Research Article

STUDY ON RELATIONSHIP OF CHARACTERISTICS AND INCLINATION OF FARMERS TOWARDS FARMER INTEREST GROUPS UNDER ATMA

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Abstract: As ATMA project follows the bottom-up approach Farmers Interest Group is the fundamental and crucial part of this project. Farmer Interest Group is a new model for farmers to learn and innovate. The study was conducted on animal husbandry-based FIGs of Anand district, Gujarat, India with a specific objective to know the farmers inclination towards FIG under ATMA. About 200 FIG members were taken as respondents during the study. Correlation, Multiple regression and Path analysis were used to interpret the results. The results indicate that majority (29.00 percent) of the FIG members belonged to medium level of inclination towards FIG, followed by 23.00 percent had low level of inclination towards FIGs. It also revealed that availability of ICT tools, experience of FIG, extension contact, scientific orientation and Kisan Credit Card possession were the major contributing variables in the direction of farmers' inclination towards FIG.

Keywords: *FIG, Inclination¸ Correlation, Stepwise Regression, Path Analysis*

Introduction

One of the leading features of ATMA is Formation and strengthening of FIG and organizing Farm School for farmers to farmers' approach. The success of farmer to farmer extension is due to conveniences in language, free in conversation, trust worthiness, based on success which is easy to see as well as believe and easy to arrange meeting at any time and place in the same village. A farmer Interest Group (FIGs) is an autonomous and self-managed group of farmers with a shared interest and objective. Farmer Interest Group is a new model for farmers to learn and to innovate. The goal of setting up farmers' organizations, like FIGs, is to internalize extension services for its members and provide: backward connection (input, credit and technology) and forward connection (production facilities, market and value added). Farmers organization provide on effective channel for both dissemination of technology to large number of small and marginal farmers and feedback to research and extension [1]. Hingonekar (2011) [2] revealed that great majority (85.00 percent) were found to have moderate to good level of perception and performance about their role in FIGs under ATMA.

Munni (2016) [3] concluded that majority (85.84 percent) of the FIG members had medium to high level of information seeking behaviour. The structure and organization of the FIGs were different from the traditional cooperative institutions and their management. The various activities were carried out to generate awareness and to create knowledge about the FIGs and the farmers' usefulness of these classes. Considering attractive features of FIG for the development of farmers and rural India, it is expected that rural farmers should have positive attitude awareness and tendency towards all the aspects of this programme to get advantages connected with this system. Realizing this, a study has been attempted with the following specific objective of finding out the association between the selected independent variables with the dependent variable 'farmers Inclination towards FIG' [4].

Materials and Methods

For this study, ex-post facto research design was followed. The current investigation was carried out in Anand district of Gujarat state. For the study where fairly good numbers of farmers Interest Groups were available two talukas namely Anand and Umreth were purposively selected. The list of animal's husbandry-based FIGs working in Anand district had been collected from the project director, ATMA, Anand.

From the selected two talukas, Anand taluka has total 54 Animal Husbandry based FIGs and Umreth taluka has total 55 A.H based FIGs. Thus, total 109 FIGs were there. So, 20 FIGs from Anand and 20 FIGs from Umreth taluka were selected proportionately random sampling by lottery method. Then after, 5 farmers were randomly selected from each of the selected FIG. Thus, total 200 farmers who are the members of FIG were selected for the study. The interview schedule was constructed that all pertinent aspects in light of the objectives get covered. In making ready the interview schedule, the investigator referred the literature and also sought guidance from major advisor, advisory committee, and staff of department of Extension Education and communication, Extension Education Institute in addition to Directorate of Extension and other experts of Anand Agricultural University and ATMA officials.

A Gujarati version interview schedule was developed in light of the objectives for data collection. The respondents were interviewed personally at their home or work place. Before conducting an interview, the aim and objectives of the study were explained to them in order to get a whole hearted response and correct records from them. Twenty-two independent variables were finalized and taken up for the study. Stepwise regression analysis and path analysis approach were applied for better understanding of the results.

Results and Discussion
Farmers Inclination towards Farmers Interest Group
The overall outcome of the FIG was calculated by the inclination factor. Hence, an attempt was made to study the farmers' inclination towards FIG by using three sub-variables namely Knowledge about FIG, Attitude towards FIG and Adoption of activities of FIG. cumulative outcome of three weighted components and overall score of the farmers' inclination was calculated. The data regarding farmers' inclination towards FIG was analyzed and findings are presented in [Table-1].

