Original Research Article

A SCALE TO MEASURE THE ATTITUDE OF COTTON GROWERS TOWARDS WEATHER BASED AGRO-ADVISORY SERVICES IN TELANGANA AND ANDHRA PRADESH STATES.

ABSTRACT

In this modern era, climate change is the most severe challenge experienced in the field of agriculture. To become climate smart, farmers should be equipped well with weather forecast information in prior to do farm operations. Hence, this study represents the construction of an attitude scale to understand the attitude of farmers towards weather based agro-advisory services.Keeping this in view, an attempt has been made to develop a scale for measuring the attitude of farmers towards weather based agro-advisory services in cotton cultivation. Likert's method of summated rating technique was adopted to construct the scale. Based on the available literature and expert's opinion, 40 statements were developed. After editing as per informal criteria, 33 statements were subjected to item analysis among the farmers of non-sample area. Out of which, 30 statements were retained in the developed attitude scale based on the highest 't' value. The 'r' (correlation coefficient) value was found to be 0.852 which represents significant at 1 per cent level and the reliability and validity of the constructed scale were found appropriate to measure the attitude of cotton farmers towards weather based agro-advisory services.

Keywords: *Attitude, Cotton growers, Farmers, Weather based agro-advisory services.*

INTRODUCTION

In developing countries, agriculture must be transformed to meet the needs and challenges in food insecurity and climatic change (FAO, 2010). Climate change acts as a major threat to human kind and resulted in severe changes geological, biological and ecological systems. Cline (2008) reported that changes in weather parameters like precipitation and temperature in marginal areas were expected to reduce production and productivity of that region in an erratic way. Thus, agriculture should undergo a transition to become climate smart to address the need for food security and utilization of effective resources in an efficient way. India has varied weather conditions which invariably affects the farming operations. Thus, farmers

during each stage of farming operations need different types of information (Mittal, 2012) such as weather forecasts, crop protection measures, input and marketing information.

Rivera (1996) quoted that, based on the land holding size of farmers or the agro-climatic region of the farmer, the information required by them will differ. For this purpose and toseek advice on weather related problems, farmers mostly depend on the neighboring farmers and input dealers(Bhaskar, 2012)., But Claire *et al.*, (2010) stated that most of the Indian farmers don't have such kind of information sources. To serve this purpose, weather based agro-advisory services play a vital role in providing weather forecast to farmers through various sources. Providing weather based agro-advisory services facilitates the farmers to plan well in advance regarding the various farm operations like, sowing, fertilizer and pesticide application, manuring, transplanting, harvesting, marketing, etc. Hence, there arises a need to understand the attitude of farmers towards weather based agro-advisory services; for which, this study was formulated to construct an attitude scale.

METHODOLOGY

Likert's method of summated rating is adopted in the construction of attitude scale. Kothari (2004) stated that in summated rating scale / Likert scale, the respondent is requested to respond to each of the statement based on their degree of agreement or disagreement in a five point or seven-point continuum.

1. Collection of Items

The statements were developed based on the available literature and experts opinion, 40 statements were developed. Based on the informal criteria given by Edwards (1957), those statements were edited and finally 33 statements were retained.

2. Item Analysis

The statements were sent to farmers of non-sample area to get their responses. The respondents (farmers) were requested to indicate their response as 'Strongly agree', 'Agree', 'Undecided', 'Disagree' and 'Strongly disagree' with the scores 5, 4, 3, 2 and 1 respectively,

for favorable statements and scoring pattern is reversed for negative statements. Based on the total scores obtained by the respondents, they were arranged in descending order. For each respondents, the possible highest score was 165 and the least possible score was 27.

The 't' value was calculated to identify the extent of differentiation between highest and lowest group. The criterion group is selected by selecting 25 per cent of the respondents with highest scores (high group) and 25 per cent of the respondents with the lowest scores (low group). In order to calculate 't' value, the following formula was used.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\sum(X_H - \bar{X}_H)^2 + \sum(X_L - \bar{X}_L)^2}{n(n-1)}}}$$

$$\sum(X_H - \bar{X}_H)^2 = \sum {X_H}^2 - \frac{\sum(X_H)^2}{n}$$

$$\sum(X_L - \bar{X}_L)^2 = \sum {X_L}^2 - \frac{\sum(X_L)^2}{n}$$

Where,

$\bar{X}_H$ = the mean score on a given statement for the high group

$\bar{X}_L$ = the mean score on the same statement for the low group

X_H = The sum of scores of all subjects on a given statement for the high group

X_L = The sum of scores of all subjects on a given statement for the low group

${X_H}^2$ = Sum of squares of the individual score on a given statement for high group

${X_L}^2$ = Sum of squares of the individual score on a given statement for low group

The calculated 't' value is presented in table.1. The statements which possess the highest 't' value are selected.

