

# Impact Of National Innovations On Climate Resilient Agriculture (NICRA) Project In Amreli And Rajkot Districts

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*Abstract: National Innovations on Climate Resilient Agriculture (NICRA) is a network project of the ICAR launched on 2<sup>nd</sup> February, 2011 by the Honourable Union Minister for Agriculture and Food Processing Industries Shri Sharad Pawarji. Project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through four module technological demonstration. The study was conducted in Rajkot and Amreli districts of North Saurashtra Agro-climatic Zone of Gujarat state. The total of 120 respondents were selected randomly for the study. The finding of the study revealed that, the NICRA farmers were belonged to middle age group (56.67 per cent), were educated up to middle school (33.33 per cent), belonged to nuclear family (83.33 per cent), had medium level of farming experience and medium size of land holding (30.00 per cent). Whereas, had medium level of social participation (43.33 per cent), medium level of mass media exposure (48.33 per cent), medium level of economic motivation (50.00 per cent), medium level of risk orientation (51.67 per cent) and medium level of innovativeness (58.34 per cent). As regard the dependent variables, nearly half of the NICRA farmers (48.34 per cent) had medium level of impact of NICRA project, followed by 33.33 per cent had high and 18.33 per cent had low level of impact of NICRA project, respectively.*

**Keywords:** Impact, NICRA, Climate resilient technologies

## I. INTRODUCTION

Climate change has become an important area of concern for India to ensure food and nutritional security for growing population. The impact of climate change are global, but countries like India are more vulnerable in view of the high population depending on agriculture. In India, significant negative impacts have been implied with medium-term (2010-2039) climate change, predicted to reduce yields by 04.50 to 09.00 per cent, depending on the magnitude and distribution of warming. Since agriculture makes up roughly 16.00 per cent of India's GDP, a 04.50 to 09.00 per cent negative impact on production implies a cost of climate change to be roughly up to 01.50 per cent of GDP per year (Anon., 2011).

The Government of India (GOI) has accorded high priority on research and development to deal with climate change in agriculture sector. The Prime Minister's National Action Plan on climate change has identified agriculture as one of the eight national missions. National Innovations on

Climate Resilient Agriculture (NICRA) is a network project of the Indian Council of Agricultural Research (ICAR) launched on 2nd February, 2011 by the Honourable Union Minister for Agriculture and Food Processing Industries Shri Sharad Pawarji. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration. The research on adaptation and mitigation covers crops, livestock, fisheries and natural resource management.

## II. METHODOLOGY

The study was conducted in Rajkot and Amreli districts of North Saurashtra Agro-climatic Zone of Gujarat state. From Rajkot district Magharvada village was selected purposively where NICRA project was functioning. Besides this village, Kherdi village was selected where NICRA project was not functioning for comparison. From Amreli district Karjala

village was selected purposively where NICRA project was functioning. Besides this village, Nesdi village was selected where NICRA project was not functioning for comparison. Thus, total four villages were selected. Thirty respondents were selected randomly from each of the NICRA villages and another thirty respondents were selected randomly from each of the non-NICRA villages. Thus, with sixty beneficiaries and sixty non-beneficiaries, a total of 120 respondents were selected randomly from four villages for the study. For the purpose of statistical analysis of the coded data, various statistical tools were also used viz., Frequency, Percentage, Mean, Standard Deviation ( $\sigma$ ), Coefficient of correlation ( $r$ ) and 'Z' test.

### III. RESULTS AND DISCUSSION

#### IMPACT OF NICRA PROJECT ON ITS BENEFICIARIES

The data presented in the Table 1 revealed that more than two-fifth of the NICRA farmers (41.67 per cent) had medium level of adoption of climate resilient practices, followed by 36.67 per cent had high and 21.66 per cent had low level of adoption of climate resilient practices, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.34 per cent) had low level of adoption of climate resilient practices, followed by 38.33 per cent had medium and 18.33 per cent had high level of adoption of climate resilient practices, respectively.

