

ASSOCIATION BETWEEN CHARACTERISTICS OF GROUNDNUT GROWERS AND THEIR EXTENT OF ADOPTION ABOUT PLANT PROTECTION MEASURES

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ABSTRACT

Groundnut is an important oilseed crop in India which occupies first position in terms of area and second position in terms of production. The study was conducted in Banaskantha District of Gujarat state during 2018-19. The main focus of the investigation is on adoption of plant protection measures in groundnut crop by the farmers of Banaskantha district. The district was selected purposively as the area of groundnut is increasing day by day. Three talukas viz., Deesa, Lakhani and Dantiwada having higher area under groundnut cultivation were selected purposively (Anonymous 2018). Five villages were selected randomly from the list of groundnuts growing villages of each taluka. Ten groundnut growers were selected, randomly from each selected village. Thus, the final sample was 150 groundnut growers. Ex-post facto research design was used for the study. The data were collected by personal contact method with help of structured interview schedule and data were coded, classified, tabulated and analysed in the light of objectives. Ten independent and one dependent variable were selected for study. The independent variables viz., education, land holding, annual income, extension participation, source of information, and scientific orientation were positively and highly significantly associated with extent of adoption about plant protection measures. Risk orientation had positive and significant association with extent of adoption about plant protection measures. The remaining variables namely age and family size had negative and non-significant correlation, while social participation had positive and non-significant correlation with the extent of adoption about plant protection measures.

Keywords: adoption, association, groundnut growers, plant protection

INTRODUCTION

Groundnut, 'the unpredictable legume' is also known as peanut, earthnut, monkey nut and manilla nut. It is the 6th most important oilseed crop and 13th most important food crop of the world. Its botanical name (*Arachis hypogaea* L.) has been derived from the Greek words, "Arachis" meaning a legume and "hypogaea" meaning below ground referring to geographic nature of pod formation. It is an important food, feed, and oilseed crop. Groundnut is one of the excellent sources of high-quality protein, edible oil and can play an important role in meeting the requirement of both protein and edible oil.

Plant protection plays an important role in crop production. Adoption of recommended plant protection measures is one of the important aspects of controlling pests and diseases. In spite of this fact, farmers are not adopting the recommendations properly and hence, the importance of systematic use of plant protection measures to control pests and diseases cannot be neglected. Looking to the importance and urgency of the problem, a study was planned with the

following objectives:

OBJECTIVES

- (1) To study the personal, socio-economic, communication and psychological characteristics of the groundnut growers
- (2) To ascertain the association between personal, socio-economic, communicational and psychological characteristics of the groundnut growers with their extent of adoption about plant protection measures

METHODOLOGY

The present study was undertaken in Banaskantha district as having large areas and production under groundnut in North Gujarat. Three talukas viz., Deesa, Lakhani and Dantiwada were selected purposively having higher areas under groundnut cultivation in the district. Five villages from each selected taluka were selected randomly. Further from each selected village, ten groundnut growers were randomly selected comprising of 150 respondents.

Ex-post facto research design was adopted for this study. For measurement of selected characteristics, scales developed by past researchers with due modification as well as by developing appropriate schedules were used. The data were collected by personal contact method with the help of structured interview schedule. The collected data were coded, classified, tabulated and analysed in order to make the findings meaningful in light of objectives for drawing meaningful interpretation.

RESULTS AND DISCUSSION

Personal, socio-economic, communication and psychological characteristics of the groundnut growers

Keeping in view the objectives of the study, the relevant variables were selected on the basis of an extensive review of literature related to the study, in consultation with experts and members of advisory committee. Only those variables which were found most relevant to the present investigation were finally selected. The result of selected variables were presented in Table 1.

Table 1 : Profile of groundnut growers

(n = 150)

Sr. No.	Particulars	Frequency	Per cent
1	Age		
	Young age (up to 35 years)	38	25.33
	Middle age (36 to 50 years)	72	48.00
	Old age (above 50 years)	40	26.67
2	Education level		
	Illiterate	16	10.67
	Functionally literate	11	7.33
	Primary school	32	21.33
	Middle school	58	38.67
	High school	16	10.67
	College/Post graduation	17	11.33
3	Family size		
	Small (up to 4 members)	33	22.00
	Medium (5 to 7 members)	109	72.67
	Large (above 7 members)	08	5.33
4	Land holding		
	Marginal (up to 1.00 ha)	19	12.67
	Small (1.01 to 2.00 ha)	37	24.67
	Medium (2.01 to 4.00 ha)	74	49.33
	Large (above 4.00 ha)	20	13.33
5	Annual income		
	Low (up to ₹ 2,50,000)	27	18.00
	Moderate (₹ 2,50,000.00 to ₹ 5,00,000.00)	40	26.67
	High (₹ 5,00,000.00 to ₹ 10,00,000.00)	47	31.33
	Very high (Above ₹ 10,00,000.00)	36	24.00
6	Social Participation		
	No membership	57	38.00
	Membership in one organization	74	49.33
	Membership in more than one organization	13	8.67
	Membership with office bearer	06	4.00
7	Extension participation		
	Low participation	19	12.67
	Medium participation	98	65.33
	High participation	33	22.00
	Mean = 26.27 S.D. = 10.46		

