

KNOWLEDGE LEVEL OF FARMERS ON CLIMATE RESILIENT AGRO-TECHNOLOGIES IN NICRA VILLAGE

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ABSTRACT

The present study was conducted in Narmada district of Gujarat to measure the level of knowledge and awareness of farmers on climate resilient agro-technologies in NICRA village last two years. A total of 120 farmers, 60 NICRA (National Innovations on climate resilient agriculture) participant farmers and 60 non-participant farmers were selected randomly from the purposively selected village. The findings of the study revealed that majority of the participant farmers (58.33%) had medium level of knowledge while for nonparticipant farmers (78.33%) had low level knowledge on climate resilient agro-technologies. It was seen that all the participant farmers (100%) were aware about climate resilient agro-technologies considered in the study, while differential level of awareness was observed among the non-participant farmers. The existing extension efforts made under the project need to be strengthened and streamlined to enhance the knowledge level of participant farmers on climate resilient agro-technologies.

Keywords: *agro technologies, NICRA, climate change, knowledge*

INTRODUCTION

Climate change is one of the major global challenges of the 21st Century, and is one of the key priorities of the discussion in the International for a since last few years (Vinaya & Tapan, 2023). The adverse impacts of climate change are affecting all countries, especially developing countries, including persistent drought and extreme weather events, rising sea levels, coastal erosion and ocean acidification, further threatening food security, water, energy and health, and more broadly efforts to eradicate poverty and achieve sustainable development (Jangir et al., 2023; Kemekar et al., 2023). Combating climate change would require substantial and sustained reductions in greenhouse gas emissions GHG, which, together with adaptation, can limit climate change risk. Indeed adaptation and mitigation actions are complementary for reducing and managing the risks of climate change (Patel et al., 2022; Pokar et al., 2023). Considering that the climate change is a continued challenge, the focus on this critical area needs to be continued with greater emphasis. Keeping this view, one scheme has been strengthened and efforts were made to build on the initiative taken during XI five year plan. To meet the challenges of sustaining domestic food production in the face of changing climate and to generate information on adoption and mitigation in agriculture to contribute to global fora like UNFCCC, the Indian Council of Agricultural Research launched - A Flagship Network Project 'National Initiative

on Climate Resilient Agriculture' (NICRA) during XI Plan in February 2011, and during XII Plan it is referred as 'National Innovations in Climate Resilient Agriculture' (NICRA). Considering that the climate change is a continued challenge, the focus on this critical area needs to be continued with greater emphasis. Keeping this view, one scheme has been strengthened and efforts were made to build on the initiative taken during XII five year plan. Thus National Innovations in Climate Resilient Agriculture' (NICRA) has been continuing with these objectives: 1. To enhance the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies, 2. To demonstrate site specific technology packages on farmers' fields for adapting to current climate risks, 3. To enhance the capacity building of scientists and other stakeholders in climate resilient agricultural research and its application and 4. To draw policy guidelines for wider scale adoption.

Technology Demonstration Component (TDC) of NICRA offers great opportunity to work with farmers and apply such technologies under field conditions to address current climate variability. This will enhance the pace of adoption of these resilient technologies. On-farm participatory demonstrations for climate resilience are being implemented in village clusters through KVKs in 121 climatically vulnerable districts across the country and by 7 core research

institutes of ICAR. The emphasis has been on capturing and improving the understanding on performance of technologies in different agro ecologies and farming systems. This also facilitates identification of what constitutes climate resilience in different bio-physical and socio-economic contexts.

OBJECTIVE

To assess the knowledge level of farmers on climate resilient agro-technologies in NICRA village

METHODOLOGY

For the study, Narmada district was selected

RESULTS AND DISCUSSION

purposively. One taluka i.e. Dediapada was selected and NICRA implemented village i.e. Vedchha were selected for the study. From NICRA implemented village 120 beneficiaries were selected purposively. The data were collected through personnel interview. The interview schedule was prepared by keeping the objectives of study in the mind. To measure the level of awareness climate resilient agro-technologies were considered and the farmers were categorized as Aware/unaware against each climate resilient agro-technology. After that the frequency and percentage of each category was calculated. The data were collected, tabulated & analyzed to find out the findings & draw conclusion.

Table-1 : Distribution of the beneficiaries of the beneficiaries of NICRA according to their profile (n=120)

Sr.No.	Category	Frequency (F)	Percent (%)
A	Age		
1	Young age group	43	35.83
2	Middle age group	47	39.16
3	Old age	30	25.00
B	Education		
1	literate	38	31.66
2	Primary	30	25.00
3	Secondary	27	22.50
4	Higher Secondary	25	20.83
C	Land holding		
1	Marginal farmer	39	32.50
2	Small farmers	48	40.00
4	Medium farmers	33	27.50
d	Family occupation		
1	farming	42	35.00
2	Farming+ animal husbandry	48	40.00
3	Farming+ animal husbandry+ service	30	25.00
D	Annual Income		
1	Low (Up to ₹ 50,000)	45	37.50
2	Medium (₹ 50,000 to ₹ 1,00,000)	50	41.66
3	High (₹ 1,00,000 and above)	25	20.83
E	Mass media contact		
1	Rarely	78	65.00
2	Frequently	22	18.33
3	Regularly	20	16.66

To study the profile of beneficiaries of NICRA project It was observed from the Table 1 that middle age group (39.16 percent) followed by old age group (25.00) and young age group (35.83 percent) respectively. It could be stated from the above findings that old age aged respondents

were transferred their work to his son. Nearly one fourth (31.66 percent) of the respondents has illiterate followed by 25.00 percent of them were primary, 22.50 percent of them secondary and 20.83 percent were higher secondary. Majority of respondents were found to have small size of family land

holding while 32.50 percent have marginal followed by large farmers 27.50 percent.

