

## Adoption of Package of Practices of Paddy Cultivation by the Farmers of Odisha under BGREI Programme

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**ABSTRACT:** The Bringing Green Revolution to Eastern India (BGREI) programme was implemented in 2010-2011, under the RKVY programme, to promote rice based cropping systems in Eastern India. The study was conducted in Sonepur district of Odisha with a sample of 90 BGREI beneficiary farmers were selected from two blocks namely Binka and Dunguripali. *Ex post facto* research design was used. Data had been gathered via interview schedule. The study revealed that majority of the beneficiaries had a medium level of adoption. The correlation analysis between the ten variables and the farmers' adoption level, which was used as a the dependent variable, revealed that out of the ten independent variables, five variables showed positive significance at 0.01 level of probability with the level of adoption of the beneficiary farmers and the remaining five variables showed no significance. The findings can be used by the state agriculture authorities, researchers, and policy makers to develop and adjust the program in order to increase farm level adoption of recommended paddy farming practices.

**Keywords:** Adoption, Beneficiary, Correlation, Input, Productivity.

### INTRODUCTION

According to the 2015-16 Agricultural census of India, over 84 percent of India's 1.4 billion people live in rural areas, with agricultural households accounting for 48 percent of the population, or roughly half of the country's population. India's agriculture sector accounts for 18 percent of the country's GDP and employs half of the country's workforce (Agriculture census 2015-16).

Nearly 53% of the 154.71 BCM of total accessible ground water for future use comes from India's eastern states. In fact, ground water recharge and storage are far less than ground water availability in most Eastern states, with the exception of Eastern UP, where there is an issue with high arsenic levels in some locations. Rice is the most important crop in this area. Though, abiotic stresses like drought, flood, submergence or salinity hamper the productivity of rice-based cropping systems. Out of the total 11.6 million ha of rice-fallow area in India, 82% is in the Eastern states (Bhatt, 2016; Kumar *et al.*, 2019). Therefore, the Eastern region of India from West Bengal, Jharkhand, Odisha, Assam, Bihar, Chhattisgarh, to Eastern Uttar Pradesh hold promise for a Second Green Revolution (SGR) (Ali *et al.*, 2014), that can be attained through holistic management of land, water, soil bio-diversity, cropping system, biomass or crop residues, horticulture, livestock, fishery and aquaculture, and human resources (Bhatt, 2016). The BGREI programme, which is a lateral to the

Rastriya Krishi Vikas Yojna (RKVY), was first launched in 2010-11 in Eastern India, covering seven states: Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, Eastern Uttarpradesh (Purvanchal), and West Bengal, with the goal of improving and stabilising agriculture productivity in these areas (BGREI Guidelines, 2012). Farmers must adopt new or enhanced paddy technologies created by scientists in order to increase paddy productivity. However, in most cases, farmers only embrace a portion of the suggested package of measures; they do not fully adopt the package of practices. As a result, there is always a disconnect between the recommended production technique and its application on the farm. As a result, there is a pressing need to analyse the gap in farmer adoption of those technologies. The present study was undertaken to study the level of adoption of the recommended package of practices for paddy under the BGREI program, the results of which can be used as a basis for working out the required extension strategy.

### METHODOLOGY

The research was based on *ex post facto* research design.

The study was done in the state of Odisha, which was chosen specifically because it is the site of active activity for the Bringing Green Revolution to Eastern India (BGREI) programme. Odisha's district Sonepur was also chosen on purpose. Two blocks from Sonepur district

namely Dunguripali and Binka, were selected randomly. From each selected blocks three villages were selected randomly i.e., from Dunguripali block, Majhimunda, Bandhapali and Sahajbahal villages, and from Binka block, Sankara, Kaudiamunda and Urle villages were selected randomly. From each village 15 numbers of beneficiary farmers were selected randomly for the study. Thus, a total of 90 respondents constituted the sample size.

For the study, ten independent variables were chosen. The data were gathered using a scheduled interview schedule and the personal interview style. The data collected were processed by using the statistical tools like: Frequency and Percentage, Arithmetic Mean, Standard deviation, Ranking, Pearson's correlation coefficient.