Table-1 *The respondents as per inclination towards FIG*

SN	Category	Frequency	Percent
1	Very low (up to 144.99 percent)	17	08.50
2	Low (145 to 161.88 percent)	46	23.00
3	Medium (161.89 to 178.77 percent)	58	29.00
4	High (178.78 to 195.66 percent)	45	22.50
5	Very high (195.67 to 212.55 percent)	34	17.00
	Total	200	100.00

Slightly less than one third (29.00 percent) of the FIG members belonged to medium level of inclination towards FIG, followed by 23.00 percent and 22.50 percent of them had low and high level of inclination towards FIG, respectively. While 17.00 percent and 8.50 percent of them had belonged to category under very high and very low level of inclination towards FIG, respectively. The above finding indicates that majority (29.00 percent) of the FIG members belonged to medium level of inclination towards FIG. The result indicates that FIG members take much interest to collect useful information on good animal husbandry practices, new emerging technologies, market related information and information on agriculture policies which they want to apply in their own livestock possession activity. Therefore, they need to collect latest information and maintain contacts with veterinary officers, extension personnel and other farmers of their area. To do all such effort they might have realized the importance of animal husbandry-based FIGs might be the reason to have medium level of inclination towards FIGs under ATMA. This finding is in agreement with the findings of Patel (2015).
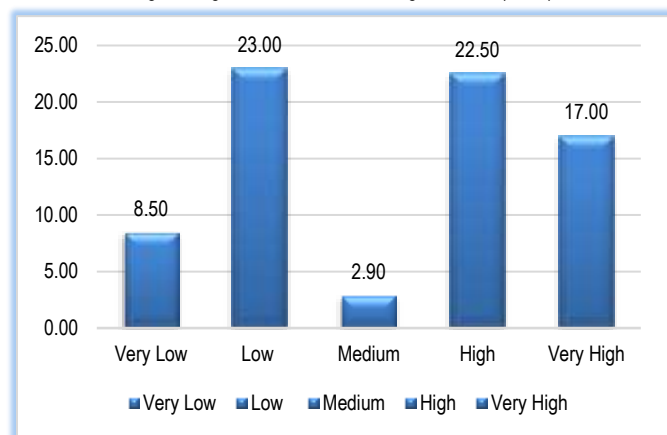

Fig-1 Farmers Inclination towards Farmers Interest Group

Level of influence of independent variables on farmers' inclination towards FIG
The independent variables of FIG member farmers viz., education, experience of FIG, social participation, extension contact, mass media exposure, training received, use of Kisan Call Centre, availability of ICT tools, Kisan Credit Card possession, size of land holding, annual income, numbers of animal possession, innovativeness, cohesiveness, scientific orientation, risk orientation, achievement motivation were positively and significantly correlate, while their experience in farming was found negatively and significantly correlated with their inclination towards FIG. Rest of the variables viz., basic knowledge of Soil Health Card and cropping intensity failed to show any significant relationship with their inclination towards FIG. While age has negative and non-significant relationship with inclination towards FIG.

Relative importance of independent variables in explaining inclination towards FIG
From the [Table-3] it can be observed that out of twenty-two independent variables, five variables were acquainting influence on inclination towards FIG.

It can be inferred that 50.90 percent contribution is explained by availability of ICT tools in predicting variation in inclination towards FIG. However, availability of ICT tools + experience of FIG accounted for 61.50 percent, availability of ICT tools + experience of FIG + extension contact accounted for 64.60 percent, availability of ICT tools + experience of FIG + extension contact + scientific orientation accounted for 66.20 percent, availability of ICT tools + experience of FIG + extension contact + scientific orientation + Kisan Credit Card possession accounted for 67.10 percent variation. The R2 values at each stage of step up regression were found to be significant at 0.05 level of probability.

Table-2 *Relationship between profile of Farmers Interest Group members and their inclination towards Farmers Interest Group*

SN	Profile of FIGs member farmers	Correlation coefficient ('r' value)
1	Age	-0.137
2	Education	0.285**
3	Experience in farming	-0.211*
4	Experience of FIG	0.691**
5	Social participation	0.624**
6	Extension contact	0.623**
7	Mass media exposure	0.489**
8	Training received	0.479**
9	Basic Knowledge of Soil Health Card	0.104
10	Use of Kisan Call Centre	0.261**
11	Availability of ICT tools	0.714**
12	Kisan Credit Card possession	0.185**
13	Size of land holding	0.161*
14	Cropping intensity	0.039
15	Annual income	0.284**
16	Numbers of animal possession	0.247**
17	Innovativeness	0.618**
18	Cohesiveness	0.537**
19	Economic motivation	0.093
20	Scientific orientation	0.559**
21	Risk orientation	0.595**
22	Achievement motivation	0.600**

