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Research Article

Analysis of Yam Marketing in Akoko North-East Local Government Area of Ondo State, Nigeria

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The study analysed the marketing of yam in Akoko North East Local Government Area of Ondo State. It specifically described the socio-economic characteristics of yam marketers and determined the marketing margin, marketing cost, markup, operational efficiency and the constraints faced by yam marketers in the area. Data used for the study were generated through the administration of structured questionnaire. A total of 90 respondents comprising of 30 yam wholesalers and 60 retailers, were randomly sampled from three purposively selected major yam markets. Data were analyzed using descriptive statistics, Concentration Ratio, Gini Coefficient and Operational Efficiency Model. The results showed variation in marketing cost, marketing margin, marketing profit, and markup for both wholesale and retail yam markets. Gini Coefficients of 0.307 and 0.307 were obtained for wholesaler and retailer respectively. This indicated high level of competition in the industry. Retailers were more operationally efficient than wholesalers, but wholesalers' marketing profit and markup were higher than that of retailers. Wholesalers complained of insecurity, price uncertainty, high cost of yam and, transportation cost. Also, high capital requirement is considered as a serious constraint, while retailers complained of high cost of yam, price uncertainty, capital intensity and insecurity as very serious constraints. Alleviating some of the challenges, would therefore lead to more efficiency in yam business, while improving on the welfare of yam marketers.

Keywords: yam, wholesaling, retailing, market structure, marketing performance

INTRODUCTION

Yam (Dioscorea spp) is an herbaceous vine that grows under tropical climates around the world. It is a tuberous root whose skin colour varies from dark brown to light pink (Huxley, 1992) with size varying from an average 2.5 kg to 5 kg (Kay, 1987) according to varieties and growing conditions. It is a starchy tuber rich in carbohydrates, with flesh colour ranging from white to purple, through yellow or pink (Huxley, 1992). According to FAO (2014), the world output of yam is estimated at 68.1 million tones on a total cultivated land area of 7.8 million ha, corresponding to an average yield of 8.8 t/ha. Nigeria is the largest producer of yams with about 45 million tonnes in 2014, representing 66 percent of world output.

According USDA Nutrient Database, Yam is an important source of nutrients. One hundred (100g) gram of yam contain 494kj of energy, 27.9g of carbohydrates and 4.1g of dietary fiber. Yam is also an important source of minerals (Potassium, Calcium, Phosphorous, Magnesium, etc.) and vitamins (Vitamins; C, B complex, folate.). It is characterized by low glycemic index (Atkinson *et al*., 2008) and constitutes one of the most readily available crop based healthy protein among the poor in tropical areas, most especially in Nigeria. Yam provides about 200 calories of energy per day per capita (Babaleye, 2003). In term of recipes, yam is eaten as roasted, fried, boiled, boiled and pounded; it can be cut and dried into chips and powdered, etc.

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There are several cultivars of yams according to different areas of the world, *D. rotundata Poir* and *D. Canyenensis Lam* are the most cultivated varieties in Nigeria, with *D. rotundata Poir* being the most preferred variety (Opara, 2003). In Nigeria, yam is cultivated in the guinea savannah and forest zone of the country besides cassava and maize. Major yams producing states include; Benue, Nasarawa, Niger, Oyo, Abia, Ekiti, Ondo, Taraba, FCT, Kaduna, Adamawa and Cross River States. Yam consumption spread across all the sphere of the country and therefore plays an important role in national food security, besides its cultural and spiritual role for the producing communities. Though produced essentially in the middle belt and South-Western zones of the country, it is traded to other parts of the country, especially, the far Northern States, and even exported to neighboring countries, like Niger Republic. The Federal Government of Nigeria, through the Federal Ministry of Agriculture and Rural Development is promoting its exports to more countries of the world, especially Europe and USA.

Yam is a bulky semi-perishable commodity, whose trade requires a strong transportation system, for it to be moved to distant urban centers and zones. In the rural markets of producing areas, yam occupies the position of "golden crop", as its seasonal production rhythms the market life, with all marketing activities attached to yam season. The presence of yam in the market determines the level of other activities in the market. Its marketing being the major source of cash and employment for majority of rural dwellers including farmers and other artisans and traders in the areas. Yam harvest season starts in most areas in August to reach a peak in November towards December, January and February.