It was revealed that majority 40.00 percent of family having farming + animal husbandry, followed by only farming 29.16 where as 25.00 percent farmers involved with Farming+ animal husbandry+ service. In response of income

majority of farmers had Rs. 1,00,000 per annum before NICRA intervention. Mass media is the different source from where farmers get information is the 65.00 percent farmers had rare mass media contact due to poor network connection followed by regularly 26.66 mass media exposure and 18.33 percent respectively.

Table 2 : Distribution of respondents according to their level of knowledge on Climate resilient agro-technology

(n=120)

Category of farmers	Level of knowledge		
	Low	Medium	High
Participant	15 (25.00)	35 (58.33)	10 (16.66)
Non participant	47 (78.33)	13(21.66)	0 (0.00)

Figure in parenthesis indicate percentage

It is evident from Table 2 that majority of the participant farmers (58.33%) had medium level of knowledge on climate resilient agro-technologies, followed by 25.00 per cent respondents with high level of knowledge. Only 16.66 per cent of the participant farmers were found with low level of knowledge. Regarding the level of knowledge on climate resilient agro-technologies of the non-participant farmers, majority of them (78.33%) had low level of knowledge, followed by 21.66 per cent with medium level of knowledge. None of the non-participant farmers were found with high

level of knowledge on climate resilient agro-technologies.

Awareness of participant and non-participant farmers about climate resilient agro-technologies

The findings presented in Table 2 revealed that all the participant farmers (100%) were aware about all the fourteen climate resilient agro-technologies considered in the study, while differential level of awareness was observed among the non-participant farmers regarding the climate resilient agro-technologies considered in the study.

Table 3 : Distribution of respondents according to level of awareness on climate resilient agro- technology

(n=120)

Sr. No.	Climate resilient agro-technology	Participant farmers (60)		Non –Participant Farmers (60)	
		Aware	Not Aware	Aware	Not Aware
1	Growing short duration paddy cultivar for dry spell management	55 (91.66)	5 (8.33)	53 (44.16)	7 (5.83)
2	Growing alternate crops for dry spell management	60 (100.00)	0 (0.00)	54 (90.00)	6 (5.00)
3	Crop diversification for dry spell management	49 (81.66)	11 (18.33)	45 (75.00)	15 (25.00)
4	Growing hybrid maize cultivar in the driest period of the year	50.00 (83.33)	10 (16.66)	25 (41.66)	35 (58.33)
5	Rain water harvesting in farm ponds and use of harvested rain for irrigation of rabi crops	43 (71.66)	17 (28.33)	30 (50.00)	30 (50.00)
6	Rain water harvesting in farm ponds and uses of harvested rain water for raising seedling of paddy	60 (100.0)	0 (0.00)	40 (66.66)	10 (16.66)
7	Use of organic manure (Vermi-compost/compost)	55 (91.66)	5 (8.33)	40 (66.66)	20 (33.33)
8	Diversification of Farming system	50 (83.33)	10 (16.66)	39 (65.00)	21 (35.00)
9	Application of NPK For drought management in paddy	40 (66.66)	20 (33.33)	35 (58.33)	25 (41.66)

Sr. No	Climate resilient agro-technology	Participant farmers (60)		Non –Participant Farmers (60)	
		Aware	Not Aware	Aware	Not Aware
10	Animal feed management through growing of fodder crops	60 (100.00)	0 (0.00)	53 (88.33)	7 (11.66)
11	Protected cultivation of high value crops	54 (90.00)	6 (10.00)	45 (75.00)	15 (25.00)
12	Inter cropping	60 (100.00)	0 (0.00)	23 (38.33)	37 (61.66)
13	In-situ rain water harvesting for moisture conservation (Mulching)	50 (83.33)	10 (16.66)	45 (75.00)	15 (25.00)

All of the participant farmers (100.00%) were found to be aware of the climate resilient agro-technologies, viz., growing short duration *paddy* r cultivar for dry spell management, growing medium duration *paddy* cultivar for dry spell management, growing hybrid maize cultivar in the driest period of the year, rain water harvesting in farm ponds and use of harvested rain for irrigation of *rabi* crops, use of organic manure (vermi-compost/compost) and *in-situ* rain water harvesting for moisture conservation (mulching). The percentage of non-participant farmers varied from 5.83 per cent to 90.00 percent as regards to their level of awareness regarding the other climate resilient agro-technologies under consideration.

Table 4: Association between selected independent factors to gain in knowledge (n=120)

Sr. No.	Personal attribute	Correlation coefficient 'r'
X ₁	Age	-0.21142
X ₂	Education	0.18946**
X ₃	Land holding	0.21049***
X ₄	Annual income	0.09215
X ₅	Mass Media contact	0.05983
X ₆	Training Experience	0.08039

Results contained in Table 4 shows that age of the respondents had negative and education, land holding training experience of the respondents had positive and significant relationship with their knowledge level. While other variables i.e. annual income, mass media contact had not any significant relationship with their knowledge.

Findings on knowledge level of participant farmers on climate resilient agro-technologies revealed that majority of the participant farmers had medium level of knowledge. This implies that existing extension educational efforts made under the project need to be strengthened and streamlined to enhance the knowledge and awareness level of participant farmers on climate resilient agro-technologies.

CONFLICT OF INTEREST

This is to declare that there is “No conflict of interest” among researcher.

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