* Significant at 0.05 level, ** Significant at 0.01 level

The partial 'b' values of these five variables were converted in to standard partial 'b' values and these standard partial 'b' values was ranked from the highest to lowest. On the basis of highest to lowest standard partial 'b' values of these five variables, the rank order was given first to availability of ICT tools (0.341), second to experience of FIG (0.336), third to extension contact (0.166), fourth to scientific orientation (0.132), fifth to Kisan Credit Card possession (0.103). The 't' value or partial 'b' values were significant in case of all the five independent variables. To epitomize the result, it can be stated that the independent variables viz. availability of ICT tools, experience of FIG, extension contact, scientific orientation and Kisan Credit Card possession explained 67.10 percent variation in predicting inclination towards FIG. The findings are suggestive of the fact that for promoting inclination of FIG amongst the farmers, such variables should be counted and duly manipulated. Direct and indirect effect of profile of FIG members on their inclination towards FIG. The result of path analysis is presented in [Table- 4].

Direct effect
The results of path analysis presented in [Table-4] indicate that availability of ICT tools exerted highest positive direct effect (0.3111) on inclination towards FIG, followed by experience of FIG (0.2787), social participation (0.1541), extension contact (0.1464), scientific orientation (0.1209), Kisan Credit Card possession (0.1137), achievement motivation (0.0814), annual income (0.0513), risk orientation (0.0253), basic knowledge of SHC (0.0245), age (0.0123) and numbers of animal possession (0.0105). It was further observed that ten variables exercised the negative direct effect on inclination towards FIG and among them economic motivation of the FIG members excreted highest negative direct effect (-0.1030) followed by experience in farming (-0.0917), cropping intensity (-0.0680), mass media exposure (-0.0504), size of land holding (-0.0436), training received (-0.0310), innovativeness (-0.0300), education (-0.0284), cohesiveness (-0.0115) and use of Kisan Call Centre (-0.0007).

Table-3 *Relative importance of independent variables in explaining inclination towards FIG*

Independent variable	Multiple co-relation co-efficient (R)	Co-efficient of Determination (R^2)	Partial regression co-efficient (b)	t valve	Standard error	Standard partial regression co-efficient (SPRC)	Rank
Availability of ICT tools	0.714	0.509(50.90)	4.492**	5.833	0.77	0.341	1st
Experience of FIG	0.785	0.615(61.50)	4.273**	6.054	0.706	0.336	2nd
Extension contact	0.804	0.646(64.60)	0.991**	3.005	0.33	0.166	3rd
Scientific orientation	0.814	0.662(66.20)	0.455**	2.593	0.176	0.132	4th
Kisan Credit Card possession	0.819	0.671(67.10)	6.057*	2.337	2.592	0.103	5th

** Highly significant at 0.01 level of probability   * Significant at 0.05 level, (Figures in parenthesis show percentage), R2 = 0.671, Degree of freedom = 5,194

Table-4 *Direct and indirect effect of profile of FIG members on inclination towards FIG*

SN	Variables	Direct effect	Total indirect effect	Substantial indirect effect through	
				1	2
1	Age	0.0123	-0.1493	-0.0723(X3)	-0.0463(X11)
2	Education	-0.0284	0.3134	0.1068(X11)	0.0762(X4)
3	Experience in farming	-0.0917	-0.1193	-0.0746(X11)	-0.0267(X4)
4	Experience of FIG	0.2787	0.4123	0.1882(X11)	0.1040(X5)
5	Social participation	0.1541	0.4699	0.1881(X4)	0.1840(X11)
6	Extension contact	0.1464	0.4766	0.1828(X11)	0.1448(X4)
7	Mass media exposure	-0.0504	0.5394	0.1665(X11)	0.1093(X4)
8	Training received	-0.0310	0.51	0.1798(X4)	0.1469(X11)
9	Basic Knowledge of Soil Health Card	0.0245	0.0795	0.0423(X4)	0.0268(X20)
10	Use of Kisan Call Centre	-0.0007	0.2617	0.0834(X11)	0.0652(X4)
11	Availability of ICT tools	0.3111	0.4029	0.1686(X4)	0.0911(X5)
12	Kisan Credit Card possession	0.1137	0.0713	0.0362(X6)	0.0242(X20)
13	Size of land holding	-0.0436	0.2046	0.0594(X4)	0.0464(X11)
14	Cropping intensity	-0.0680	0.107	0.0624(X4)	0.0401(X11)
15	Annual income	0.0513	0.2327	0.0781(X11)	0.0716(X4)
16	Numbers of animal possession	0.0105	0.2365	0.0807(X11)	0.0591(X4)
17	Innovativeness	-0.0300	0.648	0.2018(X4)	0.1937(X11)
18	Cohesiveness	-0.0115	0.5485	0.1981(X4)	0.1728(X11)
19	Economic motivation	-0.1030	0.196	0.0602(X11)	0.0472(X5)
20	Scientific orientation	0.1209	0.4381	0.1584(X11)	0.1339(X4)
21	Risk orientation	0.0253	0.5697	0.1944(X11)	0.1828(X4)
22	Achievement motivation	0.0814	0.5186	0.2033(X4)	0.1871(X11)

