Cost Benefit analysis of Black Rice Cultivation in Padumani Development Block of Golaghat District of Assam, India

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Abstract
Rice one of the most common staple foods in many parts of India. The addition of black rice to cultivation is opening prospects of entrepreneurship to many farmers and generating employment opportunity. The study is focused in determining the cost benefit ratio for the paddy production as well as rice production. The study is conducted in Padumani development block of Golaghat district which is mainly dependent on agriculture. The snowball sampling method is used in the study to collect data from the respondents. A structured schedule has been prepared to collect data from the targeted respondents. The cost benefit ratio is more than one for paddy as well as rice cultivation. Thus signifying that cultivation can be profitable is was able to cover the cost incurred. The profitability from the sales proceeds is satisfying. The growers earn profit of an average of Rs. 43 and Rs. 90.32 from the sale proceeds of paddy and rice respectively.

Keywords: Black rice, Employment, CBR, Profitability.

1. Introduction
Rice has been one of the prime staple foods in Asia for a longer period of time. Since people started plantation and started living in permanent settlement. But when we say this we mean to the commonly prevalent white rice. Black rice is the name of various range of rice that belongs to Oryza Sativa L. species. This species of rice grows best in tropical zones like Japan, Korea, Myanmar, china and north east India. The two most popular varieties of black rice found in market are Thai jasmine black rice and Indonesian black rice. As people are becoming more health conscious, the demand for the food having low calories, cholesterol, sugar free is becoming much demanded commodity as a staple food. The consumption of rice has been resulted with rates of cancer and cardiovascular disease in Asia. The high content of antioxidant in the black rice is resulting to become more popular. Black rice has a pigment bran fraction. Sometimes this extracts are used as a natural coloring agent in liquor, bread. Consuming black rice has many health benefits like it helps to fight cancer, weight loss, prevents diabetics.

2. Literature Review
Kumar. N et.al.1 Conducted study on “Economic analysis of cost and return for basmati rice cultivation in Jammu district of J&K state” the researcher used structured schedule to collect data from farmers who were stratified into marginal, small, medium and large farms. The researcher found out the cost benefit ratio to be more than one for the four strata thus concluding the farming to be a profitable one.

Agarwal P.K et.al.2 Studied “Economic Analysis of Cost and Return Structure of Paddy Cultivation under Traditional and Sri Method: A Comparative Study” the researcher have conducted a comparative study in Jharkhand between tradition method and SRI method of paddy cultivation. The researcher concluded that SRI
method is more profitable as compared to traditional method. The CBR is higher for SRI method and it is found to be 1.37.

Poramacom. N. carried out study on “Rice Production, Prices and Related Policy in Thailand” the objectives were to compare farmer’s perception regarding various schemes and to calculate the return from that period. He found out that price transmission in case of white rice was more efficient than from jasmine rice.

Md Masum. F. Conducted study on “Economics of Boro Rice Production in Rangpur District of Bangladesh: Comparative Assessment of Urea Super Granule and Traditional Urea Application” he tries to do comparison between profitability of boro rice using traditional urea and urea super granule in Rangpur, Bangladesh. He selected 60 farmers for the study and from the analysis of the responses he found out that both the urea super granule and traditional urea gave cost benefit ratio is more than 1. Urea super granule is having CBR ratio of 1.5. He further added that government should motivate farmers for adopting urea super granule in boro rice production.

Cheamuangphan.A. Studied “Cost and Benefit Analysis of Rice Production between Transplanting and Direct Seeded Method for Rice in Upper Northern Region” the researcher aims to examine rice production and aims at reducing inputs used by farmers for rice transplanting. Budgeted procedure was used for the study. He finds those farmers are using many avoidable production procedures. Production was correlated with net results in the same direction.

Thanuja.P & Singh.N.K “An economic analysis of cost and returns of coffee production in Kodagu district of Karnataka” the researcher focuses on two categories of farmers, large and small land holders. Researcher used multistage sampling for his research. Out of his research he found that the return of large land holding farmer have more return as compared to smaller ones due to low establishment cost.

