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EFFICIENCY OF GARRI MARKETING BY PRODUCERS IN OKPE LOCAL GOVERNMENT AREA OF DELTA STATE, NIGERIA

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Abstract

The study examined the marketing efficiency of garri producers in Okpe Local Government Area of Delta State, Nigeria using the Shepherd – Futrel approach. Deploying the Taro Yamane and Bowler's Proportional Allocation formulae, a sample of 120 garri producers was drawn from six (6) communities in the study area. Using well-structured questionnaires, data were collected and subjected to both descriptive and inferential analyses. The study revealed that garri marketing by producers is a profitable venture as indicated by a mean annual profit of ₦536,053.00. A return on investment (ROI) of 1.46 indicating that for every one naira invested in garri marketing, ₦146 is obtained as return was also observed. The study, however, revealed that garri marketing by producers in the study area is inefficient as denoted by the coefficient of marketing efficiency (CME) value of 40.67 % which is less than 50%. Among the constraints to garri marketing investigated, inadequate finance proved to be the most severe. It is therefore recommended among other measures that platforms for easy credit access by garri producers and marketers should be provided by government and other relevant stakeholders at reduced or no interest rates.

Keywords: Garri, Efficiency, Marketing, Producers, Shepherd-Futrel

Introduction

Cassava (*Manihot esculenta*) is a popular tropical crop grown in sub-Saharan Africa where daily consumption average one billion people (Eugene & Otim-Nape, 2012). In Nigeria, cassava is the most widely cultivated crop grown by almost every household most especially in the southern part of the country in terms of area devoted to it and number of farmers growing it. As noted by AfDB (2015), though Nigeria is acclaimed as one of the largest producers of cassava and cassava products in Africa, its production and processing is still predominantly local and mostly women dominated.

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As a food crop, cassava has some inherent characteristics which make it attractive, especially to smallholder farmers in Nigeria. Such characteristics include its richness in carbohydrates especially starch which makes it has a multiplicity of end uses. It is available all year round making it preferable to other crops for food security (Adebayo & Silberberger, 2020). The crop is more tolerant of low soil fertility and more resistant to drought, pests and diseases. More so, its roots can store for a considerable period underground after they mature. With these attributes and other socioeconomic considerations, IFAD has acclaimed cassava as lending itself to a commodity approach to poverty alleviation.

Traditionally, cassava roots are processed by various methods into numerous products and utilized in various ways according to local customs and preferences. Notable among these products are 'fufu', garri, 'abacha', starch and cassava flour. Ezedinma et al. (2005), as cited in Isitor et al., 2019) report that among the cassava products, garri is a major and most popular form into which cassava is processed and marketed in Nigeria.

According to Ogiehor (2004), as cited in Obekpa et al., (2022), garri is the most popular form in which cassava is consumed by several millions of people in the West Africa sub-region where it is a staple food in Nigeria and some other West African countries. Thus, cassava processing and marketing of its products (especially garri) have the potential of generating income to those involve in the distribution chain due to its general acceptability by many households. More so, garri is relatively cheap compared to other staples, hence it is easily affordable and accessible to consumers, thus contributing immensely to food security.

In recent time, many rural households have anchored their livelihood on garri processing and marketing due to its ease of marketability and consumption (Chukwuji et al., 2007, as cited in Ettah et al., 2019). It is mainly produced for domestic markets where the producers usually take the garri to local or urban markets for sale to consumers, or the retailers and wholesalers buy from the producers and then sell to final consumers.

Statement of problem

The marketing system for garri and other food staples has been known to be flawed with a lot of irregularities, particularly in rural communities of Nigeria. Despite laudable policies and initiatives to develop and improve cassava production and processing, strategies for combating the catalog of challenges to effective and efficient cassava products' marketing in Nigeria are yet to be fully incorporated by these initiatives.

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The persistent exploitative tendencies of the middlemen in the cassava products' marketing chain occasioned by inadequate storage system of the farmers continued unabated and has largely led to increased marketing costs and market inefficiency. (Isitor et al., 2019). A wider marketing margin has also been observed between garri producers and final consumers due to the large number of middlemen in the marketing chain leading to a great difference in the price paid by consumers at the retail end of the chain and the producers at the beginning of the chain.

