



Research Article

STUDY IDENTIFYING THE CONSTRAINTS FACED BY FARMERS DURING ADAPTATION TO CLIMATE CHANGE IN VIJAYAPUR DISTRICT OF NORTHERN KARNATAKA

JAMADAR RAVINDRA*, HALAKATTI S.V. AND CHANDRAKALA S.K.

Department of Agricultural Extension Education, University of Agricultural Sciences, Krishinagar, Dharwad, 580005, Karnataka, India

*Corresponding Author: Email - ravindra4184@gmail.com

Received: November 10, 2023; Revised: December 26, 2023; Accepted: December 28, 2023; Published: December 30, 2023

Abstract: In this study, Attempt has been made to identifying the constraints faced by farmers during adaptation to climate change in Vijayapur district of Northern Karnataka. Based on the existence of high range of variability in rainfall and temperature (since 40 years), the district taluks were selected, accordingly the taluks selected were Bijapur and Sindagi. From each of the selected taluks five villages were selected randomly. By applying simple random sampling technique 150 respondents were selected for the study. The objective of the study revealed that, In recent days farmers are facing lot of problems in their farming, it may be climatic aberration, high input cost, low market price for their produce and their situational conditions are restricting them to take up any adjustments in their farming due to climatic aberrations. With these background efforts has been made to know the constraints experienced by farmers to initiate the mitigating strategies to cope up with ill effects of climate change. The information on the constraints experienced by farmers was collected by identifying major aspects required for profitable farming, revealed that, major constraints faced by farmers to take up adaptation measures to overcome ill effects of climate change were. Higher cost of the agricultural inputs (Rank I), non availability of inputs in time (seeds, plant protection chemicals, fertilizers etc), (Rank I) were rated as major constraints, followed by difficult to work in the field due to severe temperature, (Rank II). Low price for the produce in the market was ranked as (Rank III), followed by lack of knowledge about post harvest technology, (Rank IV), lack of knowledge about processing of different crops, (Rank V), lack of storage facility in the villages, (Rank VI), absence of processing unit in the village, (Rank VII) and, Lack of knowledge regarding appropriate adaptations (Rank VIII), Lack of information about long term climate change (Rank IX), and were other constraints expressed by farmers in the order of their experience.

Keywords: Market price, Processing unit, Inputs, Post harvest technology

Citation: Jamadar Ravindra, *et al.*, (2023) Study Identifying the Constraints Faced by Farmers during Adaptation to Climate Change in Vijayapur District of Northern Karnataka. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 15, Issue 12, pp.- 12790-12791.

Copyright: Copyright©2023 Jamadar R., *et al.*, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Academic Editor / Reviewer: Kashyap Kumar M. Gojiya, Rajan Singh, Dr Seher Dirican

Introduction

Karnataka is the second most vulnerable state in India to be impacted by Climate Change as the North Karnataka regions have the arid and driest regions. Climate change will impact on natural resources to have social and economic consequences. While some of the impacts are presumed to be beneficial others could be disastrous. For instance, increased rainfall will increase water availability and in turn increase coconut production. Simulation analysis depicting possible impacts of climate change on some of the prominent crops in coastal districts have specified that there will be a boost in coconut yields to the tune of 30 % caused mainly due to increase in projected rainfall and relatively less increase in temperatures. The social and economic implications of this would benefit farmers and the other sectors associated with its production. Similarly, floods could cause disruption and damage to crops and infrastructure. In brief, socio-economic consequences caused due to climate change are a resultant effect of the interactions between climate and society and their impact on natural and managed environments. Various factors could influence the climate change, viz. technological advancements, and economic development influencing social change in terms of livelihood changes. This in turn will cause considerable climate change variations. In this context, the implications for Karnataka in the long run will depend on the trends in climate change and its influence on its ability to cope besides making future plans towards developing coping mechanisms [1].

