

**Adoption of BARI dhan49 by the Farmers of Bogra Sadar Upazila in Bangladesh**

**ABSTRACT**

The research examined the status of adoption of BRRi dhan49 and to explore the contribution of the selected characteristics of the cultivators with their adoption of BRRi dhan49. The methodology of this study is an integration of quantitative and qualitative methods based on data collection in Ashokola, Polikukrul, Teldhap, Shashibadoni, Darial and Ontahar villages under Noongola union of Bogra sadar upazila. Data were collected from 116 BRRi dhan49 cultivators from January 21 to February 20, 2017. Descriptive statistics, multiple regressions were used for analysis. Most of the farmers (78.4 percent) belong to medium adoption followed by high adoption (11.2 percent) by the rice cultivators in adoption of BRRi dhan49 production technologies. Among the influential variables- level of education, annual family income, extension media contact, rice cultivation knowledge and attitude towards BRRi dhan49 were significant contributor and provided 53.8 percent contribution on adoption of BRRi dhan49. It was also found that 3.4%, 16.3%, 38.8%, 33.7% and 7.8% farmers were innovators, early adopters, early majority, late majority and laggards respectively regarding to BRRi dhan49 adoption. It is concluded that the composite adoption of BRRi dhan49 production technologies is moderate and needs further advancement. Based on the findings, it is recommended that respective authorities should implement and popularize farmers based projects on a massive scale for adoption of BRRi dhan49.

**Key words:** Technologies, rice cultivation, adopters, adoption;

**INTRODUCTION**

Bangladesh is a farming depended nation. About 76% of the people live in rural areas, and 47.5% of the total manpower is involved in agriculture. In Bangladesh, agriculture contributes 18.82% of the gross domestic product (GDP) of the country in the year of 2014-2015 (BEC, 2016). Bangladesh has a long history of rice cultivation. Rice is grown throughout the country except in the southeastern hilly territories. The agroclimatic states of the country are suitable for growing rice year-round. However, the national average rice yield is much lower (2.94 t/ha) than that of other rice-growing countries (BBS, 2012). Rice is the staple food for about 156 million people of the country. Rice (*Oryza sativa* L.) is the most important food for over two billion people in Asia and To feed the ever-increasing population of these regions the world's annual rice production must be increased from the present 560 to 750 million tons by 2020 (Saranraj et al., 2013). During the year 2015-2016, Rice ranked first position by production among all the cereals in Bangladesh (BBS, 2016). At present the total area and production of rice in Bangladesh is about 11.65 million hectares and 34.00 million metric tons, respectively (BBS, 2013). The population growth rate is 2 million year, and if the population increases along this same line, the total population will be 238 million by 2050. An expansion in total rice production is required to feed this over-expanding population. In the meantime, the total cultivable land is diminishing more than 1% per year attributable to the construction of industries, factories, houses, and highways. On the other hand, due to urbanization, food habits tend to change, demanding the cultivation of new crops that must share land used for rice cultivation. Therefore, the modern varieties of rice have given its contribution to increase the yield per unit area of rice. Among the modern varieties, BRRi dhan49, benefit to expand rice production in a sustainable manner for the food and nutritional security of this exceptionally populated country. The rice cropping pattern of Bangladesh has changed-areas once occupied by the rainfed Aus gradually shifted to Boro cultivation. As a result, the contribution from each season also changed-Aman rice previously contributed a major portion of total rice, but Boro is now the major contributor to total rice production in the country, despite Aman coverage area being greater. Aus, Aman, and Boro rice were recently reported to account for 7%, 38%, and 55%, respectively, of the total rice production in Bangladesh (Risingbd, 2014). Bangladesh has made notable progress in sustaining respectable growth in rice production, and this growth in production has originated mostly from the shift from low-yielding traditional to high-yielding modern varieties when irrigation facilities were developed (Hossain et al., 2006). Another factor contributing to the increase in total rice production by modern rice varieties such as BRRi dhan49 is the key to change in the rural economy. Although Bangladesh has an agrarian economy, about 89% of total farm-holdings are below 2.49 acres in size (Kashem, 2013). However, socioeconomic factors, such as the predominance of small and marginal farmers and tenancy cultivation in agrarian structure, did not impede the adoption of modern rice varieties in Bangladesh (Asaduzzaman, 1979; Mandal, 1980; Alauddin and Tisdell, 1996). Major constraints to the adoption of modern rice varieties were in fact logistic factors (Hossain et al., 2006). Bogra locale is considered as

