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**Talukdar Bidyasagar**  
 Master Research Fellow  
 (Agricultural Economics & Farm  
 Management) Biswanath College  
 of Agriculture, AAU, Jorhat,  
 Assam, India

**Baruah Utpal**  
 Master Research Fellow  
 (Agricultural Economics & Farm  
 Management) Biswanath College  
 of Agriculture, AAU, Jorhat,  
 Assam, India

**Barman RN**  
 Professor and Head (Agricultural  
 Economics & Farm Management)  
 Biswanath College of  
 Agriculture, AAU, Assam, India

**Rajbongshi P**  
 Farm Manager, Krishi Vigyan  
 Kendra, Dhubri, AAU,  
 Bilasipara, Assam, India

**Correspondence**  
**Rajbongshi P**  
 Farm Manager, Krishi Vigyan  
 Kendra, Dhubri, AAU,  
 Bilasipara, Assam, India

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### Factor influencing marketing of winter rice (Sali rice) in the Nalbari district of Assam (India)

Talukdar Bidyasagar, Baruah Utpal, Barman RN and Rajbongshi P

#### Abstract

The present study was carried out in the Nalbari district of Assam to analyze marketing of rice. Both marketing and constraints related important factors were studied. The Nalbari district was selected purposively for the study as the district is a predominantly rice growing district and also from the points of convenience and acquaintance of the researcher. A Multistage Stratified Random Sampling technique was used to select the ultimate sample units i.e., the rice growing farmers from six selected villages of two development blocks, viz. Tihu and Borigog-Banbhag. In total 120 rice growers were selected randomly for the study. The Cobb-Douglass functional form was used to analyze the influence of various factors towards rice marketing. Also marketing constraints were identified and ranked. In the rice marketing handling, assembling, and transportation, storage and percentage loss affected the rice marketing process badly. The major constraints identified regarding marketing of rice in the study area were unsatisfactory price offered to the producer, unstable price, involvement of superfluous middleman, inadequate storage facility in rural areas and unavailability of good road network. The study indicated that major thrust should be given on, good road network for better transportation, dissemination of new technology, assured input supply and strong marketing support like storage structure, processing facilities in rural areas.

**Keywords:** cobb-douglass functional form, producer, unstable price, superfluous middleman, dissemination of new technology

#### 1. Introduction

At present, rice (*Oryza sativa*) occupies about two-third of the total cropped area in Assam. Being the major contributor towards agricultural GDP, where the stock of food-grains (Rice and Wheat) was 43.5 million tonnes as on December 01, 2016 compared to 50.5 million tonnes as on December 01, 2015 vis-à-vis the buffer stock norm of 30.77 million tonnes as on October 01, 2015 (Economic Survey 2016-17). Rice plays a significant role in the state economy. Further, its importance in the consumption basket the average monthly consumption per capita is about 13kg (Barah *et al*, 2009) [2] also speaks volumes on the rice orientation of the state. Another specialty is that rice is traditionally-grown throughout the year viz. winter, autumn and summer seasons, with winter (Kharif) rice as the main crop. Rice is the major food crop in Assam as well as in the country. The crop accounts for nearly 41 percent of the total area under production (Barah *et al*, 2009) [2] in India and around 20 percent in total world rice contribution. As per economic survey of Assam 2014-15 the paddy cultivation, during the year 2013-14 occupies 89.0 percent of the net cropped area and 60.0 percent of the gross cropped area in the state. Assam is one of the seven states of northeast India, which is located between 260°N and 5805°N latitudes and 91007°E and 91047°E longitudes. Wide variation of physiographic features and climatic characteristics have resulted three distinct growing seasons of rice viz., *ahu* (Feb /March - June /July), *Sali* (June/July - Nov /December) and *boro* (Nov /December -May /June). Rice production in Assam plays an important role because rice is a staple food for Assam. So the production pattern and trend must be ascertained to identify the constraints associated with rice production. There are many threats related with rice production like continuous use of traditional varieties due to the non-availability of seeds, farmer's lack of awareness about high yielding varieties, Poor adoption of improved crop production technology etc. As per Economic Survey of Assam in 2014 rice production in Assam was 2101 kg/ha that was promising but the state need to produce more for exporting rice to improve the state economy.

## 2. Methodology

In this present research work on Factor influencing marketing of winter rice (sali rice) in the Nalbari district of Assam (India), we were used to study following objectives:

To Study the factors influencing marketing of Sali rice and identify the constraints associated with rice marketing with below mentioned methodology-

### 2.1 Factor Influencing Production of Rice

The Cobb-Dougllass functional form was used to analyze the influence of various factors towards rice marketing. In 1928, Charles Cobb and Paul Douglas presented the view that production output is the result of the amount of labour and physical capital invested. This analysis produced a calculation that is still in use today, largely because of its accuracy.

The Cobb-Douglas production function reflects the relationships between its inputs - namely physical capital and labour - and the amount of output produced. It's a means for calculating the impact of changes in the inputs, the relevant efficiencies, and the yields of a production activity. Here's the basic form of the Cobb-Douglas production function:

$$Q(L, K) = A * L^{\beta} * K^{\alpha}$$

To find out the influence of different factors on the marketing of rice a regression analysis was done to draw inferences on data. All the values are written in monetary terms (rupees). The regression equation is given below.

$$Y = a H^{b1} AS^{b2} S^{b3} T^{b4} MF^{b5} PL^{b6}$$

Where,

Y=the value (in Rs) of out put

a= Slope coefficient

bi= Slope coefficient of associate variables, where, i=1 to 6

H= Handling

AS= Assembling

S= Storage

T= Transportation

MF= Market fees

PL= Percentage loss

### 2.2 Constraints associated with marketing of rice

To find out the constraints associated with production and marketing of rice, perception of different stakeholders were

listed and ranked. Marketing constraints were identified and ranked. The ranks were arranged in descending order.

