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## A COMPARATIVE ECONOMIC STUDY OF BRRI DHAN51 AND BR11 RICE PRODUCTION IN A SELECTED AREA OF RANGPUR DISTRICT IN BANGLADESH

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### ABSTRACT

*This study is designed to determine relative profitability of an early variety BRRI Dhan51 and BR11 in greater Rangpur region. In total 60 farmers were selected purposively from one village of Sadar Upazila of Rangpur District; out of which 30 farmers are producing BRRI Dhan51 and 30 farmers producing BR11. Tabular and statistical analyses were done to achieve the objectives of the study. It was revealed that the cultivation of both BRRI Dhan51 and BR11 were profitable from the view point of farmers. Per hectare gross cost of production of BRRI Dhan51 and BR11 were Tk. 55105.21 and Tk. 56185.79 respectively and the corresponding gross returns were Tk. 143488.27 and Tk. 63648.676. The per hectare net returns of producing of BRRI Dhan51 and BR11 were Tk. 88383.06 and Tk. 7462.89 respectively. The results indicated that BRRI Dhan51 was much more profitable than that of BR11. It was observed that most of the variables included in Cobb-Douglas production function had significant impact on BRRI Dhan51 and BR11 rice production. All the five variables included in the model had positive impact on returns from both BRRI Dhan51 and BR11 rice production. The study also identified some problems faced by the producers in producing BRRI Dhan51 and BR11 rice.*

### KEYWORDS

Comparative study, profitability, adoption, BRRI Dhan51, BR11.

### INTRODUCTION

Bangladesh is predominantly an agricultural country. Agriculture is the prominent sector in the economy of Bangladesh and a vital determinant of economic growth and livelihood improvement of the rural farmers. The agricultural sector comprises crops, forests, fisheries and livestock. This sector contributes 19.95 percent to the Gross Domestic Product (GDP) of which crop sector alone contributes 11.15 percent (BBS, 2009). Economic development largely depends on the agricultural development which is possible only through distribution and utilization of modern technology, such as, hybrid seeds, power tiller, chemical fertilizers, pesticides, irrigation, etc. A comprehensive study incorporating impact of technological change on farmer's income and poverty alleviation is important. A rapid and substantial increase in agricultural productivity is essential to meet the growing demand for food grain emerging from high population growth. About three-fourth of the total cropped area is allocated to rice sector and hence, rice has exclusively led the growth of crop agriculture. Rice is the most important food crop in the developing countries. About 90% of the population in Bangladesh depends on rice as a major food. By the year 2020; Bangladesh will require 35.5 million tons of rice to meet the food demand of its population which is expected to increase to 173 million (IRRI, 2006). To attain this production target, average yield will have to increase up to 3.4 ton/ha (BRRI, 1997). In this context, flood tolerant rice technology seems to open a window of opportunity for increasing rice production.

In Bangladesh, 20 percent of the rice land is flood prone and the country typically suffers several major floods each year. As water inundates rice field, BRRI Dhan51 helps rice plant remain metabolically inert for up to two to three weeks. BRRI Dhan51 can survive up to 10 days to complete submergence at vegetative stage. It matures within 130-134 days and grows as high as 75-85cm. It requires less fertilizer than other varieties, has bigger stem heavier when threshed and contains good quality in terms of taste. The experiment will be conducted to use the flood prone rice land as well as to increase the yield of rice production. The conventional varieties of rice in Bangladesh are comparatively lower-yielding and it seems impossible to change this yield with reachable resources under the prevailing situation. At this stage, hybrid varieties of rice may be a breakthrough, which could overcome perpetual yield stagnancy. To feed ever increasing hungry millions of Bangladesh, flood tolerant variety like BRRI Dhan51 will be one of the best options.

The rates of expansion of BRRI Dhan51 and BR11 varieties of aman rice acreage and production depend on the profitability of their production. The researchers reviewed Chowdhury, 1999; Dey et al., 2001; Jabbar et al., 1993; Khan et al., 1999 and Mustafi et al., 2005; but no one conducted the comparison of BRRI Dhan51 and BR11. In this regard, the structures of costs and returns of BRRI Dhan51 and BR11 rice cultivation are important for investigation. Accordingly, the overall objective of the present study was to assess the relative profitability of growing BRRI Dhan51 and BR11 rice. The present study had the following specific objectives:

1. To assess the socio-economic characteristics of the BRRI Dhan51 and BR11 producers;
2. To compare relative profitability of producing BRRI Dhan51 and BR11;
3. To explore the factors affecting adoption of BRRI Dhan51;
4. To formulate suggestions for future guidelines.

