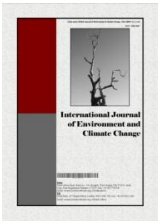

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Farmers Extent of Adoption of Climate Resilient Agro-technologies

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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

Climate change is possibly the most significant environmental challenge and possess serious threats to sustainable development in the world and more so in developing countries. Impact of climate change affects ecosystems, water resources, food and health. To adapt to the change and overcome the threats of climate change several climate-resilient agro-technologies have been introduced under the National Innovations on Climate Resilient Agriculture (NICRA) Project. The present study was conducted in Lakhimpur District of Assam to measure the extent of adoption of the climate-resilient agro-technologies introduced under the NICRA Project by the participant and non-participant farmers. A total of 160 farmers, 80 NICRA participant farmers and 80 non-participant farmers were interviewed. Findings revealed that the majority of the participant farmers (68.75 per cent) had a medium extent of adoption followed by 17.50 per cent with a low extent of adoption of climate-resilient agro-technologies. Only 13.75 per cent of the participant farmers were found to have a high level of adoption of climate-resilient agro-technologies. Among the non-participant farmers, majority of them (75.00 per cent) had a low extent of adoption followed by

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17.50 per cent with a medium extent of adoption of climate-resilient agro-technologies. Only a very small proportion of them (7.50 per cent) had a high extent of adoption of climate-resilient agro-technologies.

Keywords: Extent of adoption; climate change; climate resilient agro-technologies.

1. INTRODUCTION

There is significant importance of climate-resilient innovations in the present day, especially in the agricultural sector. Climate change is a burning issue in the present day and would probably increase the risk in food security which is a serious threat to the poor group of the society/vulnerable community. Changes in the frequency and severity of droughts and floods could pose challenges for farmers and ranchers and threaten food security. So, it is necessary to introduce climate-resilient agro-technologies so that the farmers can adapt to the changing climate vulnerability. Climate change is a difficult concept [1-8]. The farmers may not be able to understand the concept of climate change and also its effect on agriculture in the future. The most adverse effect of climate change is global warming [9,10]. The farmers can adapt to the changing climate only if they had clear cut knowledge about climate change and how to reduce the risk of climate change by adopting climate-resilient agro-technologies.

2. MATERIALS AND METHODS

The present study was conducted purposively in Lakhimpur district of Assam because NICRA Project has been implemented there since 2011. The study was conducted from February to March 2016. From the NICRA Project area four villages, viz., Chamua, Borkhet, Orang and Rangajan were selected purposively and from the non-project area four villages, viz., Nagoya, borbali, Talsibari and Rajabari were selected. From each of the selected villages, 20 respondents were selected randomly for the study. Data were collected by personal interview method with the help of a structured schedule. Statistical tools like percentage, frequency, mean, standard deviation (SD) and t-test were used for the analysis of data.

3. RESULTS AND DISCUSSION

The results obtained from the present study have been summarized under the following heads:

Regarding the extent of adoption of climate-resilient agro-technologies, it can be seen from Table 1 that majority of the participant farmers (68.75 per cent) had the medium extent of adoption followed by 17.50 per cent with the low extent of adoption of climate-resilient agro-technologies. Only 13.75 per cent of the participant farmers were found to have a high level of adoption of climate-resilient agro-technologies.

The coefficient of variation (9.32 per cent) indicated that the participant farmer respondents were highly homogenous concerning their extent of adoption of climate-resilient agro-technologies.

The findings presented in Table 2 reveal that the technologies, viz., growing short duration sali rice cultivar for dry spell management, growing medium duration sali rice cultivar for dry spell management, growing alternate crops for dry spell management, crop diversification for dry spell management, growing hybrid maize cultivar in the driest period of the year, rainwater

Table 1. Distribution of respondents according to the extent of adoption of climate-resilient agro-technology

Category (Score range)	Participant farmers	
	Number	Percentage
The low extent of adoption (Upto 50.21)	14	17.50
The medium extent of adoption (Between 50.21- 60.53)	55	68.75
High extent of adoption (Above 60.53)	11	13.75
Total	80	100.00
Mean		55.37
S.D		5.16
C.V		9.32

Table 2. Technology-wise extent of adoption of climate-resilient agro-technology

Climate-resilient agro-technology	Participant farmers N=80	
	Number (per cent)	Mean Adoption Score
1. Growing short duration sali rice cultivar for dry spell management.	80 (100)	41.62
2. Growing medium duration sali rice cultivar for dry spell management.	80 (100)	52.12
3. Growing alternate crops for dry spell management.	80 (100)	55.37
4. Crop diversification for dry spell management.	80 (100)	45.25
5. Growing hybrid maize cultivar in the driest period of the year.	80 (100)	58.12
6. Rain water harvesting in farm ponds and use of harvested rain for irrigation of rabi crops.	80 (100)	79.12
7. Rainwater harvesting in farm ponds and use of harvested rainwater for raising seedling of sali rice.	80 (100)	72.62
8. Use of organic manure (vermicompost/compost).	80 (100)	74
9. Diversification of Farming system.	80 (100)	55.25
10. Application of NPK for drought management in sali rice	80 (100)	73
11. Animal feed management through the growing of fodder crops	69 (86.25)	63.37
12. Protected cultivation of high-value crops.	7 (8.75)	12.75
13. Double cropping.	67 (83.75)	49
14. *In-situ* rainwater harvesting for moisture conservation (mulching).	78 (97.5)	52.25

Figures within parentheses indicate the percentage

harvesting in farm ponds and use of harvested rain for irrigation of rabi crops, rainwater harvesting in farm ponds and use of harvested rainwater for raising seedling of sali rice, diversification of farming system and application of NPK for drought management in sali rice were adopted by all the participant farmers.

4. CONCLUSION

Findings on the knowledge level of participant farmers on climate-resilient agro-technologies revealed that majority of the participant farmers had a 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 level of participant farmers on climate-resilient agro-technologies.

Majority of the participant farmers had a medium extent of adoption of climate-resilient agro-technologies. Since climate change and vulnerability is affecting agriculture directly. The emphasis may also be laid on popularizing the role of climate-resilient agro-technologies among the farmers in the present scenario of climate change. The project authority should continue its efforts in accelerating the adoption of different climate-resilient agro-technologies by the participant farmers.

CONSENT

As per international standard written participant consent has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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