

AWARENESS ABOUT CLIMATE CHANGE AMONG THE FARMER FRIENDS

G. K. Bhabhor¹, A. A. Shaikh² and R. G. Machhar³

1 Scientist, KVK, AAU, Dahod - 389160

2 Research Associate, ARS, AAU, Dahod - 389151

3 Unit head & Asso. Research scientist, ARS, AAU, Dahod - 389151

Email: gaurangbhabhor890@gmail.com

ABSTRACT

Climate change is a burning issue in the global discussions on agriculture as it affects all other sectors of development. Agriculture system responds to changing climate through the process of adaptation. Awareness of farmers about the climate changes, its causes and consequences are the important aspect to deal with changing climatic conditions. Despite availability of adaptation measures like HYVs, mixed cropping, integrated farming, change in irrigation, crop insurance etc., farmers were not adapting them due to lack of knowledge and awareness about climate change. Among the different extension functionaries farmer friends are the key communicator for dissemination of agriculture technologies therefore awareness of them about the climate changes is very important. 300 farmer friends from Dahod District of Gujarat were selected randomly. Majority of the respondents were aware of the major indicators of climate change i.e. irregular rainfall and increase in temperature. In case of awareness about the causes of climate change it was deforestation, use of vehicles, while awareness about the major impact were found as human disease outbreak and livestock disease outbreak. Overall awareness about climate change high to very high. Majority of respondents had a very high level of risk perception in agriculture due to climate change.

Keywords: climate change, awareness, risk perception, farmer friends

INTRODUCTION

Climate change poses significant challenges to agricultural systems worldwide, impacting crop yields, water availability, and the livelihoods of millions of farmers. In recent years, the urgency to address climate change has become increasingly evident, necessitating proactive measures across all sectors, particularly agriculture (Vinaya et al., 2023). However, effective climate action requires not only policy changes and technological innovations but also widespread awareness and understanding among those most affected by its consequences – farmers.

This research paper investigates the level of awareness about climate change among Farmer Friends, aiming to assess their awareness about indicators, causes and impact of climate change as well as risk perceived in agriculture by them due to climate change. The study focuses on a specific group: Farmer Friends. The Farmer Friend is being formed at the village levels to serve as a bond between the farmers and the extension systems, whose livelihoods are intricately linked to agricultural extension activities and farmers. By understanding their awareness levels, the study seeks to identify potential gaps in knowledge and opportunities for interventions to enhance climate change literacy within this community.

The importance of this research lies in recognizing farmers as key stakeholders in climate change adaptation and mitigation efforts. Their intimate connection with the land makes them both vulnerable to its impacts and instrumental in implementing sustainable practices. However, for farmers to effectively participate in climate-resilient agriculture, they must first comprehend the complexities of climate change and recognize its implications for their farming practices.

This paper begins by providing an overview of the current state of climate change and its ramifications for agriculture, highlighting the significance of farmer awareness in addressing this global challenge. It then presents the methodology employed to assess farmers' awareness levels, including survey instruments, sampling techniques, and data analysis methods. Subsequently, the findings of the study are discussed, shedding light on the extent of climate change awareness among farmer friends and identifying key areas for improvement the way Vyas *et al* (2017) focused to find out suggestions from farmers to mitigate the effects of climate change.

Ultimately, this research aims to contribute to the growing body of literature on climate change communication and education, with a specific focus on grassroots efforts to empower farmers with the knowledge and resources needed

to adapt to changing environmental conditions. Projects like National Initiative on Climate Resilient Agriculture (NICRA) bridging the gap between scientific insights and local realities (Tajpara *et al*, 2020), this study endeavors to foster resilience and sustainability within agricultural communities, paving the way for a more climate-resilient future.

OBJECTIVES

- (1) To study the profile of the farmer friends
- (2) To study the farmer friends' awareness about indicators, causes and impact of climate change
- (3) To study the risk perceived in agriculture by the farmer friends due to climate change

METHODOLOGY

Dahod district was purposively selected for the

study as it is one of the rainfed district of Gujarat state and it also under the jurisdiction area of the researchers. Among the total 360 numbers of farmer friends of ATMA, Dahod, 300 of them were selected randomly for this study, who have at least 5 year of experience in farming. To measure the awareness regarding climate change procedure followed by Raghuvanshi *et al* (2017) and for measurement of risk perception scale developed by Raghuvanshi and Ansari (2019) was used with due modification. Data was collected by personal interview, tabulated and analyzed with descriptive statistical tools.

RESULTS AND DISCUSSIONS

Personal profile of the farmer friends

The profile of farmer friends contain some of their personal, economical and communicational characteristics. The findings about it were displayed below.

