of a technology is actually derived only when the farmers in their local situations efficiently utilize it. The farmers are very much eager to get maximum benefits from the agricultural technology. However, many of them could not do so, because of a large number of constraints coming in the way, creating large adoption gap, culminating in low yield of groundnut based crop in the area. Efforts made to identify and overcome the constraints for enhancing yield and developing agricultural strategies. It was felt necessary that impact of these demonstrations must be evaluated on scientific lines and some measures should be suggested to make these demonstrations more effective. The results of the study might be of interest to the researchers of Oilseeds Research Station, Junagadh Agricultural University and to all those who are directly or indirectly involved in planning and executing the frontline demonstrations.

With this view in mind, the study on the impact of frontline demonstrations on groundnut growers was undertaken with objective for the comparative evaluation of demonstrator and non-demonstrator profile characteristics, their perceived constraints and suggestions.

RESOURCES AND METHODS

Sources of the data:

The basic information regarding the study was gathered from the records of oilseed research station, Junagadh Agricultural University, Junagadh. After the primary survey, an interview schedule was prepared in light of objectives and the respondents were personally interviewed by the investigator.

Research design:

The study was conducted under *ex-post facto* (Cause to effect) research design. It is a systemic empirical enquiry in which the researchers does not have direct control over the independent variables because their manifestations have already occurred or they are inherently not manipulated (Kerlinger, 1969).

Sampling techniques:

A multistage random sampling technique was followed for this study.

Number of successful frontline demonstrators conducted in selected villages during last three year was 60. The equal number of non-demonstrator respondents from the same village were randomly selected (Table A).

Table A : Selected talukas, villages and respondents

Sr. No.	District	Name of taluka	Name of village	Respondents	
				Demonstrator	Non-demonstrator
1.	Junagadh	Junagadh	Bagdu	2	2
			Umrala	1	1
			Galiyavad	1	1
			Kathrota	1	1
			Mevasa	1	1
			Rameshwar	1	1
			Goladhar	1	1
		Visavadar	Semrala	2	2
			Jambala	1	1
			Mota hadmatiya	1	1
			Nani monpari	1	1
			Vekariya	1	1
			Mota kotla	1	1
			Moti monpari	1	1
		Vanthali	Bhatiya	3	3
			Lusala	1	1
			Santalpur	1	1
			Navagam	1	1
			Kanja	1	1
		Mendarada	Mithapur	4	4
			Datrana	1	1
			Alidhtra	1	1
			Gadhali	1	1
			Rajesar	1	1
		Veraval	Navdra	1	1
			Ishwariya	1	1
			Ukaliya	1	1
		Maliya hatina	Khambhaliya	2	2
			Ambalgadh	1	1
		Keshod	Kesodh	4	4
			Ishala	1	1
		Kodinar	Alidar	1	1
		Bhesan	Chuda	1	1
		Una	Bhadiyadar	2	2
		Manavadar	Vedva	1	1
2.	Rajkot	Jetpur	Arab timbadi	2	2
			Jetlsar	2	2
			Mota gundala	1	1
			Navi sankali	1	1
		Gondal	Sultanpur	1	1
			Kolithad	1	1
			Garnala	1	1
		Dhoraji	Dhoraji	1	1
			Janjesar	1	1
		Tankara	Vijaynagar	1	1
		Rajkot	Kuvavda	1	1

For ascertaining the constraints faced by the respondents in adoption of groundnut production technology and suggestions to overcome on problems an explorative study was made. The constraints and suggestions were recorded from the respondents by acquired open ended question. The practice wise constraints and suggestions were collected from the respondents and percentage was worked out for each constraint and suggestion. To trace the relative importance of constraints and suggestions, overall ranks were assigned on the basis of percentage.

OBSERVATIONS AND ANALYSIS

Majority of the demonstrator (60.00%) and non-demonstrator (48.33%) respondents were middle aged and had low to medium education of demonstrator (76.66%) and non-demonstrator (66.66%) (Table 1). About 38.34 per cent of demonstrators and 33.33 per cent of non-demonstrator respondents had medium size of land holding. About 71.66 per cent of demonstrator and 66.66 per cent of non-demonstrator belonged to medium and high income, respectively. While 58.33 per cent of demonstrator and 50.00 per cent of non-demonstrator respondents had medium social participation and 70.00 per cent of demonstrator and 66.67 per cent of non-demonstrator respondents had medium extension participation. Majority of the demonstrator respondents 61.66 per cent of and non-demonstrator respondents 56.67 per cent of had medium yield index. While, 66.66 per cent of demonstrator farmers and 61.67 per cent of non-demonstrator farmers belonged to medium mass media exposure. While, 81.66 per cent of demonstrator and 68.33 per cent of non-demonstrator farmers had medium to high innovativeness. Majority of demonstrator (63.33%) and non-demonstrator (55.00%) farmers had medium level of risk orientation. While majority of demonstrator (70.00%) and non-demonstrator (63.33%) farmers had medium level of cropping intensity.