Sr. No.	Impact	Category	NICRA Farmers( $n_1=60$ )		Non-NICRA Farmers( $n_2=60$ )		'Z' Value
			F	%	F	%	
1.	Adoption of climate resilient practices	Low	13	21.66	26	43.34	2.52*
		Medium	25	41.67	23	38.33	
		High	22	36.67	11	18.33	
2.	Crop yield	Low	10	16.66	21	35.00	4.74**
		Medium	28	46.67	25	41.67	
		High	22	36.67	14	23.33	
3.	Cropping intensity	Low	12	20.00	26	43.34	2.22*
		Medium	28	46.67	20	33.33	
		High	20	33.33	14	23.33	
4.	Cropping pattern	Low	13	21.67	26	43.34	2.05*
		Medium	31	51.67	23	38.33	
		High	16	26.66	11	18.33	
5.	Ground water availability	Low	10	16.66	25	41.67	1.97*
		Medium	31	51.67	22	36.67	
		High	19	31.67	13	21.66	
6.	Annual income	Low	09	15.00	23	38.33	2.97**
		Medium	31	51.67	26	43.34	
		High	20	33.33	11	18.33	
7.	Type of house	Kaccha	05	08.33	13	21.67	1.86 <sup>NS</sup>
		Pakka	29	48.34	27	45.00	
		RCC	26	43.33	20	33.33	
8.	Material possession	Low	11	18.33	20	33.33	2.18*
		Medium	40	66.67	29	48.34	
		High	09	15.00	11	18.33	
9.	Financial inclusion	Low	16	26.67	26	43.33	3.12**
		Medium	26	43.33	22	36.67	
		High	18	30.00	12	20.00	
10.	Extension participation	Low	13	21.67	24	40.00	4.21**
		Medium	29	48.33	22	36.67	
		High	18	30.00	14	23.33	
11.	Extension contact	Low	14	23.33	26	43.33	4.32**
		Medium	29	48.34	22	36.67	
		High	17	28.33	12	20.00	
12.	Social status	Low	13	21.66	25	41.67	6.12**
		Medium	28	46.67	23	38.33	
		High	19	31.67	12	20.00	

Table 1: Comparative distribution of the NICRA and non-NICRA farmers according to impact of NICRA project

The data presented in the Table 1 indicated that nearly half of the NICRA farmers (46.67 per cent) had medium level of crop yield, followed by 36.67 per cent had high and 16.66 per cent had low level of crop yield, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (41.67 per cent) had medium level of crop yield, followed by 35.00 per cent had low and 23.33 per cent had high level of crop yield, respectively.

The data presented in the Table 1 stated that nearly half of the NICRA farmers (46.67 per cent) had medium level of cropping intensity, followed by 33.33 per cent had high and 20.00 per cent had low level of cropping intensity, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.34 per cent) had low level of cropping intensity, followed by 33.33 per cent had medium and 23.33 per cent had high level of cropping intensity, respectively.

The data presented in the Table 1 showed that more than half of the NICRA farmers (51.67 per cent) had medium level of cropping pattern, followed by 26.66 per cent had high and 21.67 per cent had low level of cropping pattern, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.34 per cent) had low level of cropping pattern, followed by 38.33 per cent had medium and 18.33 per cent had high level of cropping pattern, respectively.

The data presented in the Table 1 reported that more than half of the NICRA farmers (51.67 per cent) had medium level of ground water availability, followed by 31.67 per cent had high and 16.66 per cent had low level of ground water availability, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (41.67 per cent) had low level of ground water availability, followed by 36.67 per cent had medium and 21.66 per cent had high level of ground water availability, respectively.

The data presented in the Table 1 stated that more than half of the NICRA farmers (51.67 per cent) belonged to medium level of annual income category, followed by 33.33 per cent belonged to high and 15.00 per cent belonged to low level of annual income category, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.34 per cent) belonged to medium level of annual income category, followed by 38.33 per cent belonged to low and 18.33 per cent belonged to high level of annual income category, respectively.

The data presented in the table 1 reported that nearly half of the NICRA farmers (48.34 per cent) lives in pakka house, followed by 43.33 per cent living in RCC and 08.33 per cent living in kaccha house, respectively.

In case of the non-NICRA farmers, nearly half of the respondents (45.00 per cent) lives in pakka house, followed by 33.33 per cent living in RCC and 21.67 per cent living in kaccha house, respectively.

The data presented in the table 1 indicated that two-third of the NICRA farmers (66.67 per cent) had medium level of material possession, followed by 18.33 per cent had low and 15.00 per cent had high level of material possession, respectively.

In case of the non-NICRA farmers, nearly half of the respondents (48.34) had medium level of material possession,

followed by 33.33 per cent had low and 18.33 per cent had high level of material possession, respectively.

The data presented in the table 1 showed that more than two-fifth of the NICRA farmers (43.33 per cent) had medium level of financial inclusion, followed by 30.00 per cent had high and 26.67 per cent had low level of financial inclusion, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.33 per cent) had low level of financial inclusion, followed by 36.67 per cent had medium and 20.00 per cent had high level of financial inclusion, respectively.

The data presented in the table 1 revealed that nearly half of the NICRA farmers (48.33 per cent) had medium level of extension participation, followed by 30.00 per cent had high and 21.67 per cent had low level of extension participation, respectively.