In Nigeria, there is growing market gap between demand and supply as a result of fast growing population and unstable yearly supply. The situation is also aggravated by the lack of efficient marketing system, poor marketing performance and other inadequate storage facilities. Storage losses and marketing are major market challenges of yam business, besides corruption, bad roads, poor transportation system, and high cost of transport, price instability and poor of storage infrastructure in market places. In view of the current challenges it is therefore imperative to know how efficiently yam marketing is being performed in the study areas. The goal of an efficient marketing system being to ensuring low distribution cost, while guaranteeing better price to producer, which is also a way to sustain production.

The continuous increase in the demand for yam could be attributed to the value of the product and ever-increasing population resorting in product shortage and soaring market price. Other reasons could be due to production constraints such as root rot disease, scarcity of labour, inefficient marketing system and lack of capital (Izekor and Olumese, 2010). It is against this backdrop that this study analyzes the economics of yam marketing in the study area.

Statement of the research problem

Yam production and marketing play a significant role in the economy of Nigeria. Farmers frequently consider marketing as being their major challenge. However, while they are able to identify such problems as poor prices, market price instability, lack of transport and high post-harvest losses, traders and others cannot make investments in a climate of arbitrary government policy, poor roads, and increase in the cost of doing business, reduced return to farmers and increased prices to consumers. Adding to these, the growing problem of corruption that impacts negatively on agricultural marketing efficiency; increasing transaction costs for those actors in the marketing value chain. As a bulky agricultural commodity, wholesalers and retailers play an important role in yam marketing. These institutions perform functions including; assembling, storage, transportation, standardization, financing and risk bearing. The broad objective of the study is to assess the marketing of yam in Akoko North East Local Government Areas of Ondo State. Specifically, it: (i) determines the socio – economic characteristics of yam marketers; (ii) Analyzes the structure, conduct and performance of yam marketing; (iii) identifies the problems facing yam marketing in the study area.

METHODOLOGY

Study Area

The study was carried out in Akoko North-East Local Government Area of Ondo State, Nigeria. Its headquarters is in the town of Ikare, and has an area of 372km^{2}with a population of 175,409 (NPC, 2006). The estimated population of the study area using the annual projected growth rate of 2.8% for the year 2017 is 234,698 inhabitants. Ikare is located in Ondo North Senatorial district at about 100km from Akure, the State Capital. The climate of the area is Savannah type, with two seasons, with the wet season spanning from March to October while the dry season covers late October to March. Each of these seasons is characterized by the influence of the South Westerly wind from the equatorial rain belt (NIMET, 2013).

In Ondo State, yam is grown extensively for various uses. In Ikare, yam has become the main staple food where the tuber is either boiled and eaten directly or pounded to form a cherished delicacy called pounded yam ("Iyan"). To stress the cultural importance of the commodity, a popular "New-Yam" Festival in Ikare is celebrated every June 20th which is done for no other crop. The market of yam is also being handled by wholesalers and retailers.

Sample Size and Sampling Technique

For this study, Two-stage Random Sampling Technique was adopted to select the respondents. The first stage was the purposive selection of three main yam markets in the area. The second stage involved the selection of 10 yam wholesalers and 20 yam retailers respectively from each market, making a total of 30 wholesalers and 60 retailers for the study.

Data Collection

Primary and secondary sources of data were used to achieve the objectives of this study. The primary data collected include; quantity of yam bought, selling price of yam, loading and offloading charges, transportation cost, rent, market tax, depreciation and product losses.

Data analysis

Descriptive statistics such as arithmetic mean, standard deviation, frequency distribution and percentage were used for analysis.

Market Structure Analysis

This was done using the following approaches:
- **Concentration Ratio:** This parameter measures market structure using the ratio of the two, four and eight largest firm's sales to the total sales of all sampled as follows;

$CR_n = \sum_i^n s_i/S$
With n = 2; 4; and 8
s_i = i^{th} largest firm's sales
S = Total sales of all firms

- **Gini Coefficient:** The Gini Coefficient (GC) was used to determine the degree of competition or monopoly in the market. The model is specified as follow;
GC =1-∑XY

Where,

GC = Gini Coefficient
∑ = Summation
X = percentage distribution of sales
Y = cumulative percentage distribution of sales revenue

Market Conduct Analysis

This is one of the most important components of a comprehensive market behavior analysis. Market conduct analysis pave ways to assess competitors' strengths and weaknesses in market place and implement effective strategies to improve competitive advantage, assess the strengths and weaknesses and uncover the objectives and strategies in a given market segment.

