

Profitability Analysis of Aromatic Rice Production—A Study on the Unique Rice Variety in Assam

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ABSTARCT:

The state of Assam is blessed with a unique variety of aromatic rice called Joha rice. However, at present times the production of this indigenous variety has reduced to a great extent. As such, the objective of the study is to analyse whether production of Kola Joha is a profitable investment. In order to show the relationship between cost and return and thereby the viability of investing in production of Kola Joha rice, the researcher has also found it relevant to study the Benefit Cost Ratio (BCR) and Break Even Point (BEP) analysis. The researcher has conducted Snowball Sampling Method and could approach 20 farmers from the Kakopathar block of Tinsukia District, Assam, who were extensively engaged in production and selling of Kola Joha. The survey results indicate a profit margin of Rs.5 per kg and Rs 4343.75 per acre respectively, whereas the BCR value turned out to be 1.38 making it a good acceptable investment to the farmers. The BEP analysis revealed that a farmer will be in a state of equilibrium, if he undergoes production at 313kgs per acre of land. The overall survey analysis thereby indicates a viable and profitable investment to the farmers, encouraging them to take up production of the same.

KEYWORDS: profitability analysis, BCR, BEP, aromatic rice, Kola Joha rice, Assam.

1. INTRODUCTION

Assam is particularly richest among the NE states in rice germplasm. Among the various rice cultivars grown, it is the home to a unique variety of aromatic rice under winter rice traditionally known as Joha rice. The Joha rice cultivars are known for its unique aroma, superfine kernel, good cooking qualities, excellent palatability and taste. Kola Joha, Kunkuni Joha/ Kon Joha, Mugi Joha, Krishna Joha, Rampal Joha and Gobindbhog are widely grown cultivars in the state. Keteki Joha is the first HYV developed by Assam Agricultural University with high yield potential and aroma. This class of Joha was released in 1994 bearing a cultivation period of 160 days and having a yield capacity of approx 16 quintals per acre (40 quintals per hectare). However, among all the varieties Kola Joha is most aromatic and in high demand among the local population of the state. But, at present times the cultivation of variety has reduced to a great extend owing to its huge cost and low yield discouraging many farmers to shift towards a higher yield rice variety

As such, the objective of the study is to analyse the profitability position of Kola Joha cultivation. In order to show the relationship between cost and return and

thereby the viability of investing in production of Kola Joha rice, the researcher has also found it relevant to

study the Benefit Cost Ratio (BCR) and Break Even Point (BEP) analysis.



Figure 1: Showing Kola Joha rice cultivation in the study area.



Figure 2: A close view of Kola Joha grains.

METHODOLOGY

There are three sub-divisions under Tinsukia district which are namely Tinsukia, Margherita & Sadia. However, the researcher has decided to take Sadia sub-division as it is the main Joha rice producing area of the relevant district under study. The researcher has conducted *Snowball Sampling Method and could approach 20 farmers*, who were extensively engaged in production and selling of Joha rice. Snowball sampling method served the purpose of the study

due to the following two reasons- Firstly, there are a lot many farmers extensively engaged in rice cultivation but farmers engaged in Joha rice cultivation were few in numbers. Moreover there is no list of such registered farmers and the total numbers are uncertain. Secondly, among the Joha rice cultivars only those farmers were taken into study who were extensively engaged in production as well as sell of Joha rice. The data included the cost components mainly land preparation, raising nursery, tractor cost/bullock cost,

transplanting, pesticides, land revenue, harvesting etc. Information on revenue components include only revenue earned from selling of Joha rice. The sample size used was quite logical because the areas were homogeneous in terms of land conditions, cropping pattern, geography, farming activities, general infrastructure, cost involved and the revenue earned.

The return from cultivation is based on per acre yield of Joha grain computed on the basis of quintals and the amount so received while selling the same is the return per acre received by the farmers respectively.

A) Profitability Analysis:

Kola Joha has the lowest yield at 3.5 quintals per Bigha among the varieties grown in the study area. For the convenience of the researcher per bigha yield has been converted into per acre yields (i.e. 1 acre=2.5 bigha). The analysis followed by the interpretation is done taking into account the survey results of the sample farmers.

Total cost (F.C+V.C) incurred per acre = Rs. 11406.25

S.P. of 1 quintal Kola Joha rice = Rs. 1800,

S.P. of 3.5 quintals per Bigha = Rs. 6300,

Per acre of land, thus have a yield of 875kg sold at Rs.15750.

Profit per acre = Rs.15750 – Rs.11406.25 = Rs.4343.75 per acre

Cost per kg = Rs.11406.25 ÷ 875 kg = Rs.13 per kg.

S.P. per kg = Rs. 15750 ÷ 875kg = Rs. 18 per kg

Profit per kg = Rs.5 per kg.

Profitability position of an investment is determined by subtracting the Total Cost involved from the Selling Price. The results indicate that production of Kola Joha rice contributes a profit of Rs 5 per kg to the farmers and Rs 4343.75 per acre respectively.

B) Benefit-Cost ratio:

The study emphasises mainly on the profitability analysis of cultivating Kola Joha Rice, as such the researcher has found it mandatory to study BCR. BCR is an profitability index that attempts to summarize the viability of an investment. The higher the BCR, the better the investment. Therefore all projects with a BCR greater than 1 are good acceptable investments. The results so derived from the field survey is as follows:

$$\text{BCR for Joha Rice} = \frac{\text{Total Revenue per acre}}{\text{Total cost per acre}}$$

Return per acre = Price of one quintal grain × Yield per bigha × per acre of land.