## RESULTS AND DISCUSSION

The distribution of practice wise adoption of recommended package of practices for paddy cultivation, by the beneficiary farmers under BGREI programme has been shown in the Table 1. The table revealed that among the various recommended package

of practices of rice cultivation under BGREI program, cent per cent of the BGREI beneficiaries adopted the package of practices namely use of recommended improved varieties, harvesting and post-harvest handling, followed by use of chemical fertilizers (96.67%), irrigation management (93.33%), seed rate (91.11%), need based chemicals/ bio-pesticides/ bio-agents (90%), weed management (84.44%), application of ZnSO<sub>4</sub>/ Gypsum (78.89%), soil testing (68.89%), sowing method (62.22%) and use of arhar seeds for bund plantation (48.89%). It was because of the sound knowledge of the farmers regarding the package of practices for paddy cultivation provided under the programme, and also due to the easy availability of the inputs under the programme.

While a low adoption of recommended package of practices was found in rice-legume rotation (45.56%), application of FYM/ green manure (42.22%), use of yellow sticky trap (36.67%), and seed treatment (33.33%) which was due to the lack of knowledge of the farmers about the training facilities provided under the programme.

**Table 1: Practice wise adoption of recommended package of practices of rice by the farmer beneficiaries under BGREI program**

Sr. No.	Recommended practices	Frequency	Percentage
1.	Recommended improved varieties	90	100
2.	Sowing method (line transplanting)	56	62.22
3.	Seed rate	82	91.11
4.	Seed treatment	54	33.33
5.	Soil testing	62	68.89
6.	Application of FYM/ green manure	38	42.22
7.	Application of ZnSO <sub>4</sub> / Gypsum	71	78.89
8.	Use of chemical fertilizers	87	96.67
9.	Rice-Legume rotation (mung/ urd/ oil seed)	41	45.56
10.	Use of yellow sticky trap	33	36.67
11.	Irrigation management	84	93.33
12.	Weed management	76	84.44
13.	Arhar seeds for bund plantation (@ 1kg/ ha)	44	48.89
14.	Need based chemicals/ bio-pesticides/ bio-agents	81	90
15.	Harvesting	90	100
16.	Post-harvest handling	90	100

Table 2 shows the distribution of the farmers according to their extent of adoption of the recommended practices for paddy cultivation under the programme, from which it was found that majority of the beneficiaries (66.67%) had a medium level of adoption due to high literacy level, farming experience, close contact with extension agencies, high knowledge of the

beneficiary farmers regarding the different aspects of BGREI. However, 18.89% and 14.44% of the respondents were found to have low and high level of adoption respectively. This finding is in the line with the findings reported by Mewara *et al.* (2007); Chand and Meena (2011); Chodavadia *et al.* (2013); Behera (2017).

**Table 2: Distribution of respondents according to their extent of adoption (N = 90).**

Sr. No.	Adoption Level	Beneficiaries	
		Frequency	Percentage
1.	Low (< 10.39)	17	18.89
2.	Medium ( 10.39 - 13.59)	60	66.67
3.	High( > 13.59)	13	14.44
Total		90	100

Mean = 11.99 SD = 1.60

Adoption or acceptance of recommended agricultural technology is an unit act that involves a series of decisions and actions that are influenced by personal, social, economic, psychological, and cultural aspects. So, considering the importance of these characteristics correlation analysis was done between personal, socio-

economic, communicational and psychological characteristics of the respondents and adoption of recommended rice production technology with help of Karl Pearson's coefficient correlation test and results thus obtained are presented in Table 3.

The Table 3 revealed that out of ten variables, five variables showed correlation with the level of adoption of the beneficiary farmers and the remaining five showed no significance. All the correlated independent variables show positive significance at 0.01 level of probability; those were education, land holding, social participation, and contact with extension agencies and mass media exposure of the respondents. This means the extent of adoption of the respondents increase with increase in these variables.