Formula is given below

$$\text{Rank} = X / 100$$

Where,

X=No of respondent to a particular constraint

Y=Total no of respondents

## 3. Discussion and Results

### 3.1 Factors influencing marketing of rice

The Cobb-Douglas function was used to estimate the elasticity of factors of rice marketing. The functional form used is as follows.

$$Y = a H^{b1} AS^{b2} S^{b3} T^{b4} MF^{b5} PL^{b6}$$

Where, Y,H,AS,S,T,MF,PL are the values (in Rs.) of total marketing cost handling, assembling, storage, transportation, market fees and percentage lose. The intercept has been denoted by 'a' and 'bi' is the slope coefficient of the associated variable, where i = 1...6. All the values were converted into monetary term in per ton basis. Linear regression model was used after converting the value of variables into natural log. The coefficient multiple determinations (R2) was found to be 0.990 which indicated that the 99.0 percent variation in the dependent variable was described by the 48 explanatory variables included in the model. It was found that handling, assembling, storage, transportation and percentage loss cost had significant (P value < 0.01) contribution to total marketing cost of rice in the Nalbari district while cost of market fees was not found to be significant contributing towards total marketing cost of rice, where S.B. Rudra (2012) [4] found in his studies that The result revealed that the marketing cost, wholesale price of rice, retail prices of rice, and market information to the farmer significantly influence the marketing margin. Reduction in the transportation cost, improving the market information system, and improving the role of farmer in price determination help reduce the marketing margin. The market fees was found to be negatively contributing factor but not significant. The detail of contribution of different factors of marketing to the total marketing cost is presented in the (Table 1)

**Table 1:** Factors Influencing Marketing Cost Of Rice

Variables	Coefficients	Standard Error	t Stat	P-value
Intercept	2.242781487	0.168734507	13.29177726	7.59794E-250
Handling	0.147067690	0.052035263	2.826308208	0.005569908*
Assembling	0.164319471	0.045142323	3.640031361	0.000412642*
Storage	0.239894595	0.063885888	3.755048314	0.000275575*
Transportation	0.293063337	0.078342377	3.740802183	0.000289839*
Market fees	0.018327298	0.026136570	0.701212803	0.484611766
% Lose	0.094113097	0.030471519	3.088559433	0.002531455*
F	5.200*			
Multiple R	0.995			
R <sup>2</sup>	0.990			
Adjusted R <sup>2</sup>	0.990			

\*significant at 1%, \*\* significant at 5%

### 3.2 Constraints associated with marketing of rice

The study revealed that in case of marginal farmer's majority of the farmers reported that because of superfluous middleman, the net margin of the producer decreases which lead to low net income. The presence of superfluous middleman is ranked 1st as it was reported by 91 percent of

respondents in the study area followed by poor transportation. Because the farmers who wanted to sell their crop at markets, had to bear the transportation and other costs and due to increased prices of fuel and rented vehicle they had to bear high cost of transporting the produce from farm gate to the markets located at urban areas. In case of small farmers, it is

observed that like the marginal farmers existence of superfluous middleman lead to decrease in net margin of the producer. This problem was ranked at number 1st as it was mentioned by 96 percent respondents in the study area followed by unsatisfactory price offered to the producer and unstable price. Because they got low price from the commission agents to whom they were compelled to sale their produce. These small farmers because of their poor financial condition generally try to avoid transportation and other cost while marketing their produce. In case of medium farmers, inadequate storage facility was the major constraint in the district. In the rural areas it is observed that there was no government storage facility in the study area and as a result the farmers were facing severe problem to store their rice produce. In order to protect the marketable surplus of rice from various postharvest losses they had no other option but to sell the produce as early as possible. For the medium farmers inadequate storage facility was the 1st major problem in marketing of rice This problem was raised by 86.66 percent respondents in the study area followed by unavailability of good road network, where *S.B.Rudra* (2012) <sup>[4]</sup> also found in his study that reduction in the transportation cost improving the market information system help to reduce the marketing margin. In case of large farmers it is observed that due to heavy marketable surplus the processing and storage facility of rice had become a major problem and was ranked 1st and 2nd major problems in the study area. Most of the large farmers used rubber huller which produced poor quality milled rice, which did not fetch actual price according to the market demand. There was no govt. storage facility available in the study area and as a result the farmers were facing problems of storage. In order to protect the crop from various postharvest losses they had 77 no other option but to sell the produce as early as possible. This problem was raised by 80 percent respondents of the study area.

#### 4. Conclusion

In the rice marketing handling, assembling, and transportation, storage and percentage loss affected the marketing process badly. In total six number of marketing channels were identified in the district and of which channel-6 (producer-processor-retailer-consumer) was found to be more efficient as indicated value of Modified Marketing Efficiency, where Win Pa Pa SOE *et al* (2015) also found in his study that the rice farmers generally have channels selling to the brokers or commission men who come and collect at the farm gate, the collectors or traders at the farm gate, and selling directly to the rice mills nearby towns. The study highlighted that major thrust should be given on particularly to large farmers, development of irrigation, good road network for better transportation, dissemination of new technology, assured input supply and strong marketing support like storage infrastructure, processing facilities in rural areas. The officials in the State Agriculture Department and the scientists of Agricultural University need to work in tandem to ensure that the rice production technology reach the farmer at the grass roots. Unless provision for farm power is developed agriculture cannot develop and the scientists should go for location specific and need based solutions.

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