On the basis of data presented in Table 2, the most important constraints faced by 70 per cent and above respondents are presented as per rank order. Thus, the most important constraints were high price of improved seeds (90.00 %), high cost of harvesting and threshing (87.50 %), shortage and high wages of labour (84.16%), non-availability of finance in time (81.66 %), lack of knowledge about critical stages (80.00%), lack of irrigation water (79.16 %), high price of herbicides (77.50 %), high price of fungicides/ pesticides (77.50%), high price of chemical fertilizers (74.16 %) and non-availability of improved seeds in required quantity in time (70.83).

Important constraints faced up to 70 per cent were unawareness about the recommendation dose of pesticides/ fungicides (65.83%), lack of storage facility (62.50%), high rate of electricity (60.00 %), problem of non storage due to economic condition (57.50 %), poor quality of seed (54.16%), non-availability of extension workers in villages as per time schedule (52.50%), non-availability of chemical fertilizers in required quantity in time (51.66 %), scarcity of FYM/ compost fertilizers (36.66 %) and lack of transport facility (26.66 %).

The most important suggestion offered by respondents to overcome constraints in adoption of recommended groundnut production technology were cost of threshing and harvesting should be reduced (75.00 %), inputs should be made available at subsidized rate (72.50 %), farmer should be protected by crop insurance, if crops fail, (71.66 %) and remunerative price should be made available to the groundnut growers for their products (70.00 %).

The other suggestions expressed by respondents were village level workers should frequently contact the farmers to make them aware about the new farm technology (56.66%), demonstration of new farm technology should lay out on farmers' fields (55.83 %), there must be regular electric supply at the time of critical irrigation (51.66 %), training should be given to the farmers in relation to new farm technology (45.83 %), irrigation facilities should be made available (44.16 %) and improved and certified seed should be provided by government at local place (40.00 %).

Conclusion:

It could be concluded that high price of improved seeds (Rank I), high cost of harvesting and threshing (Rank II), shortage and high wages of labour (Rank III), non-availability of finance in time (Rank IV), lack of knowledge about critical stages (Rank V), lack of irrigation water (Rank VI), high price of herbicides (Rank VII), high price of fungicides/pesticides (Rank VII), high price of chemical fertilizers (Rank VIII), non-availability of improved seeds in required quantity in time (Rank IX). The probable reason might be that the cost of improved seed is due to high cost of groundnut seed production and government policies and skilled farm labours decrease day by day due to out siding nearby city and farmers are diverting in cropping pattern as per the high priced communities.

It could be revealed that important suggestions offered by the majority of the respondents were cost of harvesting/ threshing should be reduced (Rank I), inputs should be made available at subsidized rate (Rank II), farmers should be protected by crop insurance, if crops fails (Rank III), remunerative price should be made available to the groundnut growers for their products (Rank IV). The probable reason might be that the high cost of labour charges provides in the area of the study and input prices

Table 1: Distributions of respondents according to their selected characteristics

Sr. No.	Characteristics	Category of respondents			
		Demonstrator (n=60)		Non-demonstrator (n=60)	
		Frequency	Per cent	Frequency	Per cent
1.	**Age**				
	Young age group (up to 35 years)	10	16.67	12	20.00
	Middle age group (36 to 50 years)	36	60.00	29	48.33
	Old age group (above 50 years)	14	23.33	19	31.67
2 .	**Education**				
	Illiterate	6	10.00	11	18.33
	Primary education = up to 7^{th} standard	31	51.67	28	46.67
	Secondary education = 8^{th} to 10^{th} standard	15	25.00	12	20.00
	Higher education = Above 10^{th} standard	8	13.33	9	15.00
3.	**Size of land holding**				
	Small size of land holding (Up to 1 ha)	20	33.33	24	40.00
	Medium size of land holding (1 to 2 ha)	23	38.34	20	33.33
	High size of land holding (above 2 ha)	17	28.33	16	26.67
4.	**Annual income**				
	Low annual income (below Rs. 40,000)	17	28.33	20	33.33
	Medium annual income (Rs. 40,001 to 80,000)	24	40.00	22	36.67
	High annual income (above Rs. 80,001)	19	31.67	18	30.00
5.	**Social participation**				
	Low < Mean – S.D	9 (up to 1.54)	15.00	18 (up to 1.14)	30.00
	Medium Mean ± S.D	35 (1.55 to 3.62)	58.33	30 (1.15 to 2.76)	50.00
	High >Mean + S.D	16 (above 3.62)	26.67	12 (above 2.76)	20.00
	Mean	2.58		1.95	
	S.D.	1.04		0.81	
6.	**Yield index**				
	Low < Mean – S.D	10 (up to 76.41)	16.67	16 (up to 84.59)	26.66
	Medium Mean ± S.D	37 (76.42 to 113.73)	61.66	34 (84.60 to 102.57)	56.67
	High >Mean + S.D	13 (above 113.73)	21.67	10 (above 102.57)	16.67
	Mean	95.07		93.58	
	S.D.	18.66		8.99	
7.	**Extension participation**				
	Low < Mean – S.D	8 (up to 18.59)	13.33	13 (up to 15.98)	21.67
	Medium Mean ± S.D	42 (18.60 to 37.31)	70.00	40 (15.99 to 30.66)	66.67
	High >Mean + S.D	10 (above 37.31)	16.67	7 (above 30.66)	11.66
	Mean	27.95		23.32	
	S.D.	9.36		7.34	
8.	**Mass media exposure**				
	Low < Mean – S.D	7 (up to 8.52)	11.67	12 (up to 7.95)	20.00
	Medium Mean ± S.D	40 (8.53 to 14.61)	66.66	37 (7.96 to 13.35)	61.67
	High >Mean + S.D	13 (above 14.61)	21.67	11 (above 13.35)	18.33
	Mean	11.56		10.65	
	S.D.	3.04		2.70	
9.	**Innovativeness**				
	Low < Mean – S.D	11 (up to 1.45)	18.33	19 (up to 1.19)	31.67
	Medium Mean ± S.D	28 (1.46 to 2.85)	46.67	25 (1.20 to 2.71)	41.66
	High >Mean + S.D	21 (above 2.85)	35.00	16 (above 2.71)	26.67
	Mean	2.15		1.95	
	S.D.	0.70		0.76	

