

## RESEARCH NOTE

## Problems of Farmers in Adoption of Climate Resilient Technologies in Flood Affected Areas of Assam

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### ABSTRACT

Flood is major problem of Assam which affects almost its all districts and annually 39.58 % area is damaged by flood. As the winter rice is major crop of state covering area 18.91 lakh hectare (Economic Survey of Assam, 2017-18) and contributing 3767 tonnes (Economic Survey of Assam, 2017-18) in production of rice of the state. In flood affected areas of Assam winter rice is mostly affected and finally huge loss of production takes place. In order to cope up the losses, the state government has put tremendous effort to expansion area under summer rice as climate resilient technologies specifically in flood affected areas. The present study was conducted in Biswanath chariali district to examine the problems of farmers in adoption of boro rice cultivation practices as climate resilient technologies in flood affected areas of Assam. All total 120 farmers were selected randomly from flood affected areas as respondents. The study revealed that extent of adoption of recommended cultivation practices of boro paddy was found below 35% for majority of the respondents. "Lack of timely information related to climate resilient technologies" (WMS=2.50) and "poor implementation of IPM technologies" (WMS=2.50) were the major problem related to technologies in adoption of boro rice cultivation practices. The major extension related problem "Poor and irregular extension service" (WMS=2.61) were reported by majority of farmers while poor market facility (WMS=2.5) and poor transport facility (WMS=2.43) were infrastructure related problem. Higher investment cost on farm machinery and land development (WMS=2.48) and poor government financial assistance (WMS=2.44) were the economic problems associated with non adoption of climate resilient technologies. To cope up with this situation Government should have definite extension policy to promote boro rice cultivation in flood affected areas is an urgent need, ICT based extension approach should be popularized in that areas for reducing the information gap. Government subsidized farm machineries and implement should make available at their localities besides establishment of custom hiring centre in community level may also help to solve the problems of farm mechanization. Simplification of procedure for availing KCC will help farmers to get financial assistance from the financial institutions.

**Key words:** Adoption; Boro Paddy;

In Assam *boro* (summer rice) and early *ahu* (autumn rice) are grown in drier season and expansions of areas under these crops are the key to raise the productivity of rice in the state. *Boro* is the most productive season for growing rice in Assam as the sky remains clear during crop growing period and is risk-free so far as flood and drought are concerned. Farmers are encouraged to take up its cultivation in the season when irrigation facilities are available. However, the main environmental factor limiting *boro* paddy cultivation

is the cold stress. Minimum temperature falls down to as low as 100 °C in the vegetative stage and 150 °C during panicle initiation stage that are detrimental for obtaining potential yield. The effect of cold is more severe in the districts of Upper Assam (Golaghat, Jorhat, Sivasagar, Dibrugarh, Tinsukia). Therefore, *boro* paddy is traditionally not grown in these districts. Of the state's total area of 2.5 million ha under rice, *boro* paddy covers only about 0.15 million ha (Anon., 1993). Area, production and average yield of *boro* paddy in Assam

during 2008-09 was 3.60 lakh ha, 7.71 lakh MT and 2,142 kg/ha (Anon., 2008-09) and during 2012-13 was 3.93 lakh ha, 11.64 lakh MT and 2,965 kg/ha (Anon., 2014). The spread of the newer varieties replacing the older varieties need to be closely monitored to take the advantage of the superior characters these newer varieties released by various research institutions. Achievement of *boro* paddy in Assam during 2014-15 was 4.16 lakh ha, 12.24 lakh MT and 2,940 kg/ha in terms of area, production and yield. In order to know the problems in adoption of climate resilient technologies, the study was carried out with the objective i.e.-To study the problems in adopting climate resilient technologies of *boro* paddy cultivation by the farmers.

## METHODOLOGY

In the present study 'problems faced by the respondents' were studied as per objectives of the study. An open ended questionnaire was used to identify the problems of the respondents. Scores were put as 3, 2 and 1 for Most severe, Severe and Least severe respectively. Total Weighted Score (TWS) and Weighted Mean Score (WMS) were calculated for each of problem. Later on, ranking of the problems were done by Weighted Mean Score of the problems.

## RESULTS AND DISCUSSION

*Problems in adopting climate resilient technologies of boro paddy cultivation by the farmers:*The most important technical, infrastructure related problems, socio-personal, economic and extension related problems faced by the farmers in adopting climate resilient technologies of *boro* paddy cultivation as perceived by them are presented in the Table 1, 2, 3, 4, and 5 respectively.

