



Extent of Adoption of Agricultural Practices in Sugarcane Production in Response to Climate Change in Coastal Odisha

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present research was conducted to assess the extent of adoption of different agricultural practices in sugarcane production in response to climate change. The research study was conducted in Jagatsinghpur district of Odisha. 2 blocks, 4 Gram panchayats and 8 villages were selected for the study 60 numbers of respondents by purposive sampling method. Ex-post facto research design was chosen in this research. The findings of the study showed that giving protective irrigation in response to late monsoon with a mean score 1.60 was the most adopted practice where resowing in case of low germination percentage with a mean score 1.17 was the least adopted practice in the research area.

Keywords: Agriculture; sugarcane; climate change; adaptations; farmers.

1. INTRODUCTION

To take the necessary steps to counteract climate change, one must first have a basic

understanding of the global climate and how it is changing. Adequate adaptation strategies appear to be the only answer for these enormous populations. According to reports, this sensitive

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region suffers from a significant information and knowledge gap that has an impact on decision-making, risk assessment for climate-related concerns, and adaptation. Farmers must first recognise the effects of climate change before they can adapt to them. Farmers must next decide which adaptations could be advantageous and put them into practise.

Farmers who perceive potential consequences from climate change are more likely to support policies and programs that aim to address impact of climate change [1]. Farmers are adopting climate-smart agriculture practices such as conservation tillage practices to reduce soil moisture loss, reduce erosion and control weed [2]. Though good agricultural management practices have the potential to be the basis for effective climate change adaptation methods, local knowledge should be used in conjunction with scientific knowledge systems for impact reduction [3]. Over the past 10 years majority of the farmers (97.3%) changed their farming operation in response to numerous risks. Out of which 98% farmers changed their farming operation due to climate change [4-6].

2. MATERIALS AND METHODS

The research was conducted in Jagatsinghpur district of Odisha. Sixty numbers of sugarcane farmers were chosen from 2 Blocks, 4 Gram Panchayats and 8 villages of the district by purposive sampling method. Ex-post facto

research design was followed in the research study.

Then data were collected through a pre structured interview schedule in a two point continuum scale that and recorded. Then arrangement and analysis of data had been done.

Mean score was calculated for each practice and rank was given to them on the basis of the mean score.

$$MS = \sum fx / N$$

Where, M.S. = mean score, $\sum x$ = Sum of total score obtained by the individual, N = Total no. of items / respondents.

3. RESULTS AND DISCUSSION

From the Table 1, it was observed that in sugarcane production opening of field channel to remove surface ponding in response to heavy rainfall with a mean score of 1.56 was the most adopted practice followed by giving protective irrigation whenever possible with a mean score of 1.53 in response late onset of monsoon or drought, Raising sugarcane seedlings in nursery & transplant at sufficient soil moisture (mean score-1.35) in response to late onset of monsoon or draught, Avoid growing sugarcane in areas where heavy rainfall occurs in September, not using infected planting materials and using fungicides (mean score-1.28) in response to red rot and wilt.

Table 1. Distribution of respondents according to their adoption strategies

Sl. No.	Condition	Adoption strategy	Adopted		Not adopted		Mean score	Rank
			f	%	f	%		
1	Heavy rainfall	Opening of field channel to remove surface ponding	34	56.67	26	43.33	1.56	I
2	Late onset of monsoon	Give protective irrigation whenever possible	32	53.34	28	46.66	1.53	II
		Raising sugarcane seedlings in nursery & transplant at sufficient soil moisture	21	35	39	65	1.35	III
3	Pest and diseases	Red rot and wilt-Avoid growing sugarcane in areas where heavy rainfall occurs in September, not using infected planting materials and using fungicides	17	31.66	43	68.34	1.28	IV

Table 2. Co-relation study of socio-economic variables with extent of adoption of practices in response to climate change

SL. no	Characters	r value	t- calculated	t- tabulated (d. f.)
1	Age	0.110	1.112	2.617
2	Gender	0.151	1.431	At 0.01 level
3	Education	0.342**	3.175**	
4	Caste	0.018	0.203	
5	Annual income	0.231	1.582	1.980
6	Land holding size	0.013	0.132	At 0.05 level
7	Mass media exposure	0.345**	3.243**	
8	Extension contacts	0.332**	3.071**	
9	Farming experience	0.337**	4.002**	

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

The data reported in the above table revealed that, education, mass media exposure, extension contact and farming experiences had significant and positive relationship with the extent of adoption of strategies in response to climate change.

4. CONCLUSION

The study concluded that opening of field channel to remove surface ponding in response to heavy rainfall was the most adopted practice while avoiding growing sugarcane in areas where heavy rainfall occurs in September and not using infected planting materials and using fungicides in response to red rot and wilt was the least adopted practice.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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