

Farmers' Attitude towards the Climate-Resilient Technologies of NICRA Project in Anantapur District

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJECC/2021/v11i1130542

Editor(s):

(1) Dr. Fang Xiang, University of International and Business Economics, China.

Reviewers:

(1) Ali Razzaq, University of Agriculture Faisalabad, Pakistan.

(2) Sulistyawati, Ahmad Dahlan University, Indonesia.

Complete Peer review History, details of the editor(s), Reviewers and additional Reviewers are available here:
<https://www.sdiarticle5.com/review-history/77433>

Original Research Article

Received 12 September 2021

Accepted 25 November 2021

Published 02 December 2021

ABSTRACT

Climate change has been perceived with high emphasis from the beginning of this century. Since it directly impacts the ecosystem and agriculture especially over the farmers of dryland regions. The research study has been conducted to assess the farmers' attitude towards climate-resilient technologies of the National Initiatives on Climate Resilient Agriculture (NICRA) project by farmers of Anantapur district of Andhra Pradesh. The sample consists of 60 farmers as beneficiaries from NICRA villages and 60 farmers as nonbeneficiaries from non-NICRA villages were selected randomly. The ex-post facto research design was used in the study. The results of the study showed that more than half of the beneficiaries (51.67 %) and 48.33 per cent of non-beneficiaries had a medium level of favorableness towards climate-resilient technologies of the NICRA project. From the above findings, this is concluded that both beneficiaries and non-beneficiaries of the NICRA project have a positive favourable attitude towards climate-resilient technologies which is considered as a precursor for adoption of those technologies by the farming community. Hence the results of this research study may help extension organizations for good training and implementation of climate-resilient technologies of National Innovations on Climate Resilient Agriculture (NICRA).

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Keywords: Attitude; NICRA; climate-resilient technologies.

1. INTRODUCTION

In India, Agro-ecosystem is more vulnerable to the effects of climate variations. Farmers are the specialists' who are totally engaging in these ecosystems for their livelihood activities, especially farmers of dryland areas. Out of 141 million hectares of cultivated land in India, 80 million hectares are rainfed and dryland which contributes 40% of food grain production and 2/3rd of the livestock forage production has been done [1]. These facts directly portray the importance and dependency of dryland agriculture in the Indian economy. As per the recent report, the average global temperature rise is 0.990 C since the pre-industrial time of 1850 [2]. The effects of climate variation have been classified as economic effects, environmental effects and social effects [3]. Under environmental effects, sea-level rise, heatwaves, cyclones, floods, loss of biodiversity, forest fires, unseasonal rainfall, droughts and rise in surface temperature are the major effects. Effect on productivity, production, livestock diseases, employment and income are those effects that lead to economic losses for farmers. Social effects are food security, public health, employment, income, livelihood, gender, education, housing, poverty and migration which are less perceived earlier and now more researches are being conducted in social effects of climate change [4-9,2]. In order to find sustainable solution to the above listed effects of climate variation, the Indian Council of Agricultural Research (ICAR) came up with a project called National Initiatives on Climate Resilient Agriculture (NICRA) in February 2011 with the objective of long-term strategic research for the adaptation of crops, livestock, natural resource management and possible institutional interventions to mitigate climate change and its effects [5]. Natural resource management is the systematic management of natural resources like land, water, soil, etc. The climate-resilient natural resource management practices as mentioned by the NICRA are in-situ moisture conservation, water harvesting and recycling for supplemental irrigation, improved drainage in flood-prone areas, conservation tillage where appropriate, artificial groundwater recharge and water-saving irrigation methods. Climate-resilient crop production practices are introducing drought/temperature tolerant varieties, advancement of planting dates of rabi crops in areas with terminal heat stress, water-saving

paddy cultivation methods (SRI, aerobic, direct seeding), frost management in horticulture through fumigation, community nurseries for delayed monsoon, custom hiring centers for timely planting, location specific intercropping systems with high sustainable yield index. Climate resilient livestock management practices as listed by NICRA are the use of community lands for fodder production during droughts/floods, improved fodder/feed storage methods, preventive vaccination, improved shelters for reducing heat stress in livestock, management of fish ponds/tanks during water scarcity and excess water, etc. Interventions like seed bank, fodder bank, commodity groups, custom hiring centre, collective marketing, and introduction of weather index-based insurance and climate literacy through a village level weather station are considered as climate resilient institutional interventions [10]. With this background, we have undertaken a study to assess the attitude of farmers towards the climate-resilient technologies among both beneficiaries and non-beneficiaries of the NICRA project in the Anantapur district of Andhra Pradesh.

2. MATERIALS AND METHODS

The present study was conducted in the Anantapur district, which is the largest and driest district of Andhra Pradesh during the year 2018 - 2019. This district was purposively selected because the NICRA has been implemented in this district since its inception. Chamaluru, Chakrayapeta, and Peravalli villages were selected purposively for the study, as NICRA was implemented in these selected villages of the Anantapur district. Aakuledu, Podaralla, and Siddaramapuram villages were selected under non- NICRA villages, where the program was not implemented. From each selected village, 20 respondents were selected by simple random sampling technique. The sample comprising of 60 farmers as beneficiaries from NICRA villages and 60 farmers as nonbeneficiaries from non-NICRA villages are selected randomly. Thus, making a total sample size of 120 respondents in the study. The ex-post facto research design was used in the study. The primary data was collected using a structured and pre-tested interview schedule from the respondents. The responses were measured using a five-point continuum, 'Strongly Agree', 'Agree', 'Undecided', 'Disagree', and 'Strongly Disagree'

with scores of five, four, three, two and one, respectively for positive statements and the reverse for negative statements to study the attitude of farmers towards the climate-resilient technologies were collected. Respondents were asked to choose their responses for each statement on a five-point continuum. With the total score obtained from the attitudinal statements/items, the respondents were classified into three categories such as less

favourable, favourable and highly favourable, on the basis of mean and standard deviation.