### METHODOLOGY

Due to limitation of time and resources, a small area with uniform topographical and ecological characteristics was considered. Keeping in view the objectives, the present study was conducted in one village, Dhorsana in Rangpur sadar upazila under Rangpur district. Survey method was applied to collect primary data for the study. For sampling, at first, a list of 60 respondents who produced BRRI Dhan51 and BR11 rice were prepared. Then from the list, 30 farmers of BRRI Dhan51 and 30 farmers of BR11 were selected randomly. The data were collected by the researcher himself during August to November, 2011. After that, data were analyzed by using tabular and econometric techniques. Farm business analytical techniques, such as enterprise costing and gross margin analysis were used for analysis of profitability; and finally, Cobb-Douglas production function (Gujarati, 1995) was used to examine the effects of the explanatory variables on the dependent variables, in the production of BRRI Dhan51 and BR11 rice.

**RESULTS AND DISCUSSION**

It is evident from Table 1 that 23 per cent of BRR1 Dhan51 farmers are illiterate, 20 per cent has primary education, 15 per cent has up to secondary education and only 2 per cent has above secondary level education. On the other hand, these percentages for BR11 growing farmers are 18, 32, 45 and 5 respectively. It was found that the percentage of illiterate farmers in the case of BRR1 Dhan51 growers was higher than that of BR11 growers.

**TABLE 1: EDUCATIONAL STATUS OF THE RESPONDENTS**

Categories	BRR1 Dhan51 farmers		BR11 farmers		All farmers	
	No.	%	No.	%	No.	%
Illiterate	7	23	4	13	11	18
Primary level	6	20	13	43	19	32
Secondary level	15	15	12	40	27	45
Above secondary level	2	2	1	4	3	5
Total	30	30	30	100	60	100

Source: Field Survey, 2010

Table 2 shows that, in the case of BRR1 Dhan51 growers, 84 per cent farmers are engaged in agriculture, 3 per cent in business and 13 per cent in service as their main occupation. In the case of BR11 growers, 67 per cent farmers are engaged in agriculture, 23 per cent in business and 10 percent engaged in service as their main occupation. The percentage of agriculture in the case of BR11 growers is less than that of BRR1 Dhan51 growers. It is observed that there is no major difference in occupational status of BRR1 Dhan51 growers and BR 11 growers.

**TABLE 2: OCCUPATIONAL STATUS OF SAMPLE FARMERS**

Occupation	BRR1 Dhan51 farmers		BR11 farmers		All farmers	
	Main	Subsidiary	Main	Subsidiary	Main	Subsidiary
Agriculture	25	5	20	7	45	12
Business	1	6	7	4	7	10
Service	4	2	3	2	7	4
Total	30	13	30	13	59	26

Source: Field Survey, 2010

The analysis of cost and return revealed that human labor was an important element for producing both types of rice production. On an average, per hectare human labor requirement was 145.04 man-days for BRR1 Dhan51 rice and in the case of BR11 rice cultivation, it was 143.67 man-days.

Total cost of labor was Tk. 37003.52 and Tk. 32201.24 for BRR1 Dhan51 and BR11 rice respectively. Power tiller was used for tillage operation and most farmers in the study area used this mechanical method and the costs were Tk. 6036.87 and Tk. 5742.29 for BRR1 Dhan51 and BR11 rice cultivation respectively. Per hectare total material input costs in producing BRR1 Dhan51 and BR11 rice were Tk. 51860.05 and Tk. 53741.64 respectively. The material inputs included costs of human labor, tillage operation, seeds/seedling, fertilizers and irrigation.