Materials and Methods

The study was conducted in Vijayapur district of Karnataka during the year 2011-12, Vijayapur district was purposively selected for the study, as it is "drought prone district" It covers five taluks viz., Vijayapur, Basavan Bagewadi, Muddebihal, Indi,

and Sindagi and these taluks comes under Northern Dry Zone. From each taluk, five villages and from each village, fifteen farmers were selected by applying simple random sampling. The villages selected were Bhutnal, Managooli, Hittinahalli, Ainapur and Rambapur from Bijapur taluk and Almel, Korhalli, Yargall, Kerur and Rampur from Sindagi taluk. Thus, totally ten villages were selected for the study. List of farmers from each of the ten selected villages was obtained. From each village, fifteen farmers were selected randomly. Thus, the total sample for the study was 150 respondents. In the present investigation, ex-post facto research design was employed. A Relevancy Test was also developed to measure the adaptation of respondents about climate change. The objective behind developing relevancy test was to discriminate respondents in terms of adaptation measures they adopted due to climate change. The adaptation items were categorized in two groups as 1) Adaptation measures initiated in crop production practices 2) Adaptation measures initiated in soil and water conservation practices. In all 21 statements were formulated after discussing with experts in Meteorology, Department of Horticulture, Department of environmental sciences, KVK specialist, IGRI Scientists and discussion with some ARS Experts, consultants, and some progressive farmers. The Relevancy test was administered to respondents and their responses were elicited on 3 points continuum as more relevant, relevant and less relevant. A numerical score of 2 was assigned to a most relevant response and a score of 1 was assigned to Relevant and a score of 0 was assigned to a less relevant response. The sums of scores of all the items of relevancy test were computed indicating the total Awareness score of the respondent. Thus, maximum and minimum obtainable Adaptation score by the individual respondents was 42 and 0, respectively. It was quite possible that all the seven components identified may not be equally

Table-1 Constraints faced by farmers during adaptation to climate change (n=150)

SN	Constraints	More Severe	Percent	Severe	percent	Less severe	Percent	RANK
1	Higher cost of the agricultural inputs	111	74	39	26	0	0	I
2	Non availability of inputs in time	111	74	39	26	0	0	I
3	Difficult to work in the field due to severe temperature	110	73.33	39	26	1	0.66	II
4	Low price for the produce in the market	104	69.33	41	27.33	5	3.33	III
5	Lack of knowledge about post harvest technology	58	38.66	30	20	62	41.33	IV
6	Lack of knowledge about processing of different crops	57	38	27	18	66	44	V
7	Lack of storage facility in the village	55	36.66	50	33.33	45	30	VI
8	Absence of processing units in the village	54	36	44	29.33	52	34.66	VII
9	Grading for the produce to maintain their quality	54	36.00.00	21	14	75	50	VII
10	Lack of knowledge regarding appropriate adaptation measures	49	32.66	61	40.66	40	26.66	VIII
11	Lack of information about long term climate change	48	32	74	49.33	28	18.66	IX

relevant in measuring farmers' awareness of climate change and their adaptations. Hence, these 29 statements of farmers' awareness and 43 statements of farmers adaptation to climate change were administered to judges to determine the relevancy and their subsequent screening. For this purpose, these statements were subjected to scrutiny by an expert panel. The seven components were distributed to a panel of judges in the field of extension education, communication, administration and dairy entrepreneurs. In all, 60 judges were requested to indicate appropriateness (relevancy) of the components for inclusion in the scale. The responses of judges were secured on three point continuums namely, 'Most relevant', 'Relevant' and 'Not relevant' and a score of 2, 1 and 0 were assigned respectively. In all 30 judges could respond. These responses were used to work out the Relevancy Weightage (RW) of each component by using following formula [2].