The above analysis depicted that farmers with high education level had higher adoption behaviour. It is because education makes the farmers knowledgeable about new farm innovations and motivates them to adopt new farm technology; moreover farmers having better extension contact, wider mass media exposure and higher social participation had also recorded better adoption behaviour. This finding supports with the work of Emmanuel Asiedu-Darko (2014); Routray (2016).

**Table 3: Correlation analysis of BGREI beneficiaries and their level adoption of recommended technology of rice crop under BGREI.**

Sr. No.	Independent variables	Correlation-coefficient
1.	Age	NS
2.	Education	0.466**
3.	Family size	NS
4.	Family type	NS
5.	Land holding	0.559**
6.	Farming experience	NS
7.	Occupation	NS
8.	Social participation	0.354**
9.	Extension contact	0.302**
10.	Mass media exposure	0.441**

\*\* Correlation is significant at 0.01 level; NS : Non-significant

## CONCLUSION

According to the findings of the study, majority of the beneficiaries (66.67%) had a medium level of adoption, followed by low (18.89 %) and high (14.44 %). From the correlation analysis, it was found that education, land holding, social participation, extension contact and mass media exposure were the major contributing independent variables towards adoption level of the paddy farmers. The state department of agriculture extension workers and scientists involved should conduct mass awareness campaigns, method demonstrations, and results demonstrations as appropriate means of reaching a large audience and creating awareness among farmers about the proper package of paddy cultivation practices and to show the worthiness of various practices so that the farmers can easily adopt them without any difficulty.

## FUTURE SCOPE

Only BGREI beneficiaries were included in the study. A comparative study of beneficiary and non-beneficiary farmers' yield, income, and other factors could be done. Other than the variables included in the study, the future study has a potential to incorporate a variety of other contextual and realistic variables. The research should be multiplied in order to reach a more concrete conclusion.

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**Conflict of interest.** None.

## REFERENCES

- Agriculture Census (2015-16). Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.
- Ali, M., Ghosh, P. K., and Hazra, K. K. (2014). Resource conservation technologies in rice fallow, In book: Resource Conservation Technology in Pulses Edition: First Chapter: 7 Publisher: Scientific publishers Editors: P. K. Ghosh, N. Kumar, M. S. Venkatesh, K. K. Hazra, N. Nadarajan.
- Asiedu-Darko, E. (2014). Effects of gender, education and age on the adoption of agricultural technologies in Ashanti, northern and eastern region of Ghana. *Journal of applied science and research*, 2(1): 112-118.
- Behera, R. (2017). Impact assessment of BGREI programme on productivity and income of rice growers in Odisha. Unpublished M. Sc. (Ag.) Thesis. Indira Gandhi Krishi Vishwavidyalaya, Raipur.
- Bringing green revolution to Eastern India guidelines. (2012). Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.
- Bhatt, B. P., Mishra, J. S., Dey, A., Singh, A.K. and Kumar, S. (2016). Second Green Revolution in Eastern India: Issues and Initiatives, ICAR Research Complex for Eastern Region, Patna, Bihar.
- Chand, S. and Meena, K. C. (2011). Correlates of adoption of groundnut production technology by the farmers. *Raj. J. of Ext. Edu.*, 19: 125-127.
- Chodavadia, H. C., Bariya, M. K. and Deshmukh, G. (2013). A comparative study between demonstrator and non-demonstrator farmers of relay cropping system. *Glob. Adva. Res. J. of Agril. Sci.*, 2(6): 160-163.
- Kumar, R., Mishra, J. S., Upadhyay, P. K., and Hans, H. (2019). Rice fallows in the eastern India: Problems and prospects. *Indian Journal of Agricultural Sciences* 89(4): 567-577.
- Mewara, R. C. and Pandya R. D. (2007). Knowledge and adoption level of tomato growers regarding value added techniques in Navsari, Rural India.
- Routray, A. (2016). Impact of Bringing green Revolution in eastern India (BGREI) on socioeconomic development of farmers in Dhenkal district of Odisha (unpublished), MSc Ag thesis, OUAT, BBSR: 68-74.

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