Per acre of land is the size of land holdings which consist of 2.5 bigha area respectively i.e. **1 acre = 2.5 bigha**. While computing the cost and return in Joha Rice cultivation, calculations are done on the basis of per acre as per the convenience of the researcher.

RESULTS AND INTERPRETATION

The statistical quantitative used for the purpose of studying cost, return and profit of Kola Joha Rice cultivation is discussed in detail below:

$$\text{BCR of Kola Joha} = \frac{15750}{11406.25} = 1.38 > 1$$

The BCR value of Kola Joha turns out to be 1.38 which is more than 1. It indicates that it is a viable investment for the farmers and will provide him good returns over cost incurred.

C) Breakeven Analysis:

Breakeven Analysis is a principle based on the classification of the operating cost into fixed and variable. Fixed costs are those operating cost which remains fixed irrespective of the changes in production of Kola Joha rice and variable costs are those operating cost which vary with the changes in the type and production of the same. In order to ascertain the relationship between cost, volume and profit it is desirable to compute the following concepts:

i) Contribution: Contribution helps to find out the profitability of a product, department or division. It is represented as follows:

$$\text{Contribution} = \text{Selling price} - \text{Variable cost, or}$$

$$\text{Contribution} = \text{Fixed Cost} + \text{Profit}$$

ii) Profit-Volume Ratio: PV ratio is another important ratio which studies the profitability of operations of a business and establishes the relationship between contribution and sales. It is represented as:

$$\text{PV ratio} = \frac{\text{Total Contribution}}{\text{Total sales}} \times 100 \text{ or,}$$

$$F.C + \frac{\text{Profit}}{\text{Sales}} \text{ or,}$$

$$\text{Sales} - \frac{\text{Variable cost}}{\text{Sales}}$$

iii) Break Even point:

A business is said to breakeven when its total sales are equal to total costs. It is a point of no profit no loss. At this point, Contribution equals the fixed cost and hence this point is often called as 'Critical point' or 'Equilibrium point'. B.E.P. is computed as follows:

$$\text{B.E.P (units)} = \frac{\text{Total Fixed Cost}}{\text{Contribution per unit}}$$

iv) Margin of Safety:

Margin of safety is the difference between the actual sales and the sales at BEP. Thus the formula is represented as:

$$\text{Margin of Safety} = \text{Actual Sales} - \text{Break Even Sales}$$

The size of the margin of safety is an important indicator of the strength of business. The larger margin of safety indicates that the business is sound and even if there is a substantial fall in sales, there will be some profit.

The analysis followed by interpretation is based on the surveyed results of sample farmers. The result is shown as follows:

Kola Joha:

$$\text{Contribution} = \text{Rs } (18-10.27) = \text{Rs. } 7.73$$

$$\begin{aligned} \text{PV Ratio} &= \frac{\text{Total contribution}}{\text{Total sales}} \times 100 \\ &= \frac{6763}{15750} \times 100 \\ &= 42.93 \end{aligned}$$

$$\begin{aligned} \text{B.E.P (units)} &= \frac{\text{Fixed cost}}{\text{Contribution}} \\ &= \frac{2419.25}{7.73} \\ &= 312.9 \approx 313 \text{ units.} \end{aligned}$$

Upto 313units, Total V.C.	= 313 × 10.27	= Rs.3214.51
(+)Total F.C.		= Rs.2419.25
Total Cost		<u>Rs.5633.76</u>

Total Cost at 313 units = Rs. 5633.76 ≈ Rs.5634

Sales @ Rs.18 × 313 units = Rs. 5634

Margin of Safety = Rs. (15750– 5634) = Rs.10116.

Interpretation:

From the above analysis, it is found that the farmer producing Kola Joha attains B.E.P at 313 units, which is 36% of the capacity sales. At this point of output, total cost and total sales stands at Rs.5634. As such, it can be interpreted that if the farmer produces 313 units (in kgs) of Kola Joha, he will be in a state of no profit no loss point i.e. he will attain the Equilibrium point where total cost equals total sales. Here, the margin of safety turns out to be good at Rs.10116.

CONCLUSION

The survey analysis overall signifies that cultivation of Kola Joha rice is a profitable investment. The BCR value turned out to be greater than one, indicating a good acceptable investment. The BEP analysis indicates that the equilibrium level of output is at 313 kgs per acre, where a farmer will be in a state of no profit no loss. There is a dire need to increase the level of awareness of Joha rice farmers and the would-be Joha rice farmers about the profitability of the project through adequate extension services and education in this regard. This

is in terms of timely provision of production facilities, financial support and inputs such as improved and certified seeds, organic fertilizers, agro-chemicals, and proper market incentives that will also encourage farmers to produce this indigenous and unique rice variety of Assam

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ACKNOWLEDGEMENT

I, the undersigned, hereby declare that this paper “Profitability analysis of Aromatic rice production—A study on the unique rice variety in Assam” is written and submitted and is my original work. In preparing this report, I have attempted

with utmost care to give a faithful and accurate presentation of my study report based on collected data. The outcome or empirical findings in the dissertation are based on the data collected by me, and I have not copied from any research report submitted by anyone to any university anywhere earlier.