DISCUSSION OF RESULTS:

Table.1. Calculation of 't Value'

Statement	Statement	't' value

number		
1	I believe weather based agro-advisories services are timely available	3.226**
2*	I felt that advisory given are not practically applicable	0.537
3	I perceive weather forecast given in the agromet advisory bulletins are reliable	2.688**
4*	I feel inputs and plant protection chemicals suggested in the agro advisory bulletins are difficult to purchase or not available in the market	1.613**
5	I perceive Agro-advisory services are effective	2.688**
6*	I feel Agro Advisory messages are clear, adequate and useful	3.226*
7	I am willing to pay for advisory services, if I can get more appropriate and useful information.	8.065**
8	I think yield is enhanced by deploying the advisory services	5.914**
9*	I felt that information provided by WBAS are not timely	0.538
10	I perceive pest and disease occurrence was reduced by employing the advisory services	7.523**
11*	I feel agro-advisory services suggested are very costly	5.914**
12	I foresee WBAS provides information on weather parameters which helps to plan farming operations in prior	2.151**
13*	I think recommended advisory services are not feasible	2.151**
14	I perceive agro-advisory services increases the social contact	1.075**
15	I opine traditional method of weather based farming is more credible than WBAS	4.301**
16	I think Information from agro-advisory services are not need based	4.301**
17*	I think Utilization of agro advisory services reduces cost of production	6.989**
18	I think agro-advisory services are not location specific	11.828**
19*	I am ready to accept the Agro-advisory services as it suits to my cropping pattern and field conditions	6.452**
20	I felt that agro-advisory services help to mitigate the climate change	5.376**
21	I feel that agro-advisory services reduces the dependency of farmers towards extension agent for weather information	6.452**
22*	I agree agro-advisory services are adaptable in field conditions	5.914**
23	I feel Agro-advisory services are difficult to avail	5.376**
24*	I think Agro advisory services are not crop specific	6.452**
25*	I believe that WBAS facilitates better crop management	7.523**

26	I can sense the increased level of awareness among farmers towards WBAS	0.000
27	I can understand that farmers are preferring WBAS because of its benefits like prior crop planning	2.688**
28	I feel that illiteracy among farmers hinder the adoption of WBAS among them	13.441**
29*	I think that Agro-advisory services are not valid on account of climate change	8.065**
30*	I admit that WBAS increased my social status among the farmers	3.763**
31	I can feel that WBAS encouraged farmers to do prior crop planning based on weather data	6.452**
32	I think that WBAS will motivate the farmers to adopt new cropping pattern despite of their farming experience for increased benefits	9.140**
33	I assure that introduction of WBAS among farmers, motivated them to adopt new innovative technologies	5.914**

** Negative statements, ** Statements with significant t values*

3. Selection of Statements for Final Attitude Scale

According to Jamal (2018), the norms to consider a statement for the final scale were

i. 't' value of more than 1.75.
ii. the statement should be expressing a new idea which does not overlap with the idea expressed by the other statement.
iii. the statement should be simple worded and brief.

The final list of selected statements for construction of attitude scale were presented in table.2.

Table.2. Final list of Statements Selected for Construction of Attitude Scale

S. NO.	STATEMENTS	RESPONSE				
		SA	A	UD	D	DA
1	I believe weather based agro-advisories services are timely available					
2	I perceive weather forecast given in					

	the agromet advisory bulletins are reliable					
3	I feel inputs and plant protection chemicals suggested in the agro advisory bulletins are difficult to purchase or not available in the market					
4	I perceive Agro-advisory services are effective					
5	I feel Agro Advisory messages are clear, adequate and useful					
6	I am willing to pay for advisory services, if I can get more appropriate and useful information.					
7	I think yield is enhanced by deploying the advisory services					
8	I perceive pest and disease occurrence was reduced by employing the advisory services					
9	I feel agro-advisory services suggested are very costly					
10	I foresee WBAS provides information on weather parameters which helps to plan farming operations in prior					
11	I think recommended advisory services are not feasible					
12	I perceive agro-advisory services increases the social contact					
13	I opine traditional method of weather based farming is more credible than WBAS					
14	I think Information from agro-advisory services are not need based					
15	I think Utilization of agro advisory services reduces cost of production					
16	I think agro-advisory services are not location specific					
17	I am ready to accept the Agro-advisory services as it suits to my cropping pattern and field conditions					