Market Performance Analysis

a) **Marketing Margin**
MM = SP - BP

Where, MM = Marketing Margin
SP = selling price
BP = buying price

b) Marketing Profit (100 tubers)
Profit = MM - MC

Where,
MC = Marketing Cost = cost of transport, handling, marketing charges, tax, shop rent, loading and offloading costs.

Rate of return = $\frac{(MM-MC)x100}{BP \mp MC}$

c) Markup Analysis

Mark up = $\frac{(SP-BP)\ x\ 100}{SP}$

d) **Operational Efficiency (OE) Analysis**

$OE_i = \frac{sales}{MC}$ (Local efficiency)

OE = $\frac{OEi}{OE0}$ x 100 (Global efficiency)

OE_0 = Most locally efficient firm

RESULTS AND DISCUSSION

Social-Economic characteristics of the respondents

The Results in Table 1 revealed that yam marketers in all three markets visited were female. This showed that yam marketing seems solely a female business in the area, which confirms Oladapo *et al.* (2015) and Okoedo-Okojie and Okwuokenye (2016), but shows difference with (Okwuokenye and Onemolease (2011) and Bekun (2017) that reported mixed distribution in equal proportions in their various studies at Delta State, Nigeria and Bosso Local Government Area of Niger State, Nigeria. The relative sole distribution may be as a result of social barriers. The age distribution of respondents as presented in Table 1 indicates that 40% of wholesalers are between ages 51 and 60, while 41.7% of retailers are within the range of 41 to 50, meaning that most yam marketers in the study area are in their middle age. The average age was estimated at 50 years for wholesalers and 40 years for retailers. This result runs opposite to Hamidu *et al.* (2014) and Bekun (2017) that reported middle age to younger traders, in their respective areas.

It was revealed that 53.3% of wholesalers are married as against 66.7% for retailers. 13.3% and 18.3% were observed as single for both wholesalers and retailers respectively, while 33.3% of wholesaler and 15.0% of retailers are widows. The result shows that most of the

Table 1: Socio – economic Characteristics of yam marketers

Variable	Frequency		Proportion	
	Wholesalers	Retailers	Wholesalers	Retailer
Gender				
Male	0	0	0	0
Female	30	60	100	100
Age (years)				
20 - 30	04	11	13.2	18.4
31 – 40	02	11	6.6	18.4
41 – 50	09	25	30.0	41.7
51 – 60	12	09	40.0	15.1
61 – 70	03	04	10.0	6.7
Marital Status				
Married	16	40	53.3	66.7
Single	04	11	13.3	18.3
Widowed	10	09	33.3	15.0
Education qualification				
Primary	05	08	16.7	13.3
Secondary	09	21	30.0	35.0
Tertiary	00	02	0.00	03.3
Others	16	29	53.3	48.3
Household size				
1 – 5	14	02	46.7	03.4
6 – 10	16	30	53.3	50.0
11 – 15	00	28	00	46.6
Years of experience				
1 – 10	03	17	10.0	28.4
11 - 20	08	22	26.7	36.8
21 – 30	12	14	40.0	23.4
31—50	07	07	23.3	11.7
Use of labour				
Yes	24	35	80.0	58.3
No	06	25	20.0	41.7
Number of Shops				
1—2	26	59	86.7	98.3
3—4	04	01	13.3	1.7
Tuber lost per week				
0—5	16	53	53.3	88.4
6—10	13	07	43.4	11.7
11—20	01	00	03	00

Source: Data analysis, 2015

yam marketers in the study area are married and therefore yam marketing would serve as a means to meet the needs of the family. Table 1 also revealed that 53.3% of the wholesalers had non-formal education; 16.7% had primary education, while 30.0% had secondary education. For the retailers, 48.3% had non-formal education, while 13.3%, 35.6% and 3.3% had Primary education, Secondary school education and Tertiary education respectively. This result reveals that majority of yam marketers in the study area do not have formal education especially, wholesalers with high level of illiteracy.

