



Value Addition Assessment of Rice Production in Anambra East Agricultural Zone of Anambra State

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Authors' contributions

The work is a collaborative work between all the authors. All authors read and approved the final manuscript.

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ABSTRACT

This study assessed the extent to which values are added to rice and how profitable rice becomes when value is added to it through processing in Anambra-East Agricultural zone of Anambra State Nigeria. A multi-stage random sampling technique was used to sample 90 respondents. Results showed that majority of the farmers were males, aged 41-50 years engaged fully in value addition in rice production and processing. This indicated that the younger youths were rarely found in the business, majority of the farmers stopped at primary level of Education and their mean years of experience was 20. The gross margin for paddy production was N175, 000, while the gross margin for milled rice is N290, 000 and the benefit cost ratio for paddy production is 2.4 while that of milled rice is 2.2. The most serious problems confronting rice farmers in the zone were disease and pest infestation, lack of access to land, inadequate irrigation, inadequate extension agents, poor access to institutional credits. Bad rural road network, the inadequacy of modern storage and processing facilities and poor/low level of education. It is therefore recommended that farmers should be encouraged to participate actively in farmers/social organizations and cooperative societies in order to strengthen their group action. Efforts should be made to provide adequate input to the farmers to eschew competitiveness among inputs used. Government should therefore put effort towards establishing microfinance and agricultural banks in some of the rice producing areas. This institutions should have low interest rate and low collateral.

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1. INTRODUCTION

Rice (*Oryza sativa*) is a staple food in many countries of Africa and other parts of the world. This is the most important staple food for about half of the human race (Imolehum and Wada [1]).

According to United State Agency for international Development (USAID [2]), Nigeria rice sub sector is dominated by weak and insufficient producer-market linkage due to poor infrastructure and limited efficiency of distribution network which has resulted to low productivity and participation of farmers in the rice field. In order to reduce the rate of rice importation, Saka and Lawal [3] were of the opinion that disseminating improved varieties and other modern inputs as a composite package to rice farmers is very important. Nwite, Igwe and Waka/Suki [4] indicated that the adoption of technologies and improved management practices should lead to substantial yield increase in rice production. Adoption of an innovation within a social system takes place through its adoption by individuals or groups. In view of this, Negash [5] defined adoption as the integration of an innovation into farmer's normal farming activities over an extended period of time. Moreso, adoption is not a permanent behaviour, this implies that an individual may decide to discontinue the use of an innovation for a variety of personal, institutional, and social reasons, one of which might be the availability of another practice that is better in safety farmer's needs. Therefore, value addition in the production and processing of rice implies all the activities, processes or strategies and distributions of rice which in one way or the other contributes to benefit/utility maximization (Akinbile [6]).

Hence, assessment of value addition in rice production explores the activities, processes or strategies of operation carried out in the production, processing, packaging and distribution of rice which contribute to the maximization of profit or utility derived from rice.

2. METHODS

The study area for this research was Anambra State. The state is bounded by Delta State to the

West, Imo state to the South, Enugu state to the East and Kogi State to the North.

Anambra State comprised of 21 Local Government Area and is occupied by the Igbo ethnic group who by nature are farmers, fishermen, craftsmen and traders. The major rice producing areas in the State are Anambra East and West, Orumba North and South, Aroka North and Ayamelum Local Government Area. Farmers in Anambra State cultivate the following rice varieties 14:16, BG, Rbox, FARO – 40.42 and FARO – 44 Rice varieties. Multistage sampling technique was used for this study. In the first stage 1 zone out of the four zones was purposively selected due to their popularity in rice production and these include Anambra zone.

In the second stage one block from the selected zone was purposively selected for this study. Here, Anambra East block was selected. This selection was due to their massive production of rice. In the third stage, 3 circles each from the block were purposively selected based on their popularity in rice production which included, Igbariam, Agulu, and Nando. This gave a total of 3 circles. In the fourth stage, 30 rice farmers were selected from the list of information using random sampling techniques which gave a total sample size of 90 respondents. Primary data were collected from personal observation, oral and written questionnaire relevant to the research topic. The data on the cost and returns to rice processors were collected from processors and marketers of rice. Secondly data were collected from related journals and textbooks, objectives were analyzed using descriptive statistics, gross margin and likert mean score.