3. RESULTS AND DISCUSSION

An analytical look at the Table 2, made it clear that, more than half of the beneficiaries (51.67%) had a favourable attitude towards the climate resilient technologies followed by highly favourable (30.00%) and less favourable (18.33%) attitude, respectively.

Table 1. Distribution of respondents according to their attitude towards the climate resilient technologies of NICRA project

S. No	Categories	Score
1.	Less Favourable	Below mean - SD
2.	Favourable	Between mean \pm SD
3.	Highly Favourable	Above mean - SD

Table 2. Distribution of respondents according to their attitude towards the climate resilient technologies of NICRA project

S.No.	Category	Beneficiaries (n=60)		Non-Beneficiaries (n=60)	
		Frequency	%	Frequency	%
1.	Less Favourable	11	18.33	22	36.67
2.	Favourable	31	51.67	29	48.33
3.	Highly Favourable	18	30.00	9	15.00
Total		60	100.00	60	100.00
Mean		88.21		79.98	
SD		09.74		08.09	

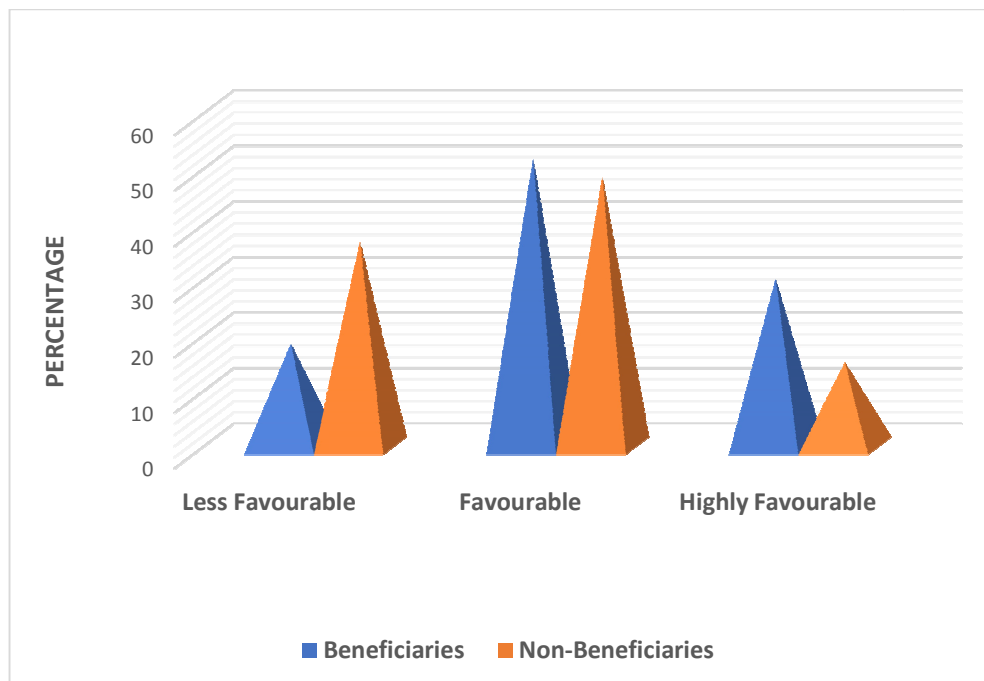


Fig. 1. Distribution of respondents according to their attitude towards the climate resilient technologies

In case of non-beneficiaries, nearly half of the respondents (48.33%) had favourable attitude towards the climate resilient technologies followed by less favourable (36.67%) and highly favourable (15.00%), respectively.

Attitude is a positive or negative feeling towards psychological objects. Positive attitude of farmers itself shows the mental inclination towards climate resilient technologies. Where attitude is mostly a individual oriented concept while values are society-oriented. Though the individual develops a favourable attitude towards climate-resilient technologies, the values of the society which decide the action of individuals may come in the way of rational behaviour. Favourable attitude act as a factor for the selection of practices to stabilize yield and income. Because of the educational efforts of KVK, beneficiary farmers developed a favourable attitude towards climate resilient technologies compared to non-beneficiaries. Hence, this trend was observed. The findings are in agreement with the findings of Jasna [11], Charitha [12] and Alagu and Bose [13] where, majority of the farmers have favourable attitude towards climate resilient technologies.

4. CONCLUSION

From the results of this study, we can conclude that half of the farmers among both per cent of beneficiaries and non-beneficiaries had a medium level of favorableness towards climate resilient technologies of the NICRA project. With these results, we can state that both beneficiaries and non-beneficiaries of NICRA project have a positive favorable attitude towards climate resilient technologies that favourable attitude act as a factor for the selection and adoption of practices to stabilize yield and income. Because of the educational efforts of KVK, beneficiary farmers developed favourable attitude towards climate resilient technologies compared to non-beneficiaries. Hence, the results of this research study may help extension organizations for good training and implementation of climate resilient technologies of National Innovations on Climate Resilient Agriculture (NICRA).

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/77433>