Relevancy weightage (RW) = (Most relevant x2+Relavant x1+Not relevant x 0) / (Maximum possible score (30 x 2))

Using the above formula, Relevancy indices were computed for all respondent. Further, they were grouped into three categories by using mean and standard deviation as measure of check. Considering relevancy weightage, the components were screened for their relevancy. Accordingly, components having relevancy weightage of more than 0.75 were considered. Using this process, 30 Statements having more than 0.75 relevancy weightage were selected.

Results

In this study results revealed that farmers are facing lot of problems in their farming, it may be climatic aberration, high input cost, low market price for their produce and their situational conditions are restricting them to take up any adjustments in their farming due to climatic aberrations. With these background efforts has been made to know the constraints experienced by farmers to initiate the mitigating strategies to cope up with ill effects of climate change. The information on the constraints experienced by farmers was collected by identifying major aspects required for profitable farming. The data in the [Table-1] revealed that, major constraints faced by farmers to take up adaptation measures to overcome ill effects of climate change were. Higher cost of the agricultural inputs (Rank I). non availability of inputs in time (seeds, plant protection chemicals, fertilizers), (Rank I) were rated as major constraints, followed by difficult to work in the field due to severe temperature, (Rank II). Low price for the produce in the market was ranked as (Rank III), followed by lack of knowledge about post harvest technology, (Rank IV), lack of knowledge about processing of different crops, (Rank V), lack of storage facility in the villages, (VI), absence of processing unit in the village, (Rank VII) and, Lack of knowledge regarding appropriate adaptations (Rank VIII), Lack of information about long term climate change (Rank IX), and were other constraints expressed by farmers in the order of their experience.

Discussion

In this study Attempt has been made to identify the specific constraints faced by the farmer against climate change adaptation includes, higher cost of the agricultural inputs (Rank I), nonavailability of inputs in time (seeds, plant protection chemicals, fertilizers), (Rank I) were rated as major constraints, followed by difficult to work in the field due to severe temperature, (Rank II). Now a day's most of the agricultural inputs are very expensive. Also, the agriculture in India is gambling in monsoon so the agricultural operations are to be carried out timely which need timely availability of critical inputs. Low price for the produce in the

market was ranked next, (Rank III), followed by lack of knowledge about post harvest technology, (Rank IV), processing of harvested produce, (Rank V), lack of storage facility in the villages, (VI), absence of processing units in the village, (Rank VII) and, Lack of knowledge regarding appropriate adaptation measures (Rank VIII), Lack of information about long term climate change (Rank IX), and were other constraints expressed by farmers in that order. Farmers are facing many problems now a days and their list of problems is ever increasing which are expressed by the farmers. The findings of the study on par with the study conducted by, Nithyashree (1992) [3].

Conclusion

Impacts of climate change are diversified and need to be understood, to workout pragmatic strategies to mitigate ill-effects of climate change. This in turn will cause considerable climate change variations. In this context, the implications for Karnataka in the long run will depend on the trends in climate change and its influence on its ability to cope besides making future plans towards developing coping mechanism.

Application of research: Identification of constraints faced by farmers during adaptation to climate change

Research Category: Agricultural Extension Education

Acknowledgement / Funding: Authors are thankful to Department of Agricultural Extension Education, University of Agricultural Sciences, Krishinagar, Dharwad, 580005, Karnataka, India

****Research Guide or Chairperson of research:** Dr S.V. Halakatti

University: University of Agricultural Sciences, Dharwad, 580005, Karnataka, India
Research project name or number: MSc Thesis

Author Contributions: All authors equally contributed

Author statement: All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: Vijayapur district of Karnataka

Cultivar / Variety / Breed name: Nil

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

References

- [1] Deressa T., Hassan R. M., Ringler C., Alemu T. and Yusuf M. (2009) *Global Environ. Change*, (19), 248-255.
- [2] Guiford J. (1954) *Psychometric methods*. Tata McGraw Hill Publishing Company Ltd., India.
- [3] Nithyashree D.A. (1992) M.Sc. (Agri.) Thesis, University of Agricultural Sciences, Bangalore, India.