RESEARCH ARTICLE

ADAPTABILITY OF THE COTTON GROWERS OF TELANGANASTATE TOWARDS CLIMATE VARIABILITY AND RELATIONSHIP WITH PROFILE

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ABSTRACT

The present research conducted in Adilabad and Mahabubnagar districts of Telangana state was purposively selected for the study. A sample of 240 farmers was selected for the study.*An ex-post facto* research design was adopted. The analysis of the adaptability of the cotton growers indicates that the majority of the respondents had medium (65.83%) level of adaptation followed by high (18.33%) and low (15.83%) levels of adaptability.Farming experience, land holding, family size, achievement motivation, credit and subsidy orientation and risk orientation were positively and significantly related tothe extent of adaptation measures in combating climate variability. Age, annual income, extension contact, social participation, and Cosmo politeness preparedness to adaptation showed a non-significant relationship with the adaptability of cotton growers towards climate variability.

INTRODUCTION

Climate is projected to increase drought occurrence in the districts like Adilabad and Mahabubnagar which would impact not only water resources but also have a cascading effect on other dependent sectors. Increased drought conditions can also severely affect agricultural and pastoral livelihoods and increase vulnerability and risks for farmers, and people depending on such livelihoods. For farmers who are strongly dependent on rainfall for agricultural activities, crop failure caused by drought can lead to household food insecurity. For pastoralists and agro-pastoralists whose livelihoods and food security depend on livestock, drought conditions can cause malnutrition or disease in livestock because of insufficient fodder.This study takes a closer look at how affected communities respond and cope with climate variability in selected areas of the district. It uses personal interviews to investigate the impacts of climate variability, and coping mechanisms and to identify the key factors that promote greater resilience among communities. Many adaptation and mitigation strategies have been developed by many government and private agencies to reduce or tackle the harmful effects of climate variability, but very few studies and research relate to unearthing the preparedness in the adoption of the practices to face climate variability. Till now no study has been undertaken in Adilabad and Mahabubnagar district of Telangana state to study the farmer's perception and adaptability towards climate variability. Keeping this in view, the research problem entitled "Perception and adaptability of the cotton growers towards climate variability in Telangana state" was designed.

METHODOLOGY

For this study, the *expost facto* research design was adopted. According to Kerlinger (1973), *ex-post facto* research is a systematic empirical enquiry, in which the scientists do not have direct control over influencing (independent) variables because their manifestations have already occurred. Telangana was purposively selected for the study as the researcher is from this state.Adilabad and Mahabubnagar districts of Telangana were purposively selected for the study as Climate is projected to increase drought occurrence in districts like Adilabad and Mahabubnagar which would impact not only water resources but also have a cascading effect on other dependent sectors. Increased drought conditions can also severely affect agricultural and pastoral livelihoods and increase vulnerability and risks for farmers, and people depending on such livelihoods. For farmers strongly dependent on rainfall for agricultural activities, crop failure caused by drought can lead to household food insecurity. The study was conducted in twelve villages selected from two Mandals of each district, which included 20 farmers from each selected village. A sample of 240 farmers was selected for the study.

RESULTS

Table 1. Distribution of the respondents according to their level of adaptability towards climate variability

Sr.No.	Category	Respondents (N=240)		
			Frequency	Percentage
1	Low	Up to 94	38	15.83
2	Medium	95 to 109	158	65.83
3	High	110 & above	44	18.33
		Total	240	100.00
		Mean	102.00	
		SD	8.00	

It could be indicated from Table 1. that the majority of the respondents had medium (65.83%) levels of adaptation followed by high (18.33%) and low (15.83%) levels of adaptability. It could be inferred from Fig 1.that most of the respondents had a medium level

of adaptation to climate variability. This may be because most of the farmers had medium farm experience and medium in their other attributes.
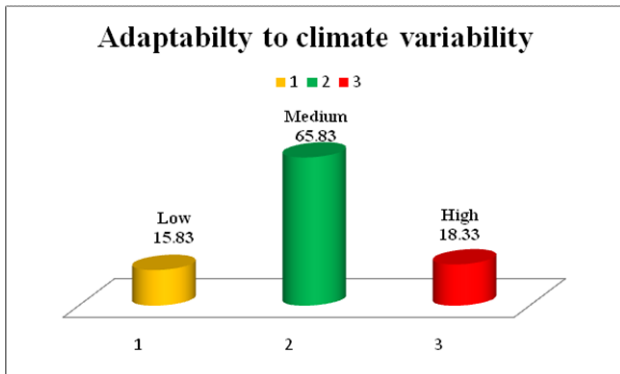