65 surplus rice generation zone of the nation, where BRRi Dhan49 was a noteworthy endeavor. Bogra  
 66 sadar upazila range, in this manner, considered a most reasonable area to concentrate the marvels of  
 67 selection of BRRi Dhan49 innovations by the rice cultivators. Contemplates on individual, gathering  
 68 and society uncovered that acknowledgment of modern innovations is restrictive upon many  
 69 variables. Some of these are social, individual, practical and situational components. While directing  
 70 any review on the reception of modern advancements, these elements should be considered. An  
 71 extremely couple of past research work attempted to discover the above certainties. Subsequently,  
 72 the present examine felt need to lead an exploration entitled "Adoption of BRRi dhan49 by the  
 73 farmers of Bogra sadar upazila."

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 75 The focal point of the research work was to explore the trends of adoption of BRRi dhan49 by the  
 76 farmers. This is why the following objectives were structured out in order to provide an appropriate  
 77 track to the research work: To assess the extent of adoption of BRRi dhan49 by the farmers; to  
 78 describe the selected socio-economic characteristics of farmers, to estimate the level of contribution  
 79 of the selected characteristics of farmers in adoption of BRRi dhan49 and categorize the adopters of  
 80 BRRi dhan49;

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**MATERIALS AND METHODS**

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 86 Methodology assumes an essential part in a logical research. To fulfill the objectives of the study, a  
 87 researcher should be very careful while formulating methods and procedures in conducting the  
 88 research. This chapter of the thesis illustrates the research methodology and procedures used to  
 89 collect and analyze the data for answering the research questions and attaining the purposes. The  
 90 methods and operational procedures followed in conducting the study e.g. selection of study area,  
 91 sampling procedures, instrumentation, categorization of variables, collection of data, measurement of  
 92 the variables and statistical measurements. A chronological description of the methodology followed  
 93 in conducting this research work has been presented in this chapter.

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**Measurement of dependent variable**

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 97 Adoption of BRRi dhan49 was measured by computing Adoption Quotient (AQ). It was calculated by  
 98 asking the farmers i) cultivated area of BRRi dhan49 ii) potential area for cultivation of BRRi dhan49  
 99 iii) years of BRRi dhan49 cultivation. Adoption of BRRi dhan49 was measured by Adoption Quotient  
 100 as the following formula suggested by Bhuiyan (2005):

$$\text{Adoption Quotient (AQ)} = \frac{\sum c/p}{Y} \times 100$$

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Where, c = cultivated area

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P = Potential area

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y = Years of BRRi dhan49 cultivation

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Using above formula, adoption of BRRi dhan49 production technologies score of a respondent could  
 range from 0-100, while 0 indicating no adoption and 100 indicating highest adoption. This variable  
 appears in item number 10.1 in the interview schedule as presented in Appendix-I. Based on the  
 information cited by the farmers, they were classified into three categories (Mean ± Standard  
 Deviation) namely „low“, „medium“ and „high“ adoption of BRRi dhan49.

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**Measurement of adopter categories**

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Before measuring the adopter categories, the researcher calculated the Adoption Period Score (APS)  
 of BRRi dhan49 by asking the question to the farmers "How many times did you take after hearing  
 about the BRRi dhan49 qualities to cultivate in your land?". The adopter categorization on the basis of  
 APS diving the bell-shaped curve into five areas by using its two parameters (mean and standard  
 deviation). After assigning APS for all farmers according to the adoption Period of all farmers were  
 calculated as follows (Roger, 1995):

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Innovator =  $(\bar{x} - 2\sigma)$

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Early adopter =  $(\bar{x} - 2\sigma)$  to  $(\bar{x} - \sigma)$

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Early majority =  $(\bar{x} - \sigma)$  to  $(\bar{x})$

Late majority =  $(\bar{x})$  to  $(\bar{x} + \sigma)$

Laggards & non-adopters =  $(\bar{x} + \sigma)$  to  $(\bar{x} + 2\sigma)$

The measure of adoption used and the procedure followed to classify adopters where 1<sup>st</sup> group were innovator and then early adopter, early majority, late majority & last group considered as laggards. The majority of Indian researchers used this type of category

### Statistical analysis

Regression analysis was used to identify the linear combination between independent variables used collectively to predict the dependent variables (Miles and Shevlin, 2001). Regression analysis helps us understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Ordinary Least Squares (OLS) is used most extensively for estimation of regression functions. In short, the method chooses a regression where the sum of residuals,  $\sum U_i$  is as small as possible (Gujarati, 1995). The factors that contribute to the adoption of BRR1 dhan49 are analyzed using a regression model. The overall quality of fit of the model has been tested by ANOVA specifically F and  $R^2$  test.