Though studies abound on marketing efficiency of cassava products, most of these studies are tailored towards the wholesalers and retailers without any focus on the producers of these products. Hence this study is undertaken to fill this gap. It is hoped that the results of the study will in no small way increase the robustness of the body of literatures on marketing efficiency of cassava-based products.

Objectives of the study

The main objective of the study is to investigate the efficiency of garri marketing by producers in Okpe Local Government Area of Delta State. The specific objectives are to:

(i) describe the socio-economic characteristics of garri producers in the study area.
(ii) determine the costs and returns of garri producers in the study area.
(iii) assess the efficiency of garri marketing of producers in the study area.
(iv) examine the constraints to efficient garri marketing by producers in the study area.

Conceptual clarification

Marketing: Marketing is the process by which products flow through the system from producer to the final consumer. Specifically, marketing may be defined as the study of the physical and economic flow of products from the producers through intermediaries to the consumers (Downey & Trocke, 1987). It involves the many different activities that add value to a given product as it moves through the system. According to Enete (1999), agricultural marketing can be defined from both the micro and macro viewpoints. From the micro perspective, agricultural marketing can be defined as the performance of all business activities which direct the forward flow of goods and services to consumers in order to accomplish the producers' objectives. The macro viewpoint examines the total system of economic activities concerned with the flow of agricultural products from producers to final consumers; the kinds of institutions and the price making mechanism that guide those flows; the interactions among consumers, agribusiness firms, farmers, and even governments that determine the levels of expenditure, and the sharing of those expenditures as income to market participants.

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Marketing margin: Marketing margin is defined as the portion of the consumers' money that goes to marketing firms. A marketing margin according to Arene (2008) is the difference between the consumer price at the retail end of the market and what the farmer who produces the good received. Alternatively, a marketing margin can be defined as the price paid for the collection of marketing services rendered by marketing agencies in the marketing of farm products.

Marketing efficiency: Marketing efficiency according to Kotler (2004) is often used in evaluating the performance of the marketing process. It is simply defined as the ratio of market output (satisfaction) to marketing input (cost of resources). An increase in ratio represents improved efficiency and vice-versa. Thus, efficient marketing is the maximization of the ratio of the inputs of marketing (Arene, 2008). Assessment of marketing efficiency may be considered from the following perspectives:

i. Technical or physical or operational efficiency which pertains to the cost of performing a marketing function such as storage, processing, handling, e. t. c. Efficiency is increased when the cost of performing a function per unit of output is reduced.
ii. Economic (or pricing) efficiency which is concerned with how to obtain a given level of output or services at the least possible cost. Although consumer satisfaction cannot be quantified, the best yardstick of consumer satisfaction with the marketing process is making available to the buyer what he or she can pay for on the market. Thus, marketing efficiency refers to the structural characteristics of the marketing system, when the sellers are able to get the true value of their produce and the consumers receive true worth of their money.

Review of Literature

Obasi and Emenam (2014) carried out a study on the marketing performance of onions in Ikwuano and Umuahia Local Government Area, Abia state. The results of the ordinary least square regression analysis revealed that transportation cost, volume of sales, credit amount and household size were significant variables influencing efficiency of onion marketing. Also, Akerele (2010), conducted a study on the marketing analysis of garri processing in Yewa North Local Government Area, Ogun state. The study revealed that garri marketing is a profitable venture and that if resources are efficiently utilized could bring about the much needed boost in garri processing. The study recommends among other measures that the authority of each government should provide some basic amenities to improve efficient garri marketing.

More so, Nduka and Udah (2015) investigated the nature of marketing and determinants of net returns to garri marketers using descriptive statistics and ordinary least square regression

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technique. The regression results revealed that cost of garri purchased and transport cost constitute significant determinants of net returns to garri. Among the recommendations on the basis of the study are the provisions of basic infrastructural facilities and formation of viable cooperative societies by the marketers.

Ugwumba (2009) assessed the efficiency of fresh maize marketing and effects of socio-economic and demographic factors on marketing margin in Anambra state. Empirical results showed an overall marketing efficiency coefficient of 0.56 or 56% which is less than 100% and hence an indication of inefficiency. Furthermore, Isitor et al. (2019) examined the efficiency of garri marketing in Kwara state, Nigeria employing descriptive statistics, budgetary technique and multiple regression analysis. The regression analysis results showed that level of experience in garri marketing and respondents' membership and participation in cooperatives constitute positive and statistically significant determinants of garri profitability (market margin). A marketing efficiency coefficient of 1.12 which is greater than 1, indicating efficiency in garri marketing in the study area was also revealed.