Fig. 1. Distribution of respondents according to their adaptability to climate change

Adaptation is a tool for managing a variety of risks associated with climate change in agriculture. Changes in management activities, institutional settings and infrastructure that enable effective response to climate change. Improving a community's ability to cope with climate conditions across time and space needs the use of adaptive measures at different levels.

Table 2. Relationship between the selected independent variables and adaptability of cotton growers towards climate variability

Sr.No	Independent variables	Correlation
1	Age	0.104[NS]
2	Education	-0.032[NS]
3	Farming experience	0.176**
4	landholding	0.150*
5	Family size	0.149*
6	Annual Income	0.065[NS]
7	Achievement motivation	0.111*
8	Extension contact	0.013[NS]
9	Social participation	0.024[NS]
10	Cosmo politeness	0.012[NS]
11	Credit and subsidy orientation	0.137*
12	Preparedness to adaptation	0.064[NS]
13	Risk Orientation	0.147*

*Significant at 0.05 level of probability
** Significant at 0.01 level of probability

Figure 2. Relationship between the selected independent variables and adaptability of cotton growers towards climate variability

Age Vs adaptability of cotton growers towards climate variability: From Table 2 and Fig 2. it is evident that the computed coefficient of correlation value of age (r=0.104) was found to be not significant with the extent of adaptation measures in combating climate variability. Hence null hypothesis was accepted. Therefore, it could be inferred thatthere was no significant relationship between age and the extent of adaptation measures in combating climate variability.

Education Vs adaptability of cotton growers towards climate variability: From the Table Table 2and Fig 2. it was found that the computed coefficient of correlation value (r= 0.032) of education was not significant r with the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted and the empirical hypothesis was rejected. Therefore, it could be inferred that there is no significant relationship between education and the adaptability of cotton growers towards climate variability. Most of the cotton-growing farmers were illiterate hence they won't perceive more climate variability thus there is no significant relationship between education with perception.

Farming experience Vs adaptability of cotton growers towards climate variability: From the Table Table 2and Fig 2. it was found that the computed coefficient of correlation value (r= 0.176) of farming experience was positively and significantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between farming experience and the adaptability of cotton growers towards climate variability. Highly experienced farmers are more likely to have more information and knowledge on changes in climatic conditions and crop management practices. Experienced farmers have high skills in farming techniques and management and can spread risk when facing climate variability. Experienced farmers are usually leaders and progressive farmers in rural communities and these can be targeted in promoting adaptation management to other farmers who do not have such experience and are not yet adapting to changing climatic conditions.

Land holding Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it is evident that the computed coefficient of correlation value of farm size (r=0.150) was found positively and significantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship betweenland holding and the extent of adaptation measures in combating climate variability. Landholding increases the farm income of the farmers. Therefore, they would have more access to information about scientific practices and weather-related information.

Family size Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it is evident that the computed coefficient of correlation value of family size (r=0.149) was found positively and significantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between family size and the adaptability of cotton growers towards climate variability. With increasing family size, there is scope to get more information about cotton growing by all the family members hence, it showsa positive correlation with perception.