The data were analyzed in accordance with the objectives of the proposed research work. The factors that contribute to the constraints faced by the farmers in vegetable production are analyzed using a regression model, multiple regression analysis (B) was used. Throughout the study, five (0.05) percent and one (0.01) percent level of significance were used as the basis for rejecting any null hypothesis. If the computed value of (B) was equal to or greater than the designated level of significance ( $p$ ), the null hypothesis was rejected and it was concluded that there was a significant contribution between the concerned variable. Whenever the computed value of (B) was found to be smaller at the designated level of significance ( $p$ ), the null hypothesis could not be rejected. Hence, it was concluded that there was no contribution of the concerned variables.

The model used for this analysis can be explained as follows:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + e;$$

Where, Y= is the adoption of BRR1 dhan49;

Of the independent variables,  $x_1$  is the rice cultivators age,  $x_2$  is level education,  $x_3$  is effective farm size,  $x_4$  is annual family income,  $x_5$  is organizational participation,  $x_6$  is cosmopolitaness,  $x_7$  is extension media contact,  $x_8$  is rice cultivation knowledge and  $x_9$  is attitude towards BRR1 dhan49. On the other hand,  $b_1, b_2, b_3, b_4, b_5, b_6, b_7, b_8$  and  $b_9$  are regression coefficients of the corresponding independent variables, and  $e$  is random error, which is normally and independently distributed with zero mean and constant variance.

## RESULTS AND DISCUSSION

The recorded observations in accordance with the objective of the study were presented and probable discussion was made of the findings with probable justifiable and relevant interpretation under this chapter. The findings of the study and their interpretation have been presented in this chapter. The first section deals with the selected characteristics of the farmers, while the second section deals with the adoption of BRR1 dhan49. The third section deals with contribution of farmers' selected characteristics to their adoption of BRR1 dhan49, while the fourth section deals with categorization of BRR1 dhan49 adopter.

### Characteristics of the farmers

Behavior of an individual is determined to a large extent by one's personal characteristics. There were various characteristics of the farmers that might have consequence to adoption of BRR1 dhan49. But in this study, nine characteristics of them were selected as independent variables, which included their age, level of education, effective farm size, annual family income, organizational participation, cosmopolitaness, extension media contact, rice cultivation knowledge and attitude towards BRR1 dhan49 that might be greatly influenced the adoption of BRR1 dhan49 of farmers are presented below-

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## **Age**

The age of the farmers has been varied from 28 to 74 years with a mean and standard deviation of 47.31 and 10.17, respectively. Considering the recorded age farmers were classified into three categories namely „young“, „middle“ and „old“ aged following Rashid (2014). The distribution of the farmers in accordance of their age is presented in Table 1. Table 1 reveals that the middle-aged farmers comprised the highest proportion (53.4percent) followed by old aged category (34.5percent) and the lowest proportion were made by the young aged category (12.1percent). Data also indicates that the middle and old aged category constitute 87.9 percent of total farmers. The middle and young aged farmers were generally more involved in farm activities than the young.

## **Level of education**

The level of educational scores of the farmers ranged from 0 to 17 with a mean and standard deviation of 7.62 and 4.05, respectively. Based on the educational scores, the farmers were classified into five categories. The distributions of farmers according to their level of education are presented in Table 1. Table 1 shows that farmers under secondary education category constitute the highest proportion (47.4 percent) followed by primary education (22.4percent). On the other hand, the lowest 5.2 percent in can't read and sign category followed by can sign only category (6.9 percent) and 18.1 percent respondents were above secondary category. Education broadens the horizon of outlook of farmers and expands their capability to analyze any situation related to adopt the BRR1 dhan49. An educated farmer is likely to be more responsive to the modern facts, ideas, and information of BRR1 dhan49. To adjust with the same, they would be progressive minded to adopt cultivation technologies of BRR1 dhan49 as well as involve with modern cultural farm activities.