Total indirect effect

The data revealed that maximum positive indirect effect was put forth by innovativeness (0.648), through experience of FIG and availability of ICT tools followed by risk orientation (0.5697), through availability of ICT tools and experience of FIG, cohesiveness (0.5485), through experience of FIG and availability of ICT tools, mass media exposure (0.5394) through availability of ICT tools and experience of FIG, achievement motivation (0.5186) and training received (0.510) through experience of FIG and availability of ICT tools, extension contact (0.4766) through availability of ICT tools and experience of FIG, social participation (0.4699) through experience of FIG and availability of ICT tools, scientific orientation (0.4381) through availability of ICT tools and experience of FIG, experience of FIG (0.4123) through availability of ICT tools and social participation, availability of ICT tools (0.4029) through experience of FIG and social participation, education (0.3134), use of Kisan Call Centre (0.2617), numbers of animal possession (0.2365) and annual income (0.2327) through availability of ICT tools and experience of FIG, land holding (0.2046) through experience of FIG and availability of ICT tools, economic motivation (0.196) through availability of ICT tools and social participation, cropping intensity (0.107) through experience of FIG and availability of ICT tools, basic knowledge of SHC (0.0795) through experience of FIG and scientific orientation and Kisan Credit Card possession (0.0713) through social participation and scientific orientation.

As far as indirect negative effect is concerned, age (-0.1493) exerted highest indirect effect on inclination towards FIG through farming experience and availability of ICT tools followed by farming experience (-0.1193) through availability of ICT tools and experience of FIG.

Substantial indirect effect

Out of total 44 substantial indirect effects, 19 substantial indirect effects were routed through availability of ICT tools, 18 through experience of FIG, 3 through social participation, 2 through scientific orientation and 1 each through experience in farming and extension contact. Concluding the findings, it can be said that availability of ICT tools was the key variable in exerting direct and substantial effect on inclination towards FIG and innovativeness was the major variable in determination of inclination towards FIG through positive indirect effect.

Conclusion

Slightly less than one third (29.00 percent) of the FIG members belonged to medium level of inclination towards FIG. The independent variables of FIG member farmers viz., education, experience of FIG, social participation, extension contact, mass media exposure, training received, use of Kisan Call Centre, availability of ICT tools, Kisan Credit Card possession, size of land holding, annual income, numbers of animal possession, innovativeness, cohesiveness, scientific orientation, risk orientation, achievement motivation were positively and significantly correlate, while their experience in farming was found negatively and significantly correlated with their inclination towards FIG. Rest variables viz., basic knowledge of Soil Health Card and cropping intensity failed to show any significant relationship with their inclination towards FIG. While age have negative and non-significant relationship with inclination towards FIG. The five independent variables viz. availability of ICT tools, experience of FIG, extension contact, scientific orientation, Kisan Credit Card possession explained 67.10 percent variation in predicting inclination towards FIG. Availability of ICT tools was the key variable in exerting direct and substantial effect on inclination towards FIG and innovativeness was the major variable in determination of inclination towards FIG through positive indirect effect.

Application of research: The finding of this study that majority of the FIG members belonged to middle age and had moderate educational level which have vital role for using agricultural production technology and hence such type of farmers should be approached for their active involvement in different FIG promotional activities. The Public organizations, private organizations, NGOs, Para Extension worker and private input dealers should create more awareness about FIG to make it more farmers friendly. Such efforts will be helpful to farmers for more adoption of activities of FIG for the development of group approach to extension.

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Author statement: All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: Anand district of Gujarat state

Cultivar / Variety / Breed name: Nil

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.
Ethical Committee Approval Number: Nil

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