In case of the non-NICRA farmers, exactly two-fifth of the respondents (40.00 per cent) had low level of extension participation, followed by 36.67 per cent had medium and 23.33 per cent had high level of extension participation, respectively.

The data presented in the table 1 indicated that nearly half of the NICRA farmers (48.34 per cent) were medium level of extension contact, followed by 28.33 per cent were high and 23.33 per cent were low level of extension contact, respectively.

In case of the non-NICRA farmers, more than two-fifth of the respondents (43.33 per cent) were low level of extension contact, followed by 36.67 per cent were medium and 20.00 per cent were high level of extension contact, respectively.

The data presented in the table 1 stated that nearly half of the NICRA farmers (46.67 per cent) had medium level of social status, followed by 31.67 per cent had high and 21.66 per cent had low level of social status, respectively.

In case of the no-NICRA farmers, more than two-fifth of the respondents (41.67 per cent) had low level of social status, followed by 38.33 per cent had medium and 20.00 per cent had high level of social status, respectively.

#### IV. OVERALL IMPACT OF NICRA PROJECT

Sr. No	Overall impact	NICRA Farmers (n <sub>1</sub> =60)		Non-NICRA Farmers (n <sub>2</sub> =60)		'Z' value
		Frequency	Per cent	Frequency	Per cent	
1.	Low level of impact	11	18.33	20	33.33	3.26**
2.	Medium level of impact	29	48.34	25	41.67	
3.	High level of impact	20	33.33	15	25.00	

Table 2: Distribution of the respondents according to overall impact of NICRA project

The data presented in the Table 2 revealed that nearly half of the NICRA farmers (48.34 per cent) had medium level of impact of NICRA project, followed by 33.33 per cent had high and 18.33 per cent had low level of impact of NICRA project, respectively.

In case of the non-NICRA farmers, more than two-fifth of

the respondents (41.67 per cent) had medium level of impact of NICRA project, followed by 33.33 per cent had low and 25.00 percent had high level of impact of NICRA project, respectively.

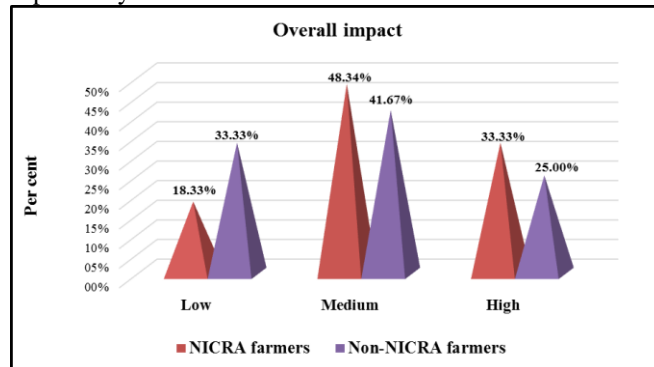


Figure 1: Distribution of respondents according to overall impact of NICRA project

#### REFERENCES

- [1] Anonymous. 2011. National Innovations on Climate Resilient Agriculture (NICRA) Available at <http://www.nicra-icar.in/nicrarevised/index.php/home1> accessed on 20 December, 2020.
- [2] Charitha, V. G. 2017. Impact of National Innovations on Climate Resilient Agriculture (NICRA) on the rural livelihood security of farmers of Chikkaballapura district. M. Sc. (Agri.) Thesis (Unpublished), University of Agricultural Sciences, Bangalore.
- [3] Harikrishna, Y. V. 2019. Impact assessment of National Innovations on Climate Resilient Agriculture (NICRA) project on farmers in Anantapur district of Andhra. M. Sc. (Agri.) Thesis (Unpublished), Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
- [4] Kalyan Babu, K. 2019. Impact of National Initiative on Climate Resilient Agriculture project in Ananthapuram district of Andhra Pradesh. M. Sc. (Agri.) Thesis (Unpublished), Acharya N. G. Ranga Agricultural University, Guntur, Andhra Pradesh.
- [5] Pise, G. K.; Ahire, R. D. and Kale, N. D. 2018. Impact of National Innovations on Climate Resilient Agriculture (NICRA) project on its beneficiaries. International Journal of Current Microbiology and Applied Sciences,6: 2928-2935.
- [6] Singh, A. 2020. A study on impact of NICRA (National Innovation of Climate Resilient Agriculture) Project on adoption of recommended production technology of chickpea, soybean and pigeon pea in Indore block, Indore district. M. Sc. (Agri.) Thesis (Unpublished), Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Indore.
- [7] Tajpara, M. M.; Vakaliya, M. A. and Kalsariya, B. N. 2018. Impact of climate resilient technology in NICRA village of Rajkot district of Gujarat. Gujarat Journal of Extension Education, Special Issue on National Seminar, pp.77-80.