

Measurement of farmers' attitude towards greenhouse technology in Anand district of Gujarat

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ABSTRACT

Attitude as a component of human behavior is the pre-requisite for any action which plays a dominant role in adoption of new technologies and schemes given under any programme. Therefore an effort was made to measure attitude of farmers towards greenhouse technology and to investigate association between selected independent variables and attitude factor in Anand district of Gujarat. In total 50 respondents who had already adopted greenhouse technology were approached for collection of relevant data and facts. The results indicated that majority (50.00%) of the farmers who adopted greenhouse technology had favourable to most favourable attitude towards greenhouse technology. Since the farmers were already availing the benefits from greenhouse production of crops thus they developed a positive attitude towards the technology. It was also observed that attitude of the farmers towards greenhouse technology was positively and significantly associated with education, annual income, extension participation, innovativeness, economic motivation and scientific orientation.

Keywords: Attitude; farmers; greenhouse technology; adoption; variables

INTRODUCTION

Indian agriculture with the beginning of the new century stands at crossroads. India has attained the self-sufficiency in food and food products. The country now has reached a plateau in respect of area devoted to crop production. However the population has increased from 350 million to 1.21 billion in the past 64 years. The increasing population puts pressure on land and food. The scenario has been changing from plentiful to limited resources owing to exponential growth of population which demands a radical change in agricultural practices in years to come. Thus sustaining the self-sufficiency in food is next challenge.

Indian agriculture is still heavily monsoon-dependant and has to reach the level of stability to ensure continued growth. The ultimate success of improved technology is measured by the stability in production unaffected by the vagaries of seasons or biotic and abiotic stresses. After the advent of green

revolution more emphasis is being laid on the quality of the agricultural products along with the quantity of production to meet the ever-growing food and nutritional requirements. Both these demands can be met when the environment for the plant growth is suitably controlled. Thus greenhouse cultivation could serve as a viable solution facilitating off-seasonal cultivation and protecting crops from unfavourable outdoor conditions.

For the adoption of recommended greenhouse technology (GT) there must be positive attitude of the farmers towards it. Since change in knowledge and attitude precedes adoption of an innovation it is therefore always important to find out the present status of farmers' attitude and factors responsible for their attitude towards GT. Keeping in view the importance of the technology present study was conducted to find out the attitude of the farmers towards GT and the relationship between their profile and attitude towards the technology.

METHODOLOGY

The ex post facto research design was used in the present investigation as suggested by Kerlinger (1976). Keeping the adaptability of the proposed design with respect to the type of variables, size of farmers and phenomena of study in view, the ex post facto design was selected as an appropriate research design.

The study was conducted in Anand district of Gujarat state. Five Talukas of the district viz Anand, Borsad, Petlad, Khambhat and Sojitra were selected purposively looking at the more number of respondents who had adopted GT. A comprehensive list of progressive farmers who adopted greenhouse/net house technology in Anand district was collected from the Zilla Sewa Sadan. Out of the total 74 greenhouse/net house holders in the district 50 were randomly selected and the data were collected through pretested interview schedule. The data were tabulated and analyzed to draw the valid conclusion.

RESULTS and DISCUSSION

The final attitude scale was administered on the sample farmers who adopted GT in Anand district. They were asked to express their reactions in terms of their agreement or disagreement with each item by selecting one of the five response categories viz strongly agree, agree, undecided, disagree and strongly disagree. For positive statements scores of 5, 4, 3, 2 and 1 were given for strongly agree, agree, undecided, disagree and strongly disagree responses respectively. The scoring was reversed in case of negative statements. The total attitude score for each respondent was obtained by adding all the scores of their responses to all the statements. The range of the score of farmers in the present study varied from 29 to 56. The lowest and the highest scores of farmers that could be obtained on the scale were 12 and 60. On the basis of arbitrary mean the farmers were grouped into five categories viz strongly unfavourable (up to 21.60), unfavourable (21.61 to 31.20), neutral (31.21 to 40.80), favourable (40.81 to 50.40) and strongly favourable (above 50.40) (Table 1). Generally arbitrary method was used on ad hoc basis and designed largely through researcher's own subjective selection for formulation of groups of different variables; different variables were categorized based on division of difference between maximum and minimum possible scores of respective variables with number of categories.