Similarly, Obekpa et al. (2022) conducted a study on marketing analysis of garri among wholesalers in three selected markets in Kaduna metropolis. The results revealed that the entire market margin was all low implying that garri wholesalers in the study area have a fair share of the profit margin. Also, the coefficient of marketing efficiency across the three markets was < 100% indicating that there was a lot of inefficiency in garri marketing among wholesalers in the study area.

In a related study, Esiobu et al. (2023) carried out a study to determine whether farmers derive returns from cassava production in Imo state. The results revealed a positive net farm return and return per capital invested of ₦288,503.33 ($693.82) and ₦3.64 ($0.0088) respectively, indicating that for every naira earned as revenue from cassava production enterprise, 3.55 kobo is returned to the farmer as net farm income.

Egware and Alakiri (2023) investigated the determinants of profitability of fresh catfish marketing in Uvwie local government area of Delta state using the multiple linear regression model, budgetary analysis and Shepherd-Futrel model. The results revealed that fresh catfish marketing is a lucrative venture with an average total revenue of ₦74,484.44 per day; a profit of ₦5,800 per day; a gross margin of ₦14,279.8 and a return on investment (ROI) of 0.084 indicating that for every one naira invested, ₦8.40 was obtained as returns. The regression analysis showed that educational level, marketing experience, selling price and sales volume

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impacted positively on fresh catfish marketing. The study also indicated that there was an efficient market performance among fresh catfish marketers.

Profitability analysis of crayfish marketing in south-south Nigeria was investigated by Esheya (2023) using gross margin and ordinary least square analytical techniques. The results revealed that crayfish marketers made a reasonable profit on sales while keeping overhead costs in control. The estimated regression equation showed that socioeconomic factors such as age, marketing experience, market levy, labour cost and shop rent had significant influences on gross margin. Major constraints identified to be militating against crayfish marketing were unstable prices, high cost of crayfish, too many middlemen, scarcity of fish, transportation and inadequate storage facilities.

Furthermore, Danladi et al. (2023) investigated the profitability and socioeconomic factors in marketing of African star apple (*Chrysophyllum albidum*) in Maiduguri metropolis of Borno state, Nigeria using the gross margin analysis and ordinary least square as analytical techniques. The results revealed that marketing of African star apple was profitable for both wholesalers and retailers with a margin of ₦500/basket and ₦2,180/basket respectively. The study also revealed that marital status, marketing experience, educational level and distance to market influenced positively the marketing of African star apple while age was found to have a negative influence.

Significance of the Study

The fact that garri production is a major source of income to majority of rural farmers implies that efficient marketing can boost garri producers' revenue thereby improving their living standard, translating into meaningful economic growth in Nigeria. Cassava is a major food security crop in most developing nations. Hence the study is of great significant as efficient garri marketing will promote stability in supply and availability of garri, thereby improving food security.

More so, the study is intended to contribute to the poverty reduction strategy of the Nigerian government as efficient garri marketing can boost the income of the producers thereby alleviating their poverty and promoting their overall wellbeing. Efficient garri marketing by producers could place the nation in a proper position to compete favourably with other nations in the global garri market. Above all, findings from the study are intended to guide policy decisions by government in terms of interventions towards boosting garri production in Nigeria.

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Methodology

The study was conducted in Okpe Local Government Area of Delta state, Nigeria. The inhabitants of the area are predominantly farmers cultivating mainly cassava as a major crop. Thus, the area is dominated by garri producers as garri is the major product into which the bulk of cassava tubers produced in the area is processed.

Six (6) communities where there is intensive garri production, and hence marketing activities were purposively selected for the study. The communities are: Oha, Okuodiete, Oviri-Okpe, Uwagba, Adagbrassa and Okwabude. With the assistance of the communities indigenes, a total population of 200 garri producers was generated. The Taro Yamane formula was applied to generate a sample size of 130 garri producers at 95% confidence interval and 5% error margin. Furthermore, the Bowler's Proportional Allocation formula was deployed to arrive at the number of respondents in each community as follows: Oha (26); Okuodiete (20); Oviri-Okpe (26); Uwagba (26); Adagbrassa (13) and Okwabude (29) respectively.