Table 1 : Distribution of the respondents according to their personal characteristics

(n=300)

Sr. No.	Characteristic	Category	Frequency	Percentage
1	Age	Young (≤ 35 Years)	84	28.00
		Middle aged (36 to 50 Years)	184	61.33
		Old (> 50 Years)	32	10.67
2	Education	Primary education (Upto 8 th std)	00	0.00
		Secondary education (std. 9 nd & 10 th)	90	30.00
		Higher secondary education (Std. 11 th and 12 th)	142	47.33
		Graduate and above	68	22.67
3	Experience of Farming	Upto 10 Years	21	7.00
		Between 11 Years to 20 Years	146	48.67
		Above 20 Years	133	44.33
4	Occupation	Only Farming	83	27.67
		Farming + Livestock	106	35.33
		Farming + Livestock + Labour	25	8.33
		Farming + Livestock+ Services	86	28.67
5	Land holding	Marginal farmer (Up to 1.00 ha)	99	33.00
		Small farmer (1.01 to 2.00 ha)	142	47.33
		Medium farmer (2.01 to 4.00 ha)	53	17.67
		Large farmer (Above 4.00 ha)	06	02.00
6	Annual income (Rs)	Up to ₹ 50,000/-	75	25.00
		₹ 50,001 to ₹ 75,000/-	120	40.00
		₹ 75,001 to ₹ 1,00,000/-	84	28.00
		₹ 1,00,000/- to above	21	7.00

Sr. No.	Characteristic	Category	Frequency	Percentage
7	Extension contact	Very low (≤ 2.4)	6	02.00
		Low (2.4 to 4.8)	38	12.67
		Medium (4.8 to 7.2)	143	47.67
		High (7.2 to 9.6)	89	29.66
		Very high (9.6 to 12)	27	8.00
8	Mass Media Exposure	Very low (≤ 2.4)	50	16.67
		Low (2.4 to 4.8)	99	33.00
		Medium (4.8 to 7.2)	147	49.00
		High (7.2 to 9.6)	4	1.33
		Very high (9.6 to 12)	0	0.00

Table 1 indicates that more than three fifth (61.33 per cent) of the respondents were found in the middle age group, nearly half of the respondents (47.33 per cent) were educated up to the higher secondary level and had farming experience of 11 to 20 years (48.67 per cent). From the view point of economical character Table 1 also displays that more than one third (35.33 per cent) of the respondents are engaged in farming + Livestock based farming system, majority (80.33 per cent) were small to marginal farmers and 65.00 per cent of them are having annual income of up to Rs. 75,000/-. It is obvious from the data presented in Table 1 that majority (77.33 per cent) had medium to high level of extension

contact, while in terms of mass media exposure majority (82.00 per cent) of them had low to medium level of mass media exposure.

Awareness about indicators, causes and impact of climate change to the farmer friend

Awareness regarding the indicators, causes and impact of climate change to the farmer friend were presented in Table 2, Table 3 and Table 4 respectively. To understand the level awareness about climate change by the farmer friend the data is presented in Table 5.

Table 2 : Awareness about Indicators of climate change

(n=300)

Sr. No.	Indicators	Mean Score	Rank
1	Desertification	1.69	IX
2	Change in the Vector borne disease	2.11	VII
3	Prolonged Drought	1.89	VIII
4	Very Wet Season	2.47	V
5	High Wind and Heat waves	2.25	VI
6	Irregular rainfall	2.95	I
7	Increase in temperature	2.90	II
8	Decline of soil productivity	2.65	IV
9	Diminished agricultural yield	2.80	III

From the Table 2, it was found that major indicators of climate change that the respondents were aware of irregular rainfall ranked first with mean score of 2.95 followed by increase in temperature (mean score: 2.90), diminished agricultural yield (mean score: 2.80), decline of

soil productivity (mean score: 2.65), very wet season (mean score: 2.47), high wind and heat waves (mean score: 2.25), Change in the Vector borne disease (mean score: 2.11), prolonged drought (mean score: 1.89) and desertification (mean score: 1.69), respectively.

Table 3 Awareness about Causes of climate change
(n=300)

Sr. No.	Causes	Mean Score	Rank
1	Overpopulation	2.68	IV
2	Burning of fossil fuels	1.45	VII
3	Deforestation	2.88	I
4	Use of electrical appliance	1.01	VIII
5	Use of Pesticides	2.75	III
6	Forest fire	2.40	V
7	Use of vehicles	2.81	II
8	Factories and industries	1.99	VI

From the Table 3, it was revealed that awareness of respondents on major causes of climate change were deforestation ranked first with mean score of 2.88, followed by use of vehicles (mean score: 2.81), use of pesticides (mean score: 2.75), over population (mean score: 2.68), forest fire (mean score: 2.40), factories and industries (mean score: 1.99), burning of fossil fuels (mean score: 1.45) and use of electrical appliance (mean score: 1.01), respectively.