Sr. No.	Particulars	Frequency	Per cent
8	Sources of information		
	Low	18	12.00
	Medium	98	65.33
	High	34	22.67
	Mean = 41.49 S.D. = 15.51		
9	Scientific Orientation		
	Low	20	13.33
	Medium	99	66.00
	High	31	20.67
	Mean =17.87 S.D. = 5.11		
10	Risk orientation		
	Low	30	20.00
	Medium	97	64.67
	High	23	15.33
	Mean =16.49 S.D. = 5.28		
11	Level of knowledge		
	Low	17	11.33
	Medium	102	68.00
	High	31	20.67
	Mean =57.33 S.D. = 18.96		
12	Extent of adoption		
	Low	20	12.67
	Medium	98	66.00
	High	32	21.33
	Mean =54.30 S.D. = 17.93		

The data presented in Table 1 indicates that nearly half (48.00 per cent) of the groundnut farmers were from middle age group, having primary to middle school level of education (60.00 per cent), having medium family size (72.67 per cent), had 2.01 to 4.00 ha of land (49.33 per cent), having annual income up to ₹2,50,000.00 to ₹10,00,000.00 (58.00 per cent), had membership in one organization (49.33 per cent), had medium level of extension participation (65.33 per cent), had medium to high utilization level of information sources (88.00 per cent), had medium scientific orientation (66.00 per cent), had medium risk orientation (64.67 per cent), had medium level of knowledge (68.00 per cent) and having medium level of extent of adoption (66.00 per cent).

Association between personal, socio-economic, communicational and psychological characteristics of the groundnut growers with their extent of adoption about plant protection measures

Acceptance of recommended plant protection measures is not a unique act, but complex process involving sequence and thought of action. The action of an individual farmer is governed by personal, socio-economic, psychological and cultural factors involved in given situation. Some farmers adopt recommended plant protection measures more quickly than others because of the differences in personal characteristics. In order to ascertain the association between extent of adoption (dependent variable) of the groundnut growers with their selected characteristics (independent variable), the correlation co-efficient (‘r’ values) were calculated. Empirical hypothesis was stated for testing the association and its significance. Same was tested using zero order correlation. The results are given in Table 2.

Table 2 : Association between selected characteristics of respondents with their extent of adoption of recommended plant protection measures (n=150)

Sr. No.	Independent variables		Correlation coefficient
I	Personal characteristics		
	X ₁	Age	-0.139 ^{NS}
	X ₂	Education	0.264**
II	Socio-economic characteristics		
	X ₃	Family size	-0.009 ^{NS}
	X ₄	Land holding	0.492**
	X ₅	Annual income	0.511**
	X ₆	Social participation	0.072 ^{NS}
III	Communicational characteristics		
	X ₇	Extension participation	0.257**
	X ₈	Sources of information	0.487**
IV	Psychological characteristics		
	X ₉	Scientific orientation	0.455**
	X ₁₀	Risk orientation	0.190*
** =	Significant at 0.01 level of significance		
* =	Significant at 0.05 level of significance		
NS =	Non-Significant		

(1) Age and extent of adoption

It is apparent from data presented in Table 2 that the age of the groundnut farmers had negative and not-significant association ('r' = -0.139) with their extent of adoption about recommended plant protection measures. Thus, the null hypothesis was accepted. Hence, it is calculated that there is no association between the age of groundnut farmers and their extent of adoption. It is inferred, that all groundnut farmers did not have any concern with age and recommended plant protection measures. It means that extent of adoption of all groundnut farmers did not relate with their age. The similar findings have been reported by Goudappa *et al.* (2008) and Patel (2016).

(2) Education and extent of adoption

The results presented in Table 2 revealed that calculated correlation coefficient value (r = 0.264) was significant at 0.01 level of significance indicating positive and highly significant association between education of groundnut growers and their extent of adoption of recommended plant protection measures of groundnut. Therefore, null hypothesis was rejected. Thus, it can be inferred that education brings the changes in adoption behaviour. The possible reason for this might be that the educated farmers have greater reception power than less educated and illiterate farmers. The similar findings have been reported by Goudappa *et al.* (2008),

Hadiya (2014), Gambhire (2016), Patel (2016) and Patel (2017).

(3) Family size and extent of adoption

As reveal from data presented in Table 2 that there was no association (r = -0.009) between family size and extent of adoption of recommended plant protection measures of groundnut. Thus, the null hypothesis was accepted. The similar finding has been reported by Patel (2016) and Patel *et al.* (2018).