**TABLE 3: PER HECTARE PRODUCTION COSTS AND RETURNS OF BRR1 DHAN51 AND BR11**

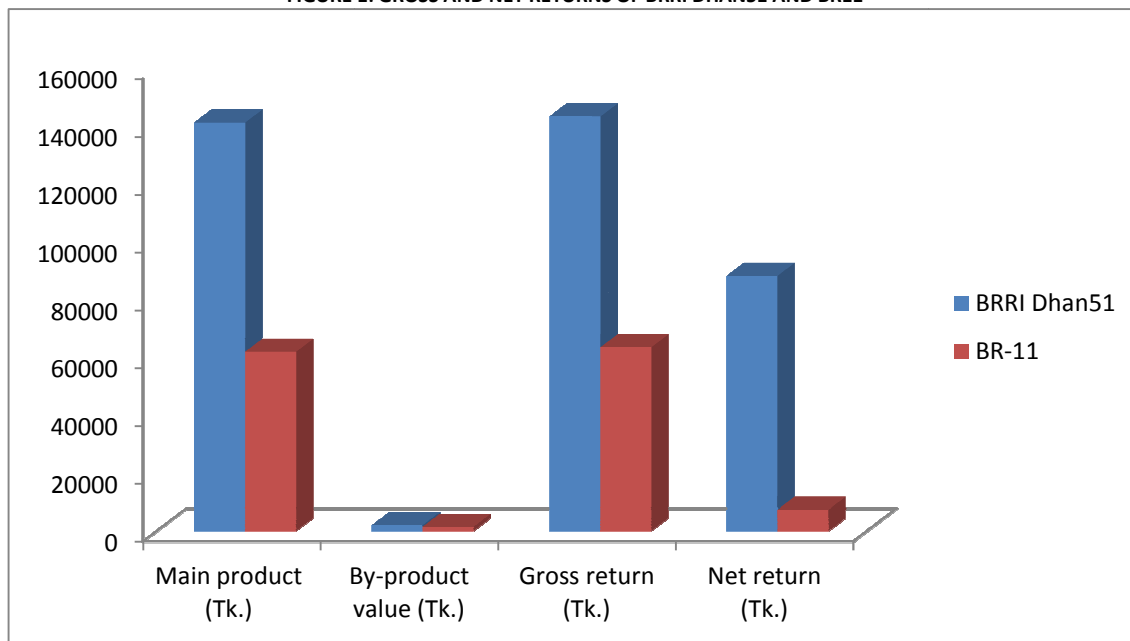
Items	Value (Tk.) for BRR1 Dhan51	Value (Tk.) for BR11
A. Gross Return	143488.27	63648.676
B. Variable cost		
Human labor	37003.52	32201.24
Power tiller	6036.87	5742.29
Irrigation	4814.01	4105.23
Seed	653.49	2084.3
Urea	2502.16	3298.21
TSP	-	4208.82
MP	-	1475.95
Miscellaneous cost	850.00	625.00
Total variable cost	51860.05	53741.64
C. Fixed cost		
Interest on operating capital	1152.16	915.15
Land rental cost	2093.00	1529.00
Total Fixed cost	3245.16	2444.15
D. Gross cost (B+C)	55105.21	56185.79
E. Gross margin (A-B)	91628.22	9907.036
F. Net Return (A-D)	88383.06	7462.89
G. Benefit Cost Ratio (A/D) ( undiscounted)	2.60	1.13

Source: Field survey, 2010

Per hectare irrigation cost in the study area were Tk. 4814.01 and Tk. 4105.23 for BRR1 Dhan51 and BR11 rice respectively. The findings of the study showed that the average yields of BRR1 Dhan51 and BR11 rice amounted to 5004.44 kg and 3235.53 kg per hectare respectively. In monetary terms, the respective values were Tk. 141425.47 and Tk. 62122.176. Thus the yield as well as the value of output per hectare for BRR1 Dhan51 was found substantially higher than that of BR11 rice. The gross return (including by-product) from BRR1 Dhan51 and BR11 rice was estimated at Tk. 143488.27 and Tk. 63648.676 respectively. The average net returns per hectare were found to be Tk. 88383.05 and Tk. 7462.89.



FIGURE 1: GROSS AND NET RETURNS OF BRRI DHAN51 AND BR11



In this study, the Cobb-Douglas production function model was used to determine the effects of some important inputs on value of output for BRRI Dhan51 and BR11 rice. The chosen explanatory variables were human labor, power tiller, seed, fertilizer, and irrigation. Findings from the log-log specification are measured in Table 4.