The problem ranked I in case of technical problems was lack of timely information related to climate resilient technologies. The farmers did not get quality yield because of lack of information about climate resilient technologies and also they faced severe pest and disease infestation problems because lack of awareness about climate resilient technologies.

The problem ranked I in case of infrastructure related problems was poor market facility/linkage to sale their produce. Farmers were used to sale their produce nearby market because of poor market facility, so they did not get the actual price for their produce. Farmers did not have proper market in their places. For that they had to go for another market which were far from their home. Also there was no proper communication, so

whenever they wish to went another market for sale took high cost. For that reason sometimes farmers were faced loss for their sale of produce. The ranked I problem in case of socio-personal problems was poor economic condition. As most of the respondents were belonged to marginal and small category their economic condition was poor to meet the various needs related to improved practices *boro* paddy cultivation.

The economic problem ranked I comprises problem like Higher investment cost on farm machinery and land development. Farmers had to depend on other rich farmers who owned farm machinery but as they were commercial and farm machinery were of very limited number in the entire region of *boro* paddy cultivation. They did not get these in time of need and was costly also. There was no public hiring centre also. Of course, sometimes help was received, if duly approached, from NE Farm Machinery Training and Testing Institute.

The main extension problem was poor and irregular extension service. The reason behind the problem was due to poor and irregular communication with the extension agents such as ADO, SDAO, VLEW etc.

## CONCLUSION

Great potentiality in *boro* paddy cultivation in terms of situational feasibility and economic viability in Assam where vast majority farmers were small and marginal, adoption of climate resilient technologies of *boro* paddy would certainly improve their socio-economic condition, with minimum risks and uncertainties in cultivation. But some problems which affect in adoption of climate resilient technologies of *boro* paddy cultivation, so that farmers were suggested some measures to overcome these problems. This calls for conscious consideration and care on the part of extension workers and other concerned institutions on adoption and proper management of *boro* paddy cultivation. To cope up with this situation Government should have definite extension policy to promote *boro* rice cultivation in flood affected areas is an urgent need, ICT based extension approach should be popularized in that areas for reducing the information gap. Government subsidized farm machineries and implement should make available at their localities besides establishment of custom hiring centre in community level may also help to solve the problems of farm mechanization. Simplification of procedure for availing KCC will help farmers to get financial assistance from the financial institutions.

**Table 1. Problems in adopting climate resilient technologies of *boro* paddy cultivation by the farmers (N=120)**

Problems	WMS	Rank
<i>Technical Problems</i>		
Lack of timely information related to climate resilient technologies	2.50	I
Poor implementation of IPM technologies	2.50	II
Poor knowledge about SRI and ICM practices	2.47	III
Less use of Bioorganics for <i>boro</i> paddy production	2.46	IV
Lack of awareness about usefulness of biofertilizer application	2.458	V
Lack of awareness about Residue management practices	2.45	VI
Lack of awareness about climate resilience	2.45	VII
Insufficient knowledge about INM	2.38	VIII
Lack of awareness about climate change	2.33	IX
Poor availability and accessibility of short duration flood tolerant crop varieties	2.29	X
Untimely and inadequate supply of inputs	2.25	XI
Non availability of farm machinery viz., tractor, power tiller etc. in time	2.2	XII
<i>Infrastructure Related</i>		
Poor market facility/linkage	2.5	I
Poor transport facility	2.43	II
Poor basic infrastructure like rural road, power supply, godown, communication	2.35	III
Poor irrigation facility	2.21	IV
<i>Socio-personal problems</i>		
Poor economic condition	2.61	I
Resistance to change the conventional practices	2.50	II
Lack of proper community action for the promotion of climate resilient technologies	2.46	III
The belief that 'It is better to follow conventional farming today and let tomorrow take care of it'	2.43	IV
Requirement of longer period to get positive responses from the ecosystem	2.38	V
<i>Economic problems</i>		
Higher investment cost on farm machinery and land development	2.48	I
Poor Govt. financial assistance	2.44	II
Poor sale price of the produce/ products	2.37	III
Longer gestation period	2.35	IV
Scarcity of labour	2.23	V
<i>Extension related problem</i>		
Poor and irregular extension service	2.61	I

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