## **Effective farm size**

The effective farm size of the farmers ranged from 0.08 ha to 2.62 ha with a mean and standard deviation of 0.96 and 0.54, respectively. Based on their farm size, the farmers were classified into five categories following the categorization according to DAE. The distribution of the farmers according to their farm size is presented in Table 1. Table 1 indicates that the small farm holder constitutes the highest proportion (63.8percent) followed by medium farm holder (33.6 percent). The findings of the study reveal that majority of the farmers were small to medium sized farm holder. The average farm size of the farmers of the study area (0.96ha) was higher than that of national average (0.60 ha) of Bangladesh (BBS, 2014). This might be due to the enhancing economic status of the farmers; the farmers are likely to motivate to buy the land.

## **Annual family income**

The score of annual income of the rice cultivators ranged from 100 to 525 thousand (BDT) with a mean and standard deviation of 223.58 and 81.08, respectively. On the basis of annual income, the rice cultivators were classified into three categories (Mean  $\pm$  Standard Deviation) namely „low“, „medium“ and „high“ annual family income. The distribution of the rice cultivators according to their annual family income is presented Table 1. DataTotal revealed that the rice cultivators having medium annual income constitute the highest proportion (69.0 percent), while the lowest proportion in low income (12.9 percent) followed by high income (18.1 percent). Majority (87.1 percent) rice cultivators have medium to high annual family income.

## **Organizational participation**

Organizational participation score of the rice cultivators ranged from 4 to 16 with a mean and standard deviation of 10.12 and 2.22, respectively. Based on organizational participation score, the rice cultivators were classified into three categories (Mean  $\pm$  Standard Deviation) namely less, medium and high participation. The distribution of the rice cultivators as per their organizational participation is presented in Table 1. Data reveals that the highest proportion (78.4 percent) of the rice cultivators had medium organizational participation, while 7.8 percent and 13.8 percent had less and high organizational participation respectively.

## **Cosmopolitaness**

Cosmopolitaness score of the rice cultivators ranged from 8 to 22 with a mean and standard deviation of 17.12 and 2.22, respectively. Based on the cosmopolitaness score, the rice cultivators were classified into three categories (Mean  $\pm$  Standard Deviation) namely low, medium and high cosmopolitaness. The distribution of the rice cultivators as per their cosmopolitaness is presented in

256 Table 1. Data revealed that the highest proportion (87.9 percent) of the rice cultivators had medium  
257 cosmopolitanness, while 7.8 percent had low cosmopolitanness and the lowest 7.8 percent high low  
258 cosmopolitanness. It might be logical because the respondents of the study area were sincere in their  
259 income generating activities. Hence, the cosmopolitanness of the rice growers in the study area was  
260 medium to high (87.9 percent).

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#### 262 **Extension media contact**

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264 The observed score of agricultural extension contact of the farmers ranged from 10 to 30 against a  
265 possible range of 0 to 40. The average score of the farmers was 22.89 with a standard deviation 3.17  
266 (Table 1). The farmers were classified into three categories on the basis of their exposure to farming  
267 information through communication exposure scores and distribution of the three categories (Mean  $\pm$   
268 Standard Deviation) namely „low“, „medium“ and „high“ agricultural extension media contact of the  
269 farmers. Data showed that the highest proportion (79.3 percent) of the farmers had medium extension  
270 contact as compared to 11.2 percent of them having low extension contact and 9.5 percent fell in high  
271 extension media contact (Table 4.7). From this table, it might be concluded that majority of the  
272 farmers had medium extension contact. It could be concluded that extension agent or media of the  
273 study area were available to the farmers. The finding was interesting but logical because in general  
274 the farmers in the rural areas of Bangladesh are low cosmopolite in nature and less exposed to  
275 different information sources. Finding revealed that 11.2 percent of the farmers had low extension  
276 contact which demands for strengthening and improving the communication strategy. Low extension  
277 contact might be the reason that some respondent may think that they have enough knowledge about  
278 farming activities. Extension contact pertains to ones contact with multifarious sources of farming  
279 knowledge and information. This results in cognitive change of the users with an eventual change in  
280 behavior and also in skill. They receive information from their neighbors, relatives etc.