TABLE 4: COEFFICIENT AND RELATED STATISTICS OF C-D PRODUCTION FUNCTION OF BRRI DHAN51

Explanatory variable	BRRI Dhan51			BR11		
	Estimated co- efficient	Standard errors	T- value	Estimated co- efficient	Standard errors	T- value
Constant	3.285	0.621	5.282	1.480	0.724	2.044
Human labor cost (X <sub>1</sub> )	0.110**	0.052**	2.11	0.107**	0.043**	2.494
Seed cost (X <sub>2</sub> )	0.350**	0.150**	2.341	0.220**	0.086**	2.572
Fertilizer cost (X <sub>3</sub> )	0.202**	0.080**	2.541	0.103**	0.047**	2.173
Irrigation cost (X <sub>4</sub> )	0.040**	0.012**	3.152	0.028**	0.013**	2.052
Hiring of power tiller (X <sub>5</sub> )	0.215**	0.098**	2.207	0.173**	0.080**	2.14
R <sup>2</sup>	0.75			0.65		
Adjusted R <sup>2</sup>	0.65			0.50		
F-value	6.961			4.472		
Return to scale	0.92			0.63		

Source: Field Survey, 2010

Note: \* Significant at 1 percent level, \*\* Significant at 5 percent level and \*\*\* Significant at 10 percent level

The estimated Cobb-Douglas production function for BRRI Dhan51 was:

$$\ln Y_1 = 3.285 + 0.110 \ln X_1 + 0.350 \ln X_2 + 0.202 \ln X_3 + 0.043 \ln X_4 + 0.215 \ln X_5$$

Again the estimated production function for BR11 was:

$$\ln Y_2 = 1.480 + 0.107 \ln X_1 + 0.220 \ln X_2 + 0.103 \ln X_3 + 0.028 \ln X_4 + 0.173 \ln X_5$$

Estimated values of the relevant co-efficient revealed that among the included variables costs of human labor, seed, fertilizer and irrigation had significant impact on the output of both BRRI Dhan51 and BR11 rice production. The summation of the estimated coefficients was 0.92 and 0.63 respectively for BRRI Dhan51 and BR11, which implies diminishing returns to scale. The study also identified the problems and constraints in BRRI Dhan51 and BR11 rice production. Some major problems faced by the farmers were impure seed, seed collection, low germination rate, high price of seed, high price of fertilizer and insecticides, attack by insect, lack of marketing facilities and market information and dominance of intermediaries.

**FACTORS AFFECTING ADOPTION OF BRRI DHAN51**

There are many factors whose are adopted in the cultivation of aman rice in the month of September to December. Those factors that influencing the adoption BRRI Dhan51 are discussed below:

**SUBMERGENCE-RESISTANT VARIETY**

It is the tremendous invention of BRRI for the people of Bangladesh because about 20 percent of the rice land is flood prone and the country typically suffers several major floods each year. As water inundates rice field, BRRI Dhan51 helps rice plant remain metabolically inert for up to two to three weeks. BRRI Dhan51 can survive up to 10 days to complete submergence at vegetative stage. It matures within 130-134 days and grows as high as 75-85cm. To ensure food security amid threats of climate change, the submergence-tolerant varieties are a breakthrough.

**EARLY VARIETY**

Early variety is another factor for adopting BRRI Dhan51. As if the production of this variety is not hampered by the flood water and this is why, farmers preferred this variety. Before it's invention, farmers used to plant different aman varieties of rice at the end of the month of September- October. Now the situation is completely changed, because farmers were planting this early aman variety in the beginning of September and October.

**HIGHER YIELD**

It is a new variety. Its annual yield is much higher than that of any variety of aman seasons. For this reason farmers showed interest especially in the middle and eastern region of Bangladesh. It's per hectare yield is 4.5 to 5 ton per year.

**LESS FERTILIZER AND INSECTICIDES**

To cultivate this type of variety, the costs of fertilizer and insecticides are less than any other aman rice varieties.

**UTILIZATION OF LAND**

Before the release of flood tolerant variety BRRI Dhan51, most of the flood affected land of that area was become fallow. For this reason, it was quite difficult to cultivate more than two crops in a year. But after the coming of this variety, it is possible to cultivate three crops in the same land in different times. By using this rice variety it can be ensured proper utilization of land.

**WEED RESISTANCE**

The consequence of weed in this variety is comparatively less than that of any aman varieties and the consequence is lower cost of production and higher output.

**VARIETALS TRACKING**

To examine the varieties tracking system of BRRI Dhan51 and BR11 growing farmers, the varieties tracking system of the sample farmers was divided in to four categories. These are (i) (0 - 1) km (ii) (1.5- 2.5) km (iii) (3- 4.5) km and 5 km and above.