In terms of household size, the results also indicate that 46.7% of wholesalers had household size of between 1 and 5 inhabitants, with 53.3% belonging to the household size of between 6 and 10 persons, while this is 3.4%, 50.0% and 46.6% respectively for retailers. The relative size of the household implies availability of labour which could be an opportunity for the yam business. The study further revealed that 10% of the wholesalers have been in the business for about 10years, whilst26.6% (11-20years), 40% (21-30 years) and the remaining 23.3% (31-50 years). On the other hand, 28.4% of the retailers have been in yam business for same 10years as the wholesalers. The wholesalers that are in the category of markets with experience of between 21 and 30 years accounted for 36.8%, while those marketers with experience of between21 and 30years and 31 to 50 years attracted 23.4% and 11.7% respectively. The average experience of wholesalers was determined at 21years while that of retailers was estimated at 11 years. This implies that the wholesalers had more experience than the retailers in the yam business. Likewise, results in Table1 indicates that 80% of the wholesalers employed hired

labour, while 20% did not, whilst58.3% of the retailers used labour to market yam against 41% who did not. This further demonstrates that the wholesalers used more of hired labour than the retailers. For shop ownership, 86.7% of the wholesalers owned a maximum of 2 shops to market their business, while 13.3% operates their yam marketing in 3 to 4 shops. On the other hand, 98.3% of the retailers employs a maximum of 2 shops as against a marginal value of 1.7% had 3 - 4 shops to trade yam. The reason for more than one shop is to improve sales and market share using location advantage. In terms of losses, the study revealed that 53.3 % of wholesalers lost about 5 tubers; 43.4% between 6 and 10 and 3.3% between 11 – 20 tubers. While on the side of the retailers, 88.4% of them lost about 5 tubers weekly, with those within the 6 to 10 tubers lost accounted for 11.7%. Most losses were as a result of improper storage.

Market Structure Analysis

Market Concentration

From the result presented in Table 2, the 2-firms concentration ratio for wholesalers showed 0.15%, while that of retailers was calculated at 0.089%. In the case of the 4-firms concentration ratio, the wholesalers had 0.257% while the retails showed 0.154%. The 8-firms ratio of 0.338% and 0.264% were estimated for wholesalers and retailers respectively. These results are indications of a competitive yam market both at wholesale and retail levels.

Table 2: Measure of concentration ratios of yam marketing in the study area

Concentration ratio	CR2	CR4	CR8
Wholesalers	0.15	0.257	0.338
Retailers	0.089	0.154	0.264

Source: Data analysis, 2015

Gini Coefficient Analysis

Table 3(a) and 3(b) show the Gini coefficient values for wholesalers and retailers of 0.3163 and 0.307 respectively. The results indicate high level of competition among yam marketers. These results agree with Ada-Okungbowa (2006) and Anuebunwa (2002) on yam marketing in Ondo and Abia States respectively; meaning there is high degree of competition in yam marketing in the study area. But this contradicts the findings of Reuben and Mshelia (2011) in Taraba State though and possibly due to location differences as they reported non-competitive wholesale and retail yam markets.

Table 3(a). Gini Coefficient analysis for wholesalers

Range (Millions)	Frequency	Percentage	Cumulative Percentage	XY
1-2	05	0.166	0.166	0.0275
2.1- 4	16	0.533	0.699	0.3725
4.1- 6	07	0.233	0.932	0.2171
6.1- 8	02	0.666	0.100	0.0666

Source: Field data analysis, 2015. M= million; ∑XY (WS) =0.6837; G.C (Wholesaler) = 1 - 0.6837; G.C = 0.316

Table 3(b): Gini Coefficient analysis for retailers

Range (Millions)	Frequency	Percentage	Cumulative percentage	XY
0.1-0.5	09	0.15	0.15	0.0225
0.6 -1	31	0.516	0.666	0.3436
1.1- 2	19	0.316	0.982	0.3103
2.1- 4	01	0.066	0.100	0.0166

Source: Field data analysis, 2015 M =million; ∑XY (RT) =0.6930; GC (Retailer) = 1 – 0.693; G.C = 0.307

Market Conduct in the Study Area

The survey of yam market in the area reveals total absence of predatory pricing or price collusion as price is mainly determined by cost and relatively by the market forces of supply and demand. Apart from sorting out yam by size and use of open display in the market, no advertisement or packaging are used. The result conforms to Folayan (2013)'s findings in Ekiti State.