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#### 282 **Rice cultivation knowledge**

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284 Rice cultivation knowledge scores of the farmers ranged from 10 to 28 against possible score of 0 to  
285 30. The average score and standard deviation were 22.84 and 3.49, respectively. Based on the rice  
286 cultivation knowledge scores, the farmers were classified into three categories (Mean  $\pm$  Standard  
287 Deviation) namely low knowledge, medium knowledge and high knowledge (Table 1). Total Data  
288 presented in the table 1 reveals that 79.3 percent of the farmers had medium rice cultivation  
289 knowledge, 19.7 percent had low knowledge and 22.2 percent had high rice cultivation knowledge.  
290 Thus, an overwhelming majority (58.1%) of the farmers had medium knowledge. This lead to  
291 understanding that rice cultivation knowledge would reflected more by the medium knowledge on  
292 agriculture group in the present study. Rice cultivation knowledge of the farmers is definitely affected  
293 by the education of the farmers because education helps to enhance the eagerness to be acquainted  
294 with new variety or technology. In addition, rice cultivation knowledge of the respondent is definitely  
295 affected by the extension contact because with the increase of the communication exposure new  
296 thing can be taught. . Farmers lives on farming. Hence, they must require skill and modern knowledge  
297 to bring more yield and profit to ensure adoption of BRRI dhan49 cultivation.

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#### 299 **Attitude towards BRRI dhan49**

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301 Attitude towards BRRI dhan49 of the farmers ranged from 1 to 3. The average and standard deviation  
302 were 2.46 and 0.65 respectively shown in the following Table 1. On the basis of attitude towards BRRI  
303 dhan49, the respondents were categorized into three classes“ (Mean  $\pm$  Standard Deviation) namely  
304 poorly favorable attitude, moderately favorable attitude and highly favorable attitude.

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306 The observed data showed that most of the farmers (91.4 percent) had a moderately favorable  
307 attitude towards rice cultivation while 8.6 percent of them had poorly favorable attitude. No  
308 respondent was found in highly favorable attitude category. The attitude of the respondents  
309 expressed their perception about rice cultivation. It helped the researcher to judge or measure the  
310 acceptance/rejection of rice cultivation in the rural area.

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#### 313 **Adoption of BRRI dhan49**

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315 Adoption of BRRI dhan49 by the rice cultivators is the dependent variable of this study and it was  
316 measured by computing scores according to extent of adoption. Adoption of rice cultivation by the rice  
317 cultivators scored varied from 34.58 to 68.04 with the mean and standard deviation of 44.48 and 5.32  
318 respectively. On the basis of adoption scores, the rice cultivators were classified into three categories  
319 (Mean  $\pm$  Standard Deviation) namely low, medium and high adoption of BRRI dhan49. The

320 distribution of the cultivators according to their adoption of BRR1 dhan49 score under the study is  
 321 given in

322 Table 1 indicates that among the respondents, the highest 78.4 percent rice cultivators belongs to the  
 323 group of medium adoption and the lowest percentage 10.3 percent in low adoption followed by high  
 324 adoption (11.2 percent) by the rice cultivators in adoption of BRR1 dhan49. Among the cultivators  
 325 most of the rice cultivators (89.7 percent) have medium to high adoption in BRR1 dhan49.

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327 Table 1. List of characteristics and its component for farmers

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Characteristics	Categories	Range	Number	Percent	Mean	STD
Age	Young aged	28-74	14	12.1	47.31	10.17
	Middle aged		62	53.4		
	Old aged		40	34.5		
Level of education	Can't read and sign	0-17	6	5.2	7.62	4.05
	Can sign only		8	6.9		
	Primary education		26	22.4		
	Secondary education		55	47.4		
	Above secondary		21	18.1		
Effective farm size	Landless	0.08-2.62	-	-		
	Marginal		3	2.6		
	Small		74	63.8		
	Medium		39	33.6		
	Large		-	-		
Annual family income	Low income	62-230	15	12.9	223.58	81.08
	Medium income		80	69.0		
	High income		21	18.1		
Organizational participation	Less participation	4-16	9	7.8	10.12	2.22
	Medium participation		91	78.4		
	High participation		16	13.4		
Cosmopolitaness	Low cosmopolitaness	8-22	9	7.8	17.12	2.22
	Medium cosmopolitaness		102	87.9		
	High cosmopolitaness		5	4.3		
Extension media contac	Low contact	10-30	13	11.2	22.89	3.17
	Medium contact		92	79.3		
	High contact		11	9.5		
Rice cultivation knowledge	Low knowledge	10-28	17	14.7	22.84	3.49
	Medium knowledge		92	79.3		
	High knowledge		7	6.0		
Attitude towards BRR1 dhan49	Poorly favorable attitude	1-3	12	10.3	2.46	0.65
	Moderately favorable attitude		91	78.4		