3. Rationale
The study will be important to paddy growers, as it will help them in determining how much would be the fixed and variable cost per acre and out of that how much they can derive the financial benefits. It will help them in determining the point of no profit-no loss, so that they can plan accordingly. The minimum land on which they should plant to derive profit from it will be known before hand to the growers. As the demand for the black rice is rising it can prove to be a promising opportunity

4. Objectives of the Study
- To determine the Cost benefit ratio of black rice production.
- To determine per bigha total cost of black rice production.
- To determine per bigha total revenue of black rice production.
- To determine net profit per kg of black rice production.

5. Methodology
The area of study is Padumani development block of Golaghat. It is a district and a town in upper Assam. The district is a harmonious place surrounded by large and small tea garden. The word ‘Gola’ means shop and ‘Ghat’ means a place where ferry arrives and departs. It is an administrative district in the state of Assam. In 1987 it obtains its district status. Golaghat share its boundary with Nagaland in south, Brahmaputra River in north, in east it is surrounded by Jorhat and in west it is surrounded by Nagaon. The world heritage site Kaziranga National Park famous for one horned rhinoceros is also here. It is 274 km away from Guwahati. The district has a total area of 3502 Sq. km and it is about 1000 meter above sea level. The economy of Golaghat is mostly dependent on agriculture products like Rice and Tea and vegetables.

5.1 Population of the Study
The population of the study is infinite. As the number of growers are not unknown or unregistered. They are doing farming on their individual level. So all the growers of black paddy in Padumani development block has been taken as the universe of the study.
5.2 Sample size
As the population of the black paddy growers are not known. So the researcher has taken 20 growers as a sample size, due to time factors and monetary constrains.

5.3 Sampling method
Snowball sampling method is used for the study. As the growers of black paddy is scattered in various place of the block and unavailability of any reliable data about growers. The researcher has chosen this method to collect data from the growers.

5.4 Data Collection
For the study data has been collected from both primary and secondary sources. Data from the primary sources is collected directly from targeted respondents of the selected areas through Schedule. A structured schedule has been framed keeping in mind the objectives of the study. Necessary care has been taken to collect reliable and authentic information for the purpose of study. Secondary sources of data collected from books, journals, periodicals, magazines. The data collected is in absolute terms. Only quantitative value has been taken into the study. The value of all the components related to the study is taken at market price. Historical das has not been considered in the study.

6. Cost components and analysis

<table>
<thead>
<tr>
<th>Particulars (for paddy)</th>
<th>Amount in Rs.</th>
<th>Particulars (for rice)</th>
<th>Amount in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Revenue</td>
<td>700</td>
<td>Land Revenue</td>
<td>700</td>
</tr>
<tr>
<td>Machinery/Tools</td>
<td>300</td>
<td>Machinery/Tools</td>
<td>300</td>
</tr>
<tr>
<td>Cost of land preparation for seed beds &amp; seeds</td>
<td>2,600</td>
<td>Cost of land preparation for seed beds &amp; seeds</td>
<td>2,600</td>
</tr>
<tr>
<td>Cost of ploughing</td>
<td>1,680</td>
<td>Cost of ploughing</td>
<td>1,680</td>
</tr>
<tr>
<td>Cost of transplanting and sowing charges</td>
<td>570</td>
<td>Cost of transplanting and sowing charges</td>
<td>570</td>
</tr>
<tr>
<td>Workers feeding charge</td>
<td>500</td>
<td>Workers feeding charge</td>
<td>500</td>
</tr>
<tr>
<td>Fertilizer/pesticides</td>
<td>510</td>
<td>Fertilizer/pesticides</td>
<td>510</td>
</tr>
<tr>
<td>Fencing cost</td>
<td>1,800</td>
<td>Fencing cost</td>
<td>1,800</td>
</tr>
<tr>
<td>Harvesting</td>
<td>1,500</td>
<td>Harvesting</td>
<td>1,500</td>
</tr>
<tr>
<td>Carrying cost</td>
<td>650</td>
<td>Carrying cost</td>
<td>650</td>
</tr>
<tr>
<td>Threshing</td>
<td>1,500</td>
<td>Threshing</td>
<td>1,500</td>
</tr>
<tr>
<td>Jute bags</td>
<td>300</td>
<td>Jute bags</td>
<td>300</td>
</tr>
<tr>
<td>Husking</td>
<td></td>
<td>Husking</td>
<td>337</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td>Transportation</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,610</strong></td>
<td><strong>Total</strong></td>
<td><strong>13,047</strong></td>
</tr>
</tbody>
</table>