(4) Land holding and extent of adoption

As reveal from data presented in Table 2 that there was positive and highly significant association (r = 0.492) between size of land holding and extent of adoption of recommended plant protection measures of groundnut at 0.01 level of significance. Thus, the null hypothesis was rejected. Thus, it can be interpreted that as land holding increase, extent of adoption also increases. The probable reason for this might be due to fact that the farmers having large land holding might be financially sound and able to invest more in farming resulting into higher adoption. The similar findings have been reported by Thippeswamy (2007), Goudappa *et al.* (2008), Hadiya (2014), Gambhire (2016), Patel (2016) and Patel (2017).

(5) Annual income and extent of adoption

As reveal from data presented in Table 2 there was positive and highly significant association (r = 0.511) between

annual income and extent of adoption of recommended plant protection measures of groundnut at 0.01 level of significance. Thus the null hypothesis was rejected. Thus, it can be said that adoption is influenced by the annual income. It means that with increase in level of income the adoption level also increases. The possible reason for this might be that the farmers with sound economic position might have increased more in purchasing all inputs needed for scientific cultivation of groundnut crop which resulted in higher adoption. The similar findings have been reported by Thippeswamy (2007), Hadiya (2014), Gambhire (2016), Patel (2016) and Patel (2017).

(6) Social participation and extent of adoption

As reveal from data presented in Table 2 there was no association ($r = 0.072$) between social participation and extent of adoption of recommended plant protection measures of groundnut. Thus, the null hypothesis was accepted. Thus, it can be said that social participation had not influenced the adoption behaviour, as most of farmers were the members of only one organization *i.e.*, milk cooperative society which was only for the sale of milk. The similar finding has been reported by Patel (2016) and Gajera et al. (2022).

(7) Extension participation and extent of adoption

As reveal from data presented in Table 2 there was positive and highly significant association ($r = 0.257$) between extension participation and extent of adoption of recommended plant protection measures of groundnut at 0.01 level of significance. Thus, the null hypothesis was rejected. Hence, it is inferred that extension participation had exerted positive and significant effect on adoption of groundnut production technology. The similar findings have been reported by Khan and Chauhan (2005), Thippeswamy (2007), Hadiya (2014) and Patel (2016).

(8) Sources of information and extent of adoption

As reveal from data presented in Table 2 there was positive and highly significant association ($r = 0.487$) between sources of information and extent of adoption of recommended plant protection measures of groundnut at 0.01 level of significance. Thus, the null hypothesis was rejected. Thus, it can be inferred that sources of information exhibited favourable influence on extent of adoption. The possible reason for this might be that the sources of information act as link between agricultural universities, research stations and extension personnel on one hand and farmers on other hand in communicating latest information in convincing manner to the farmers, which might be resulted in higher adoption. The similar findings have been reported by Thippeswamy (2007), Hadiya (2014), Gambhire (2016) and Patel (2016).

(9) Scientific orientation and extent of adoption

As reveal from data presented in Table 2 there was positive and highly significant association ($r = 0.455$) between scientific orientation and extent of adoption of recommended

plant protection measures of groundnut at 0.01 level of significance. Thus, the null hypothesis was rejected. The probable reason might be that scientific orientation opens the mental horizon which acts as a catalyst in changing behavior of the groundnut growers, which resulted in its significant influence on adoption of recommended plant protection measures. The similar finding has been reported by Rathod (2009).

(10) Risk orientation and extent of adoption

It is apparent from the data presented in the Table 2 that risk orientation of the groundnut growers had positive and significant association ($r = 0.206$) with their extent of adoption about plant protection measures of groundnut at 0.05 level of significance. Thus, the null hypothesis was rejected. From the above findings, it can be concluded that the farmers with higher level of risk orientation would be much ahead of other in exploiting the potentiality of technology availed which enforced them to take decision to adopt an innovation resulted in its influence on adoption level of groundnut growers. The similar findings have been reported by Gambhire (2016).

CONCLUSION

The finding related to personal, socio-economic, communication and psychological characteristics of the groundnut growers indicate that nearly half of the groundnut farmers were from middle age group, having primary to middle school level of education, having medium family size, had 2.01 to 4.00 ha of land, having annual income up to ₹2,50,000.00 to ₹10,00,000.00, had membership in one organization, had medium level of extension participation, had medium to high utilization level of information sources, had medium scientific orientation and have medium risk orientation.

While in case of association, independent variables viz., education, land holding, annual income, extension participation, source of information, and scientific orientation were positively and highly significantly associated with extent of adoption about plant protection measures. Risk orientation had positive and significant association with extent of adoption about plant protection measures. The remaining variables namely age and family size had negative and non-significant correlation, while social participation had positive and non-significant correlation with the extent of adoption about plant protection measures

IMPLICATION

The finding of the study indicated that, the majority of the farmers are still in lack of complete knowledge resulting into medium adoption of recommended plant protection measures. Therefore, the extension agencies

should motivate and educate them about the importance and potentialities of recommended plant protection measures.

CONFLICT OF INTEREST

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

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