**TABLE 5: VARIETALS TRACKING OF BRRI DHAN51 AND BR11**

Distance	BRRI Dhan51 farmers		BR11 farmers		All farmers	
	No.	%	No.	%	No.	%
(0 - 1) km	2	6.67	5	16.67	7	11.67
(1.5- 2.5) km	5	16.67	7	23.33	12	20
(3- 4.5) km	7	23.33	15	50	22	36.67
5 km and above	16	53.33	3	10	19	31.67
Total	30	100	30	100	60	100

Source: Field survey, 2010

Table 5 shows that in the study area, 53.33 percent BRRI Dhan51 rice producers got their seed from that place for whom distance was 5 km and above from their house. About Twenty three percent farmers got seed from distance of (3- 4.5) km, 16.67 percent got seed from distances of (1.5- 2.5) km, and 6.67 percent from distances of (0 - 1) km. On the other hand these percentages for BR11 growing farmers are 11.67, 20, 36.67 and 31.67 respectively. Farmers are very much interested to receive this BRRI Dhan51 seed to grow in their land. They collected seed from long distance and with very high price. So it is clear that BRRI Dhan51 is rapidly spreading in the study region.

**CONCLUSION AND RECOMMENDATIONS**

From the results of the present study, it could be concluded that during flood time in the study area, farmers did not get expected returns as well as profit from the cultivation cost. Farmers usually used to produce BR11 as commonly named MUKTA rice which production was good but did not have flood tolerance. On the other hand, BRRI Dhan51 has brought a new era to the rice producers in the study area which had the capability to survive from flood water. After submerging even 10-15 days, its production did not fluctuate. Farmers got their expected results, could utilize their land property and the risk is comparatively lower than any other *aman* varieties. In the study area, BRRI Dhan51 rice variety is much popular and it should spread all over the country which will increase our national production in *aman* season as well as ensure our food security. Bangladesh is a small country with a large population, so to feed the huge population and to ensure proper utilization of land, producing BRRI Dhan51 rice could be the best option in *aman* season.

It could be noticed from the result that BRRI Dhan51 was found more profitable than BR11 variety with respect to yield, net return, gross return and time factor. The following recommendations are made on the basis of the present study:

- (i) Government and non-government research institutions should strengthen their human resources for BRRI Dhan51 rice research and seed production.
- (ii) In the production of BRRI Dhan51, seed costs should be decreased and the supply of seeds should be increased. So that farmers will be capable to produce BRRI Dhan51 rice.
- (iii) The price of fertilizer and pesticides should be regulated strictly by the government.
- (iv) Government may provide short term training programme on production system of BRRI Dhan51.

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**REFERENCES**

1. BBS (2009). Statistical Year Book of Bangladesh, Bangladesh Bureau of Statistics, Ministry in Planning, Government of the Peoples Republic of Bangladesh, Dhaka.
2. BRRI (1997). Bangladesh Rice Research Institute Serving The Nation, Publication No.119, Bangladesh Rice Research Institute, Joydebpur, Gazipur, Bangladesh.
3. Chowdhury, M. R. I. (1997). Agronomic Parameters of some selected Rice varieties/mutants as Affected by method of Transplanting in Boro season. An M.S. Thesis submitted to the Department of Agronomy, Bangladesh Agricultural University, Mymensingh.
4. Dey, P. K and Mustafi, B. A. A (2001). Economic returns to investment on BR 11 variety of rice in T.Aman season, Agricultural Economics Division, Bangladesh Rice Research Institute, Gazipur, Bangladesh.
5. Dey, P. K and Mustafi, B. A. A (2001). Economic returns to investment on BR11 variety of rice in T.Aman season. Agricultural Economics Division, Bangladesh Rice Research Institute, Gazipur, Bangladesh.
6. Gujarati, D.N. (1995) Basic Econometrics, 3<sup>rd</sup> edn. McGraw Hill Inc, New York.
7. IRRI Rice Almanac. (2006). Published by International Rice Research Institute, Manila. Philippine.
8. Jabbar, M. A. and Alam, M. S. (1993). Adoption of modern Rice varieties in Bangladesh. Bangladesh Journal of Agril. Econ. 16(2), p. 77-95
9. Khan, K.; Islam, M. N. and Rahman, M. M. (1999). Study on yield performance of some newly released Boro rice varieties under farmers condition at FSRD site, Palima of Tangail districts. BRRI, Joydebpur, Gazipur.
10. Mustafi, B. A. A. and Jabber A. M (2005). Scenario of Modern Rice Cultivation in Bangladesh. Agricultural Economics Division, Bangladesh Rice Research Institute, Gazipur, Bangladesh.

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