3. RESULTS AND DISCUSSION

Table 1 shows gross margin analysis of one hectare of rice production of the rice farmers in Anambra State.

An entry in the table reveal that total rice production costs per ha was N 125,000 while total production and processing costs was N235,000. Table 1 also revealed that the average total revenue from paddy sale per ha is N300,000 while the total revenue from milled form was N 525,000.

The findings imply that rice farmers realized more income from selling their produce in milled form than in paddy form.

Table 1 further revealed that farmers made gross margin of N175,000 from paddy sale while in milled form, the farmers made gross margin of N290,000. This implies that rice farmers made profit in selling their rice in both paddy and milled

forms. Also, further analysis in the same table indicates that benefit/cost ratio (BCR) per ha of paddy production was 2.4 while the BCR for milled rice production were 2.2, this means that for every Naira invested in paddy and milled rice production, the farmer realizes N 2.4 and N 2.2. This implies that selling rice in paddy form is more cost effective than milled form.

Table 1. Using Gross margin analysis for assessment of profitability of value addition per hectare of rice in Anambra State

Operation/items	Unit	Quantity	Unit Price	Total value
Paddy production cost				
Planting material				
	Kg/basin			14,000
Rent on land	Hectare	1	22,500	22,500
Purchase of systemic herbicides	Litre	2	1,000	2,000
Purchase of contact herbicides	Litre	2	2,500	5,000
Purchase of urea bag	Bag/kg	1	6000	6,000
Purchase of insecticide	Litre	1	1500	1,500
Rice nursery establishment	Hectare	4	750	3,000
Land preparation	Hectare/manday	1	22,000	22,000
Mechanical or manual clearing, ploughing and harrowing seed rice broadcasting	Manday	1	2,500	2,500
Fertilizer application	Bag/kg	1	8,500	6,500
Bird scaring	Man-day	4	2500	10,000
Harvesting (cutting & Hectare gathering)/ panicle harvesting	Hectare	1	14,000	14,000
Harvesting (mechanical or manual threshing)	Hectare	1	16,000	16,000
Total production cost per hectare				125,000
Processing cost:	Bag/kg/hectare	1	20,000	20,000
Handling and transportation of produce				
Processing (rice parboiling)	Drum hectare	10	6000	60,000
Milling	Bushel	150	200	30,000
Total processing cost				110,000
Total production and processing cost per 1ha				235,000
Revenue from 1 hectare of rice:				
Total revenue from paddy rice	Bags/100 kg/ha	40	7500	300,000

Operation/items	Unit	Quantity	Unit Price	Total value
Paddy production cost				
Total revenue from milled rice	Bushel/5 kg	150	3500	525,000
Gross margin for paddy rice:				17,500
Gross margin for milled rice:				290,000
Benefit/Cost ratio for paddy production				2.4
Benefit/Cost ratio for milled rice production				2.2

Source: Field survey 2018

Total production cost per hectare = 125,000

Gross margin for production of paddy = total revenue – total variable cost

Gm = 300,000 – 125,000

Gm = 175,000

Total processing cost per hectare = 110,000

Gross margin for processing of paddy into milled form = total revenue – total variable cost

Gm = 400,000 – 110,000

Gm = 290,000

$$\text{Benefit cost ratio} = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

$$\text{BCR FOR PADY RICE} = \frac{300,000}{125,000} = 2.4$$

$$\text{BCR FOR MILLED RICE} = \frac{525,000}{110,000} = 4.7$$

4. CONCLUSION

With respect to the findings of this study, majority of the famers were middle aged and literate which shows that they will easily adopt value addition technologies. Majority of the famers were also males and have a good family size which is also an advantage for adoption of value addition in rice. It was also observed that majority of the famers belong to famers cooperatives which will enhance accessing information and credit facilities. It was also observed that there greatest impediment were poor access road, high cost of land acquisition, poor input supply, lack of extension agents for information. It is therefore recommended that government should assist in input supply, good access road and review of land laws. The bottle neck associated with institutional credits should be reduced especially for rice processors. More soil fertility management strategies should be addressed.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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