Research Instrument

Primary data were used for the study and obtained through the administration of well-structured questionnaires tagged efficiency of garri marketing by producers in Okpe LGA (EGMPOLGA) questionnaires. The questionnaire was validated by experts in the field of Agricultural Marketing. To ascertain the reliability of the research instrument, a test re-test method was used which involves administering the instrument to 20 garri producers who were not part of the study twice. Pearson Correlation technique was used to correlate the scores which yielded a coefficient of 0.74, implying that the research instrument was reliable. About 92.3% response by respondents was recorded as 120 questionnaires were successfully retrieved which were used for data analysis.

Method of Data Analysis

Data were analyzed using descriptive statistics such as percentages and frequency distribution to describe the socioeconomic characteristics of the garri producers/marketers. Responses on the constraints to garri marketing by producers in the study area were measured on a four-point Likert scale of strongly agreed (4), agreed (3), disagreed (2) and strongly disagreed (1) with 2.50 as cut-off point. The budgetary technique involving cost and return analysis was used to determine the costs and returns of garri producers in the study area. The marketing efficiency was determined using the Shepherd Futrel model which according to Arene (2008) is the total estimated cost incurred by marketing agencies and producers combined divided by the total value of products sold and expressed in percentage term. The model is specified as follows:

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$$CME = \frac{TC}{TR} \times 100 \quad \ldots\ldots (1)$$

Where

CME = Coefficient of marketing efficiency

TC = Total cost (₦)

TR = Total revenue (₦) (Price/kg x Quantity of garri sold).

Decision rule: CME ≥ 50% is considered efficient and < 50% not efficient (Tijani et al., 2014).

The budgetary model may be specified as follows:

MM = TR – TC …….... (2)

Where

TR – Total revenue (₦) (price/50 kg x quantity sold).

TC – Total cost (₦) (comprises costs of both variable and fixed cost items).

MM – Marketing margin (₦) (which is the proxy for profitability).

Result and Discussion

Socio-economic characteristics of garri producers

The socio-economic characteristics of garri producers in the study area are shown in table 1.

Table 1. Socio-economic characteristics of garri producers in the study area.

Variables	Frequency (n = 120)	Percentage (%)
Gender		
Male	26	21.67
Female	94	78.33
Age (Years)		
< 21	2	1.67
21 – 30	7	5.83
31 – 40	27	22.50
41- 50	29	24.17
>50	55	45.83
Marital status		
Single	15	12.50
Married	94	78.33
Divorced	4	3.33
Widowed	5	4.17
Separated	2	1.67
Household size (no. of persons)		
<5	28	23.33
5 – 10	82	68.33
>10	10	8.33

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Variables	Frequency (n = 120)	Percentage (%)
Garri marketing experience	8	6.67
(no. of years)	32	26.67
1 – 5	56	46.67
6 – 10	24	20.00
11 – 15		
Above 15		
Sources of finance*		
Personal savings	110	74.83
Gift from relatives/friends	4	2.72
Loans from friends/relatives	None	-
Cooperatives	25	17.01
Microfinance banks	8	5.44
No. of bags of garri (50kg/year)		
<20	3	2.50
20 – 29	39	32.50
40 – 59	37	30.83
60 – 79	17	14.17
80 – 99	6	5.00
100 and above	18	15.00

*Multiple responses recorded for some respondents.
Source: Field survey, 2023.