18	I felt that agro-advisory services help to mitigate the climate change					
19	I feel that agro-advisory services reduces the dependency of farmers towards extension agent for weather information					
20	I agree agro-advisory services are adaptable in field conditions					
21	I feel Agro-advisory services are difficult to avail					
22	I think Agro advisory services are not crop specific					
23	I believe that WBAS facilitates better crop management					
24	I can understand that farmers are preferring WBAS because of its benefits like prior crop planning					
25	I feel that illiteracy among farmers hinder the adoption of WBAS among them					
26	I think that Agro-advisory services are not valid on account of climate change					
27	I admit that WBAS increased my social status among the farmers					
28	I can feel that WBAS encouraged farmers to do prior crop planning based on weather data					
29	I think that WBAS will motivate the farmers to adopt new cropping pattern despite of their farming experience for increased benefits					
30	I assure that introduction of WBAS among farmers, motivated them to adopt new innovative technologies					

Reliability and Validity

Reliability: Test-Retest Method

The final 30 statements which indicate the attitude of the cotton growers towards the weather based agro-advisory services were administered on a five point continuum scale to 30 farmers of non-sample area. Later on, after a period of 15 days, again the test was administered to the same 30 farmers, which resulted in two sets of scores. The 'r' (correlation coefficient) value was found to be 0.852 which represents significant at 1 per cent level. Hence, the constructed attitude scale was favorable to assess the attitude of farmers towards weather based agro-advisory services.

Validity: Content Validity

The content of the developed scale was assessed to determine the extent of the content to measure the attitude of the cotton growers. Thus, it was observed that, each of the statement had a high discriminating value representing that the scale acts as a valid measure to assess the attitude of farmers. Eventually, the constructed scale was found to have reliability and validity; thus, it can serve as a standard tool to measure the attitude of farmers towards weather based agro-advisory services.

CONCLUSION

Weather based agro-advisory services play a significant role in providing weather forecast to farmers through various sources. Providing weather based agro-advisory services facilitates the farmers to plan well in advance regarding the various farm operations like, sowing, fertilizer and pesticide application, manuring, transplanting, harvesting, marketing, etc. Hence, there arises a need to understand the attitude of farmers towards weather based agro-advisory services; for which, this study was formulated to construct an attitude scale it will be helpful for the researchers and policy makers to understanding the farmers attitude and feeling towards this weather based agro-advisory services and formulating new schemes and programmes to reach better way to the farmers.

RECOMMENDATIONS

The developed attitude scale was assessed to determine to measure the attitude of the cotton growers in Telangana and Andhra Pradesh States. It can be commended to do in all over the

country so the policy implementation will easier and allocation of budget will improved and most impotently the attitude of the farmers towards this services will enlighted.

REFERENCES

- Bhaskar, G. 2012. Mobile SMS application in agricultural information dissemination: A case on KVK, Bhabaleshwar SMS Alerts. In: *Training Manual Application of ICTs in Modified Extension Reforms*, National Institute of Agricultural Extension Management (MANAGE), Hyderabad.
- Claire, J., Glendenning, S.B and Kwadwao, A. 2010. A review of Agricultural Extension in India. Are Farmer's Information Needs Being Met? IFPRI Discussion Paper 01048.
- Edwards, A.L. Techniques of Attitude Scale Construction. *Appeton Century Crafts*. New York. 1957. 149-160.
- Likert R. A technique for the measurement of attitudes. *Archology Psychology*. 1932. 14.
- Mittal, S., Burman, R., Sharma, J.P., Sangeetha, V and Asiflequebal M. 2015. Effectiveness of mobile based agro-advisory services in addressing information need of the stakeholders: A case of m-krishi. *Indian Journal of Extension Education.* 51:32-38.
- Rivera, W.M. 1996. Agricultural extension in transition worldwide: Structural, financial and managerial strategies for improving agricultural extension. *Public Administration and Development*. 16:151-161.