The attitude of farmers towards greenhouse technology was categorized into five categories by using arbitrary method with maximum score 60 and minimum score 12 and the range or interval between two categories was worked out as under:

$$\begin{aligned} \text{Interval between} &= \frac{\text{Maximum score} - \text{Minimum score}}{\text{Number of categories}} \\ &= \frac{60 - 12}{5} = \frac{56}{5} = 9.6 \end{aligned}$$

The data given in Table 2 illustrate that two-fifth (40.00%) of the farmers had neutral attitude towards GT followed by 28.00, 22.00 and 10.00 per cent with favourable, most favourable and unfavourable attitude respectively. None of them had strongly unfavourable attitude. It can be concluded that that majority (50.00%) of the farmers who adopted GT had favourable to most favourable attitude. GT being a prospective venture in terms of increased yield and income, most of the farmers had favourable to most favourable attitude towards it. Moreover the farmers were already availing the benefits from greenhouse production of crops and thus developed a positive attitude towards GT. Similar finding was also reported by Sharnagat (2008) that majority of the NHM beneficiaries had highly favourable attitude towards National Horticulture Mission.

Attitude response on twelve statements was recorded and analyzed statement-wise to assess the attitude of the farmers towards GT and ranks were assigned accordingly (Table 3). The farmers had maximum favour for the statement 'GT helps to get maximum benefits from a small piece of land' followed by 'GT provides year round income'. This showed that the farmers had a favourable attitude towards the GT due to maximum income that too round the year. The third rank was given to the statement 'GT helps to produce quality crops'.

The association between attitude of farmers towards GT and the selected independent variables viz age, education, social participation, occupation, time lag in adoption, landholding, size of the greenhouse, annual income, extension participation, trainings received, innovativeness, economic motivation, risk orientation and scientific orientation was also calculated (Table 4). It may be observed that attitude of the

Table 1. Score of different attitudinal categories

Attitude	Range
Most unfavourable	Minimum score + interval value $12 + 9.6 = 21.60$ (up to 21.60 score)
Unfavourable	Maximum score of 1 st category + interval value $21.60 + 9.6 = 31.20$ (21.61 to 31.20 score)
Neutral	Maximum score of 2 nd category + interval value $31.20 + 9.6 = 40.80$ (31.21 to 40.80 score)
Favourable	Maximum score of 3 rd category + interval value $40.80 + 9.6 = 50.40$ (40.81 to 50.40 score)
Most favourable	Maximum score of 4 th category + interval value $50.40 + 9.6 = 60$ (above 50.41 score)

Table 2. Attitude of the farmers towards greenhouse technology (n= 50)

Category (score)	Frequency	Percentage
Most unfavourable (up to 21.60)	00	00.00
Unfavourable (21.61 to 31.20)	05	10.00
Neutral (31.21 to 40.80)	20	40.00
Favourable (40.81 to 50.40)	14	28.00
Most favourable (above 50.41)	11	22.00

Table 3. Measurement of attitude of farmers towards greenhouse technology (n= 50)