The result in table 1 above shows that garri production and marketing is a female dominated venture in the study area as majority of the respondents (about 94 %) were females. The age of the respondents (as well as experience) is a major determinant that can influence their efficiency level and overall coping ability within the garri marketing business. This applies to the study group as most of the respondents have over 10 years of experience in garri marketing (about 93.34 %). The result on age indicates that majority of the garri producers/marketers are within the age range of 21 – 50 years (52.5 %) with 45.83 % above 50 years. This implies that most respondents in the study area are in their youthful ages and very much in form for effective marketing activities and hence, develop better management skills and marketing strategies over time. This is in line with the studies of Isitor et al. (2019) and Danladi et al. (2023). Majority of the respondents (about 78.33 %) are married implying that garri production/marketing in the study area is a business enterprise of married persons who are perceived to be responsible according to societal standard (Olukunle, 2016). Also, nearly all the respondents (about 99.16 %) had one form of formal education or the other with most of them (about 50 %) at the secondary level and about 25.83 % at the tertiary level. This debunked the claim that most garri producers especially in the rural areas are illiterates. The high level of literacy observed is

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expected to influence the extent of proficiency of the garri producers in discharging their marketing activities. This corroborate the findings of Girei et al. (2014).

More so, a relatively large household size is observed in the study area as majority of the respondents (about 76.66 %) have household size ranging between 5 and 10 persons. Studies by Nwaru (2006) and Okolo (2007) cited in Isitor et al. (2019) have revealed that large family size may imply more supply of labour hence reducing money spent to hire labour. This finding, thus, support the results of Simpa and Okino (2014) who in their study reported that large household size is a proxy to labour availability, ensure easy allocation of resources and reduce the cost of hired labour. Furthermore, majority of the respondents (about 74.83 %) fund their garri production business from personal savings with just about 22.45 % accessing credits from cooperatives and microfinance banks. This implies that access to credit by garri producers is still very low in the study area. This refuted the findings of Esiobu et al. (2023) whose findings revealed that majority of cassava farmers have access to credit facilities through the cooperative society to which they belong to boost their production, productivity and relative efficiency. Table 1 also revealed that the quantity of garri produced in terms of number of 50 kg bags annually is relatively low. About 63.33 % of the respondents produced between 37 and 39 bags/year while about 15 % produced about 100 bags and above. This implies that garri production in the study area is still very much on a small scale. Thus, more still need to be done to boost garri production in the study area.

Cost and Return of Garri Producers in the Study Area

The estimated cost and return analysis of garri producers and marketing in the study area is as shown in table 2 below.

Table 2. Estimated cost and return analysis of garri producers/marketing in the study area

Items	Mean Amount (₦)	Percentage (%)
Variable costs		
Grating	84540.00	24.85
Palm oil	44497.08	13.08
Firewood	59304.79	17.43
Labour	30950.00	9.10
Transportation	15317.50	4.50
Storage	4379.17	1.29
Chemicals (herbicides)	72616.67	21.34
Shop rent	28658.33	8.42

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Items	Mean Amount (₦)	Percentage (%)
TVC	340263.54	100.00
Fixed costs		
Frying Pan	6298.75	23.19
Sacks	2790.13	10.27
Sieves	1533.75	5.65
Kiln	2898.00	10.67
Cutlasses	1982.00	7.30
Knapsack sprayers	3720.00	13.70
Wheel barrow	7938.75	29.23
Total Fixed Cost (TFC)	27161.38	
Total Cost (TVC + TFC)	367424.92	
Total Revenue	903477.92	
Marketing margin (Profit)	536053.00	
Gross margin	563214.38	
Return on Investment (ROI)	1.46	

NB: Depreciation of fixed cost items computed using 30% annual depreciation rate.
Source: Field survey, 2023.

The analysis in table 2 revealed an average annual total revenue of ₦903,477.92, mean profit of ₦536,053 and an average annual gross margin of ₦563,214.38. The findings also showed that the contribution of the fixed cost was relatively low compared to the variable costs incurred in the marketing process. The fixed costs accounted for approximately 7.39 % of the total costs involved in garri production/marketing in the study area. This supports the findings of Akinbola and Ikuemonisan (2021) and Kolapo et al. (2021) that fixed costs often represent the least cost incurred in cassava production in Nigeria. The gross margin analysis, thus, revealed that garri production and marketing by producers is a profitable venture in the study area. The return on investment (ROI) was found to be 1.46 indicating that for every one naira invested ₦146 is obtained as returns. This further buttress the finding that garri production/marketing is a worthwhile venture in the study area.

Marketing Efficiency (ME) of Garri Marketing by Producers in Okpe Local Government Area of Delta State.

In order to ascertain the maximization of the ratio of output to input in garri marketing by producers in the study area, the marketing efficiency was estimated using the Shepherd-Futrel model. The result is as shown in table 3.