Source: Field Survey

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Total output in Kg</th>
<th>Selling price in Kg</th>
<th>Total revenue</th>
<th>Total cost per bigha</th>
<th>Cost per kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>225</td>
<td>100</td>
<td>22,500</td>
<td>12,610</td>
<td>56.04</td>
</tr>
<tr>
<td>Rice</td>
<td>125</td>
<td>195</td>
<td>24,375</td>
<td>13,047</td>
<td>104.38</td>
</tr>
</tbody>
</table>

Source: Field Survey
6.1 Cost Benefit Ratio
The prime focus of this study is on the cost benefit analysis of black rice cultivation. The researcher has applied the formula of cost benefit analysis. Cost benefit ratio is an indicator whether the project is acceptable or not. The higher the CBR the better is for the investment. Therefore all the project with a CBR higher than 1 are acceptable investment. The outcome so derived from the field survey is as follows:

Cost Benefit Ratio = \frac{Total\ Revenue\ per\ Bigha}{Total\ Cost\ per\ Bigha}

a. CBR for paddy = \frac{22,500}{12,610} = 1.78

b. CBR for rice = \frac{24,375}{13,047} = 1.87

6.2 Profits on Sale
It is used to determine the gross profit on sale, symbolically it is written as:

Profit on Sale/Kg = Selling price – TC/Kg

a. Profit on sale of per kg paddy = 100 – 56.04 = Rs. 43.96

b. Profit on sale of rice = 195 – 104.38 = Rs. 90.32

7. Result and Discussion
The cost benefit ratio for the production of black paddy is 1.78 and for rice is 1.87. For both paddy and rice the cost benefit ratio is more than 1. Which mean for both the cases the cultivation decision is favorable and if the farmer is selling rice then he will be able to earn more than selling paddy.
The total cost for cultivating black paddy in one bigha of land is Rs. 12,610 and for cultivating black rice per bigha is Rs. 13,047. So the farmers have to spend total annual average of Rs. 12,610 for starting black rice cultivation.
The average total revenue which a farmer generates from sales proceeds of one bigha land is around Rs. 22,500 from paddy and Rs. 24,375 from rice.
By selling one kilogram of black paddy farmers are able to earn Rs.43.96 and from black rice is Rs. 90.32 per kg. From the revenue earned per kg it can be said that they are earning a good sum of money.
The growers are carrying black rice cultivation not on commercial basis they are cultivating to meet their needs and if the production is exceeded the cultivation limit then they use to sell in the local market.
All the targeted respondents are dependent upon rain and monsoon. None of the respondents are having any irrigation facility.
The economies of scale can meet if the cultivators start cultivation of black rice on commercial basis, thus it will reduce their cost upto a certain extent and will improve their profitability.

8. Conclusion
Black rice which demands is increasing day by day due to its superior benefits. The farmers can respond to the needed demand for black rice in the market if they move from tradition rice cultivation variety to black rice in their plot of cultivated land. The CBR analysis shows that it is profitable decision to start black rice cultivation.
The CBR for paddy and rice 1.78 and 1.87 respectively. They can start cultivation on a bigha of land by an average total expenditure of Rs. 12,610. The farmers are able to earn around Rs. 90 per kg as profit from sale proceeds. It has a great potential for export in neighboring country as it near the national border of the country.
Overall it can be said that in the studied region black rice cultivation can be said as a profitable decision.
References