	Highly favorable attitude		13	11.2		
Adoption of BRRIdhan49	Low adoption	34.58-68.04	12	10.3	44.48	5.32
	Medium adoption		91	78.4		
	High adoption		13	11.2		

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### Factors related to the adoption of BRRIdhan49

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In order to estimate the adoption of BRRIdhan49 by the rice cultivators from the independent variables, multiple regression analysis was used which is shown in the Table 2.

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**Table 2** Multiple regression coefficients of contributing factors related to the farmers' adoption of BRRIdhan49

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Dependent variable	Independent variables	B	p	R <sup>2</sup>	Adj. R	F	p
Farmers' adoption of BRRIdhan49	Age	0.059	0.203	0.538	0.507	20.75	0.000**
	Level of education	0.296	0.037*				
	Effective farm size	0.584	0.702				
	Annual family income	2.041	0.034*				
	Organizational participation	0.151	0.573				
	Cosmopolitaness	-.138	0.507				
	Extension media contact	0.447	0.020*				
	Rice cultivation knowledge	0.398	0.003**				
	Attitude towards BRRIdhan49	3.383	0.000**				

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Significant at  $p < 0.01$ ;

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Significant at  $p < 0.05$ ;

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Table 2 shows that there is a significant contribution of respondents' level of education, annual family income, extension media contact, rice cultivation knowledge and attitude towards BRRIdhan49. Of

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345 these, rice cultivation knowledge and attitude towards BRRRI dhan49 were the most important  
346 contributing factors (significant at the 1% level of significance).Level of education, annual family  
347 income and extension media contact (significant at the 5% level of significance while coefficients of  
348 other selected variables don't have any contribution on adoption of BRRRI dhan49.

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350 The value of  $R^2$  is a measure of how of the variability in the dependent variable is accounted for by  
351 the independent variables. So, the value  $R^2$  0.538 means that independent variables accounts for  
352 53% of the variation in adoption of BRRRI dhan49. The adjusted  $R^2$  indicates the loss of predictive  
353 power or shrinkage. Therefore, the adjusted value (0.507) tells us how much variance in Y (adoption  
354 of BRRRI dhan49) would be accounted if the model has been deprived from the populations from which  
355 the sample was taken. The F ratio is 20.75 which is highly significance ( $p < .001$ ). This ratio indicates  
356 that the regression model significantly improved the ability to predict outcome variable.

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358 The b-values indicate the individual contribution of each predictor to the model. Almost all predictors  
359 have positive b-values indicates if scores/ values of predictors (e.g. level of education) increases so  
360 do the extent of adoption of BRRRI dhan49 production technologies. However, each predictor may  
361 explain some of the variance in respondents' adoption of BRRRI dhan49 conditions simply by chance.  
362 In summary, the models suggest that the respective authority should consider farmers' level of  
363 education, annual family income, extension media contact, rice cultivation knowledge and attitude  
364 towards BRRRI dhan49.

#### 365 **Significant contribution of rice cultivation knowledge on adoption of BRRRI dhan49**

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368 The contribution of the rice cultivation knowledge on adoption of BRRRI dhan49 was at 1% significance  
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372 The b-value of rice cultivation knowledge is 0.398. So, it can be stated that as rice cultivation  
373 knowledge increase by one unit, adoption of BRRRI dhan49 increase by 0.398 units. This interpretation  
374 is true only if the effects of all other predictors are held constant.

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376 Based on the above finding, it can be said that clear understanding of the different aspects of an  
377 innovation increases cultivators' knowledge about a new technology which helps him/her to adopt it  
378 for own benefit. So, rice cultivation knowledge influenced significantly on the adoption of BRRRI  
379 dhan49.

#### 380 **Significant contribution of attitude towards BRRRI dhan49 on adoption of BRRRI dhan49**

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383 The contribution of the attitude towards BRRRI dhan49 on adoption of BRRRI dhan49 was at 1%  
384 significance level.