Statement	SA	A	UD	DA	SDA	Mean score	Rank
I am sure that GT is a profitable venture	13	18	18	1	0	3.86	VI
I feel that GT is complicated so it is impractical to adopt (-)	6	10	10	14	10	3.24	X
I believe that GT is worth to adopt though it is laborious	9	20	9	12	0	3.52	VIII
I believe that GT is unviable for illiterate farmers (-)	9	7	5	17	12	3.32	XII
I favour GT as it reduces labour cost	4	25	15	6	0	3.54	VII
I consider that GT is only possible for rich farmers (-)	7	7	13	7	16	3.36	IX
I think that GT is possible to be adopted even by average farmers	4	25	16	4	1	3.54	VI
I think GT is difficult to adopt because its operations are tedious (-)	8	10	12	10	10	3.08	XI
I feel that GT provides year round income	25	12	8	4	1	4.12	II
I like to adopt GT because it helps in generating high agricultural return	4	28	14	4	0	3.64	V
I believe that GT helps to get maximum benefits from a small piece of land	30	10	8	2	0	4.32	I
I believe that GT helps to produce quality crop	23	14	8	4	1	4.08	III

SA= Strongly agree, A= Agree, UD= Undecided, DA= Disagree, SDA= Strongly disagree

farmers towards GT was positively and significantly associated with independent variables like education, annual income, extension participation, innovativeness, economic motivation and scientific orientation. Farmers with higher education had realised the importance of

improved technologies in income generation and were able to understand difficult technologies due to their increased extension participation, mass media exposure, knowledge about internet etc. This finding is in conformity with the study of Kunchala (2012) who

concluded that education had positive and significant relationship with their attitude towards private extension.

Extension participation of the farmers encouraged them to learn new things by doing and by direct participation. It helped them to build confidence to use new technologies to solve farm problems or to adopt new innovations. The finding is in conformity with the study of Darandale (2010) who observed that extension participation of farmers had significant relation with attitude. The higher annual income of farmers might have helped them in timely availability of information about improved and promising technologies, optimum and timely procurement of inputs and also financial back up to take some amount of risk. Similar results were obtained by Parmar (2012) who revealed that annual income of the farmers had positive and significant association with their attitude towards improved technologies.

Table 4. Relationship between profile and attitude of the farmers towards greenhouse technology

Independent variable	'r' value
Age	-0.2894*
Education	0.2934*
Social participation	0.1191 NS
Occupation	0.1731 NS
Time lag in adoption	-0.1032 NS
Land holding	0.1119 NS
Size of greenhouse	0.1557 NS
Annual income	0.3414*
Extension participation	0.2911*
Trainings received	0.1631 NS
Innovativeness	0.3601*
Economic motivation	0.4552**
Risk orientation	0.1600 NS
Scientific orientation	0.2836*

*Significant at 0.05 level, **Significant at 0.01 level, NS= Non-significant

In the present study high level of innovativeness might have offered an impetus working for excellence which enabled the farmers to develop decisiveness to adopt the innovation.

Similar observations were made by Gajbhiya (2006) who concluded that farmers' innovativeness had positive and significant relationship with their attitude towards agricultural research. Similarly Darandale (2010) reported that there was positive and highly

significant relationship between attitude of farmers and their economic and scientific orientation.

The age had negative and significant relationship with attitude of farmers towards GT. The significant and negative 'r' value indicates that attitude was better among younger farmers. It might be due to the reason that old farmers are generally orthodox in nature and try to stick to their traditions. They do not accept technological changes easily and are also unwilling to take any risk. On the other hand young farmers are enthusiastic in nature and are ready to accept new ideas/innovations due to their better education, more social participation, participation in extension activities, mass media exposure etc. Similar findings were reported by Patel et al (2007) who found that age of farmers had negative and significant correlation with their attitude towards scientific techniques. The variables like social participation, occupation, landholding, size of greenhouse, trainings received and risk orientation showed positive and non-significant relationship the time lag in adoption had negative and non-significant relationship with attitude of farmers.

CONCLUSION

Majority of the farmers (50.00%) who adopted GT had favourable to most favourable attitude towards it. The use of greenhouses as the main growing method is related to the fact that the crops are more easily protected against viruses and other diseases and moreover there are other technical and commercial characteristics which entail considerable advantages in terms of quantity, quality and year round production. The study also showed that education, annual income, extension participation, innovativeness, economic motivation and scientific orientation had positive and significant relationship whereas age had negative and significant relationship with attitude of farmers towards GT.

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