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Table 3. Estimation of marketing efficiency of garri marketing by producers

Variables	$\bar{X}$ Value in ₦/annum per producer 50 kg bag
Total cost (a)	367,424.92
Total revenue (b)	903,477.92
Marketing margin (profit) (b – a)	536,053.00
Marketing efficiency ($^{a}/_{b} \times 100$)	40.67 %

Source: Field survey, 2023.

The result indicated that there is a lot of inefficiency in garri marketing among producers in the study area as revealed by the coefficient of marketing efficiency (CME) of 40.67 % which is less than 50 %. This low marketing coefficient may be attributed to the inability of garri producers in the area to effectively carry out the various marketing functions which could have otherwise helped to strengthen their marketing efficiency. Similar findings of low marketing efficiency in garri processing and marketing have been reported by Chukwuji et al. (2007) as cited in Ettah et al. (2020).

Constraints faced by Producers in Garri Marketing in the Study Area

Table 4 showed the constraints faced by producers in garri marketing in the study area.

Table 4. Constraints faced by producers in garri marketing

S/N	Constraints	SA	A	D	SD	N	$\bar{X}$	Rank
1.	Lack of market information	22 (88)	77 (231)	12 (24)	9 (9)	120	2.93	7th
2.	Price fluctuation/instability	68 (272)	38 (114)	11 (22)	3 (3)	120	3.43	2nd
3.	High processing cost	7 (28)	75 (225)	35 (70)	3 (3)	120	2.72	9th
4.	High transportation cost	25 (100)	84 (252)	9 (18)	2 (2)	120	3.10	6th
5.	Inadequate finance	99 (396)	18 (54)	2 (4)	1 (1)	120	3.79	1st
6.	Activities of middlemen	1 (4)	63 (189)	48 (96)	8 (8)	120	2.48	10th
7.	Low level of demand	26 (104)	53 (159)	33 (66)	8 (8)	120	2.81	8th
8.	Low pricing by buyers	66 (264)	36 (108)	13 (26)	5 (5)	120	3.36	4th

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S/N	Constraints	SA	A	D	SD	N	$\bar{X}$	Rank
9.	High storage cost	0 (0)	37 (111)	60 (120)	23 (23)	120	2.12	12th
10.	Short post-harvest storage life of fresh cassava tubers.	55 (220)	58 (174)	5 (10)	2 (2)	120	3.38	3rd
11.	High labour cost	24 (96)	90 (270)	6 (12)	0 (0)	120	3.15	5th
12.	Low supply	7 (28)	50 (150)	33 (66)	30 (30)	120	2.28	11th

Decision rule: $\bar{X} \geq 2.50$ is accepted as a constraint and $\bar{X} < 2.50$ is rejected as a constraint.

Source: Field survey, 2023.

The analysis as shown in table 4 above revealed that with the exception of activities of middlemen, low supply and high storage costs, all other constraint items were accepted as constraints to garri marketing by producers in the study area with inadequate finance, price fluctuation, short post-harvest storage life of fresh cassava tubers, low pricing by buyers and high labour costs ranking 1st, 2nd, 3rd, 4th, and 5th respectively as most severe constraints. The results corroborated the findings of Isitor et al. (2019).

Conclusion and Recommendation

The study quantitatively examined the efficiency of garri marketing by producers in Okpe Local Government Area of Delta State, Nigeria. The study revealed that women constitute the bulk of garri producers in the study area and that it is a very lucrative and profitable venture. The study, however revealed some degree of inefficiency in garri marketing by the producers as shown by the coefficient of marketing efficiency of 40.67 %. Among the constraints to garri marketing by producers, inadequate finance was found to be the most severe in the study area. hgOn the basis of the study findings, the following recommendations are proffered:

Garri producers should be encouraged to organize themselves into cooperatives for easy mobilization of fund for their production activities, reduce transportation costs and to counter the exploitative tendencies of middlemen in the garri distribution chain.

The government and other relevant stakeholders should provide platforms in rural areas for easy access to short and medium-term credit by garri producers at little or no interest rates. Garri production inputs should be reasonably subsidized to reduce the cost of production of the garri producers.

As a profitable venture, youths (males and females) should be encouraged to go into garri production to become more self-reliant.

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