Table 4 Awareness about Impact of climate change
(n=300)

Sr. No.	Impact of climate change	Mean Score	Rank
1	Migration to other Places	2.55	IV
2	Famine	1.05	VII
3	Livestock disease outbreak	2.87	II
4	Human disease outbreak	2.95	I
5	Flooding	1.30	VI
6	Extinct/Shifting plant species	2.30	V
7	Crop Failure	2.81	III

It was observed From the Table 4 that major awareness regarding Impact of climate change by the respondents were human disease outbreak which ranked first with means score of 2.95, followed by livestock disease outbreak (mean score: 2.87), crop failure (mean score: 2.81), migration to other places (mean score: 2.55), extinct/shifting plant species (mean score: 2.30), flooding (mean score: 1.30) and famine (mean score: 1.05), respectively.

Table 5 : Level of awareness about climate change by the farmer friends
(n=300)

No.	Categories	Frequency	Per cent
1	Very low (up to 33.6 score)	00	00.00
2	Low (33.7 to 43.2 score)	00	00.00
3	Medium (43.3 to 52.8 score)	117	39.00
4	High (52.9 to 62.4 score)	67	22.33
5	Very high (above 62.4 score)	116	38.67

All the respondents in the study reported that they are well aware of the climate change. Into the categorization of level of overall awareness about climate change more than three fifth (61.00 per cent) had high to very high level of awareness followed by medium (39.00 per cent), respectively. The Table 5 also displayed that none of the respondents falls in the category of low or very low level of overall awareness about climate change.

Table 6: Association between personal characteristics and level of awareness about climate change of the farmer friend
(n=300)

Sr. No.	Independent variables	Correlation coefficient ('r' value)
X ₁	Age	0.038
X ₂	Education	0.187**
X ₃	Experience of farming	0.153**
X ₄	Occupation	-0.028
X ₅	Land holding	0.098
X ₆	Annual income	-0.096
X ₇	Extension contact	0.354**
X ₈	Mass Media Exposure	0.245**

*Significant at 0.05 level of significance

** Significant at 0.01 level of significance

NS = Non significant

The Table 6 clearly indicates that the personnel characteristics of the farmer friend viz. education, farming experience, extension contact and mass media exposure had positive and highly significant correlation with level of awareness about climate change. Age and Land holding had positive and non-significant correlation with level of awareness about climate change. Whereas occupation & Income had negative and non-significant correlation with level of awareness about climate change by the farmers friend.

Risk perceived in agriculture by the farmer friends due

to climate change

Table: 7 Distribution of the farmer friends about risk perception in agriculture due to climate change (n=300)

Sr. No.	Category	Frequency	Per cent
1	Very low (up to 36 score)	00	00.00
2	Low (37 to 52 score)	00	00.00
3	Medium (53 to 68 score)	12	04.00
4	High (69 to 84 score)	86	28.67
5	Very high (above 84 score)	202	67.33

Table 7 represented the risk perceived by the respondents in agriculture due to climate change. From the data it was found that majority (67.33 per cent) of the respondents had very high level of risk perception in agriculture due to climate change followed by 28.67 per cent and 4.00 per cent had high and medium level of risk perception. Same table also revealed that none of the respondents falls in the category of low or very low level of risk perception.

CONCLUSION

As per results majority of the respondents were found in middle to young age group, had higher secondary to secondary level of education, 11 to 20 years of experience in farming system, engaged in Farming with Animal husbandry, small to marginal size of land holding, having Rs. 75000/- annual income, medium to high level of extension contact and low to medium level of mass media exposure.

Majority of the respondents were aware of the major indicators of climate change i.e. irregular rainfall, increase in temperature and diminished agricultural yield. In case of awareness about the causes of climate change it was deforestation, use of vehicles and use of pesticides, while awareness about the major impact were found as human disease outbreak, livestock disease outbreak and crop failure.

Overall awareness about climate change high to very high. Personnel characteristics of the farmer friend viz. education, farming experience, extension contact and mass media exposure had positive and highly significant correlation with level of awareness about climate change. Majority of respondents had a very high level of risk perception in agriculture due to climate change.

CONFLICT OF INTREST

All authors express no conflict of interest in any part of the research.

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