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387 The b-value of attitude towards BRRRI dhan49 is 3.383. So, it can be stated that as attitude towards  
388 BRRRI dhan49 increase by one unit, adoption of BRRRI dhan49 increase by 3.383 units. This  
389 interpretation is true only if the effects of all other predictors are held constant.

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391 Based on the above finding, it can be said that attitude towards BRRRI dhan49 increases cultivators'  
392 willingness which helps him/her to adopt it for own benefit. So, attitude towards BRRRI dhan49  
393 influenced significantly on the adoption of BRRRI dhan49.

#### 394 **Significant contribution of level of education on adoption of BRRRI dhan49**

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398 The contribution of the level of education on adoption of BRRRI dhan49 was at 5% significance level.

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400 The b-value of level of education is 0.296. So, it can be stated that as level of education increase by  
401 one unit, adoption of BRRRI dhan49 increased by 0.296 units. This interpretation is true only if the  
402 effects of all other predictors are held constant.

403  
404 Based on the above finding, it can be said that level of education increases cultivators' willingness  
405 which helps him/her to adopt it for own benefit. So, level of education influenced significantly on the  
406 adoption of BRRRI dhan49.

#### 407 **Significant contribution of annual family income on adoption of BRRRI dhan49**

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409

410  
411 The contribution of the annual family income on adoption of BRR1 dhan49 was at 5% significance  
412 level.

413  
414 The b-value of annual family income is 2.041. So, it can be stated that as annual family income  
415 increase by one unit, adoption of BRR1 dhan49 increased by 2.041 units. This interpretation is true  
416 only if the effects of all other predictors are held constant.

417 Based on the above finding, it can be said that annual family income increases cultivators' willingness  
418 which helps him/her to adopt it for own benefit. So, annual family income influenced significantly on  
419 adoption of BRR1 dhan49.

420

#### 421 **Significant contribution of extension media contact on adoption of BRR1 dhan49**

422

423 The contribution of the extension media contact on adoption of BRR1 dhan49 was at 5% significance  
424 level.

425

426 So, the null hypothesis could be rejected.

427

428 The b-value of extension media contact is 0.447. So, it can be stated that as extension media contact  
429 increase by one unit, adoption of BRR1 dhan49 increased by 0.447 units. This interpretation is true  
430 only if the effects of all other predictors are held constant.

431

432 Based on the above finding, it can be said that extension media contact increases cultivators'  
433 willingness which helps him/her to adopt it for own benefit. So, extension media contact influenced on  
434 adoption of BRR1 dhan49.

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436

#### 437 **Conclusions**

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439 The findings and relevant facts of research work prompted the researcher to draw following  
440 conclusions.

441

442 It may be concluded that the composite adoption of BRR1 dhan49 is adequate and needs further  
443 advancement for maintaining. Level of education of the farmers showed the most important  
444 contributing factor in adoption of BRR1 dhan49. This means that high literacy and educational level  
445 among the farmers might have influenced high BRR1 dhan49. Conclusion could be drawn that  
446 these farmers could be more ameliorated in all aspects of socio-economic life if government takes  
447 more educational project to make it more educated. Annual family income of the farmers had a  
448 significant contribution in adoption of BRR1 dhan49. The above facts lead to conclude that necessary  
449 arrangements should be made to increase the annual family income of farmers which would ultimately  
450 increase the adoption of selected rice cultivation. Extension media contact of the farmers had a  
451 significant contribution in adoption of BRR1 dhan49. Through extension media contact an individual  
452 farmer became facilitating of the information on the various aspect of selected rice cultivation. The  
453 above facts lead to conclude that necessary arrangements should be made to increase the extension  
454 media contact of farmers which would ultimately increase the adoption of selected rice cultivation.

455 Rice cultivation knowledge of the farmer had a significant contribution in adoption of BRRI dhan49.  
456 The above facts lead to the conclusion that necessary arrangements should be made to increase the  
457 knowledge of farmers which would ultimately increase the adoption of selected rice cultivation.  
458 Farmer's attitude towards BRRI dhan49 had a significant contribution in adoption of BRRI dhan49. It  
459 is, therefore, concluded that extension workers should vocation adequately with the farm people  
460 through various teaching methods and correctly envisaging those characteristics of the farmers which  
461 have some bearing on these activities.

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