Table 1: Contd……..

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10.	**Risk Orientation**				
	Low < Mean – S.D	9 (up to 9.45)	15.00	12 (up to 8.15)	20.00
	Medium Mean ± S.D	38 (9.46 to 14.41)	63.33	33 (8.16 to 14.45)	55.00
	High >Mean + S.D	13 (above 14.41)	21.67	15 (above 14.45)	25.00
	Mean	11.93		11.30	
	S.D.	2.48		3.15	
11.	**Irrigation potentiality**				
	Well	22	36.67	24	40.00
	Canal	3	5.00	5	08.33
	Well and canal	12	20.00	8	13.34
	Bore well	19	31.66	21	35.00
	Check dam	4	6.67	2	03.33
12.	**Cropping intensity**				
	Low < Mean – S.D	8 (up to 61.64)	13.33	10 (up to 60.91)	16.67
	Medium Mean ± S.D	42 (61.65 to 90.40)	70.00	38 (60.92 to 90.19)	63.33
	High >Mean + S.D	10 (above 90.40)	16.67	12 (above 90.19)	20.00
	Mean	76.02		75.55	
	S.D.	14.38		14.64	

Table 2: Constrains faced by the respondents in adoption of recommended groundnut production technologies **(n=120)**

Sr. No.	Constraints	Frequency	Per cent	Rank
1.	2	3	4	5
1.	High price of improved seeds.	108	90.00	I
2.	Lack of knowledge about critical stages.	96	80.00	V
3.	Non-availability of improved seeds in required quantity in time.	85	70.83	IX
4.	Scarcity of FYM/compost fertilizers.	44	36.66	XVII
5.	Non-availability chemical fertilizers in required quantity in time.	62	51.66	XVI
6.	High price of chemical fertilizers.	89	74.16	VIII
7.	Shortage and high wages of labour.	101	84.16	III
8.	Lack of storage facility.	75	62.50	XI
9.	Unawareness about the recommendation dose of pesticides/fungicides.	79	65.83	X
10.	Lack of transport facility.	32	26.66	XVIII
11.	Non-availability of extension workers in villages as per time schedule.	63	52.50	XV
12.	Lack of irrigation water. (Irregular rainfall).	95	79.16	VI
13.	Poor quality of seed.	65	54.16	XIV
14.	Non-availability of finance in time.	98	81.66	IV
15.	High cost of threshing and harvesting.	105	87.50	II
16.	High price of herbicides.	93	77.50	VII
17.	High rate of electricity.	72	60.00	XII
18.	Problem of non storage due to economic condition.	69	57.50	XIII
19.	High price of fungicides/pesticides.	93	77.50	VII

Table 3: Suggestions faced by respondents to overcome the constraints in adoption of recommended groundnut production technologies (n=120)

Sr. No.	Suggestions	Frequency	Per cent	Rank
1.	2	3	4	5
1.	Inputs should be made available at subsidized rate.	87	72.50	II
2.	Village level workers should be frequently contacting the farmers to make them aware about the new farm technology.	68	56.66	V
3.	Cost of threshing and harvesting should be reduced	90	75.00	I
4.	Training should be given to the farmers in relation to new farm technology.	55	45.83	VIII
5.	Irrigation facilities should be made available	53	44.16	IX
6.	Demonstration of new farm technology should lay out on farmers field.	67	55.83	VI
7.	Farmer should be protected by crop insurance, if crops fail.	86	71.66	III
8.	Remunerative price should be made available to the groundnut growers for their products.	84	70.00	IV
9.	Improved and certified seed should be provided by government at local place	48	40.00	X
10.	There must be regular electric supply at the time of critical irrigation.	62	51.66	VII

are also hike, which prevents them to adopt the groundnut production technologies.

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