Annual income Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it is evident that the computed coefficient of correlation value of family income (r=0.065) was found to not be significant with the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted. Therefore, it could be inferred that there was no significant relationship between family income and the adaptability of cotton growers towards climate variability. The reason might be that the annual income of most of the
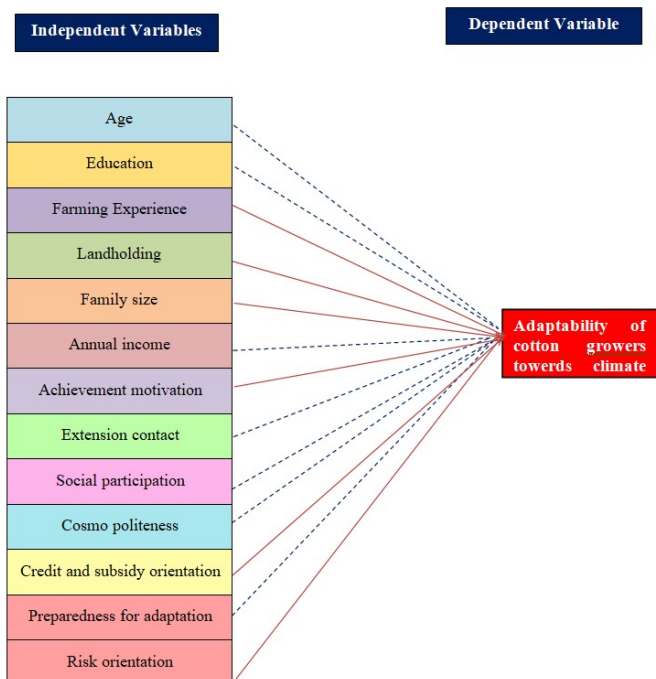
cotton growers is medium hence they can't access all types of information about climate change.

Achievement motivation Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it was found that the computed coefficient of correlation value (r= 0.111) of achievement motivation was positively and significantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between achievement motivation and adaptability of cotton growers towards climate variability. It could be inferred that farmers with more achievement motivation will search for correct choices for combating climate variability in comparison to other farmers. Their decision-making will also be better about modalities of task performance in combating climate variability. Hence this trend was noticed.

Extension contact Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it is evident that the computed coefficient of correlation value of extension contact (r=0.013) was found to not be significant with the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted. Therefore, it could be inferred that there was no significant relationship between extension contact and the adaptability of cotton growers towards climate variability. The reason for this might be most of the cotton growers had medium extension contact, hence they did not participate in any workshops and trainings conducted by extension agents and, hence have less knowledge about climate change.

Social participation Vs adaptability of cotton growers towards climate variability: From Table2 and Fig 2. it was found that the computed coefficient of correlate ion value (r= 0.024) was found to not besignificant with the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted. Therefore, it could be inferred that there was no significant relationship between social participation and the adaptability of cotton growers towards climate variability. The reason for this might be that the cotton growers as medium social participation and extension contact hence they did not participate in any workshops and trainings conducted by extension agents and have less knowledge about climate change.

Cosmo politeness Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it was found that the computed coefficient of correlation value (r= 0.012) of Cosmo politeness was found non-significant with the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted. Therefore, it could be inferred that there was no significant relationship between Cosmo politeness and the adaptability of cotton growers towards climate variability. The reason for this might be that the cotton growers as medium Cosmo politeness, social participation and extension contact hence they did not go to any trainings and meetings held in town.

Credit and subsidy orientation Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it is evident that the computed coefficient of correlation value of credit and subsidy orientation (r= 0.137) was found positively and significantly related to the adaptability of cotton growers towards climate variability.

Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between credit and subsidy orientation and the adaptability of cotton growers towards climate variability. The reason for this might be that the cotton growers as medium Cosmo politeness, social participation and extension contact hence they did not go to any trainings and meetings held in town, so they did not know about government loans and subsidy schemes.

Preparedness for adaptation Vs adaptability of cotton growers towards climate variability: From Table 2and Fig 2. it was found that the computed coefficient of correlation value (r= 0.064) of preparedness to adaptation education was notsignificantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was accepted and the empirical hypothesis was rejected. Therefore, it could be inferred that there is no significant relationship between preparedness for adaptation and adaptability of cotton growers towards climate variability. The reason for this might be that the cotton growers have a medium annual income and extension contact hence they did not go to any training and meetings, so they did not know about climate change.

Risk orientation Vs adaptability of cotton growers towards climate variability: From Table Table 2and Fig 2. it is evident that the computed coefficient of correlation value of credit and subsidy orientation (r= 0.147) was found positively and significantly related to the adaptability of cotton growers towards climate variability. Hence null hypothesis was rejected and the empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between credit and subsidy orientation and the adaptability of cotton growers towards climate variability.

CONCLUSION

The analysis of the adaptability of the cotton growers indicates that the majority of the respondents had a medium (65.83%) level of adaptation and Farming experience, land holding, family size, achievement motivation, credit and subsidy orientation and risk orientation were positive and significantly related with extent of adaptation measures in combating climate variability.

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