Marketing Channel of Yam in the Study Area

The marketing channel reveals the flow of yam in the study area. The most frequently used channels for yam marketing as revealed by the study is reflected in Figure1.Channel 1 was from farmer (producers) to consumers through local assemblers and wholesalers to retailers, who finally sell to consumers. The other channel type observed in the area was from producer directly to speculators who act as agents between the farmer and the consumer. The consumers always detest this channel due to the sharp practices indulged in by inflating the price of yam, making it difficult to get yam at affordable rate. The analysis compared favorably with the decentralized type of channel whereby yam moves from the producers through rural assemblers, then through wholesalers to the final consumers (Ada-Okungbowa, 2006).

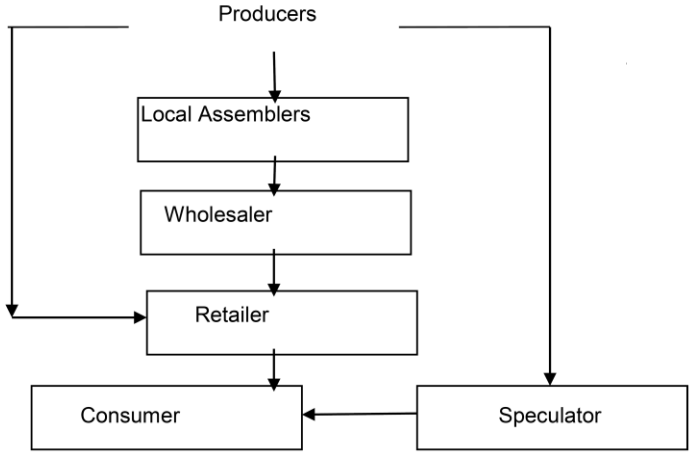

Figure 1: Yam marketing channels in the study area
Source: Field survey, 2015

Marketing Performance

Marketing profit (100tubers)

The marketing profit as determined from the analysis is based on one hundred (100 tubers) and this is reflected in Table 4.

Table 4: Market profit analysis

Item	Mean Value	
	Wholesaler	Retailer
(a) Selling price (SP)	17750	16433
(b) Buying price (BP)	14666	14008
(c) Marketing Margin(MM)	3084	2425
(d) Marketing cost (MC)	1074	787
(e) Profit= MM—MC	2010	1638
Rate of return	12.8%	11.0%

Source: Field data analysis, 2015

From the analysis, it is observed that the profit firm the yam business in the study area was estimated by subtracting the marketing cost (MC) from the Marketing margin (MM). For convenience and to reflect the market practice in the area, 100 tubers of yam was considered in the calculations. The result shows that the profit realized by the wholesalers was N2,010, while that of retailers was captured at N1,638. This further reveals the percentage of rate of returns per Naira invested for the wholesalers and retailers were 12.8% and 11.0% respectively.

Pricing efficiency of yam market in the study area

Table 5: Pricing efficiency analysis

	Wholesaler			Retailer		
Variables	Mean	SE	Sig.	Mean	SE	Sig.
MM	3038.3	200.6	.555	2458.33	100.09	.326
MC	1074.4	49.407		787.553	48.497	
t-value	**.59^{NS}**			**-0.99^{NS}**		

Source: Data analysis, 2015

Table 5 shows the analyzed result of yam market pricing efficiency in the study area The non-significant t-test value of 0.598 for wholesalers and -0.990 for retailers indicates that there is no difference between marketing margin and marketing cost at both wholesale and retail levels, meaning the existence of pricing efficiency in yam marketing in the area, meaning prices at both wholesale and retail markets reflect cost of marketing and that yam marketers behaviors in the area are not exploitative.

Operational efficiency of yam market in the area

The result presented in Table 6captured the operational efficiency of wholesaler. It shows that 19.8% 0f the yam markets are within operational efficiency of 70 to 80, with 62.7% operated between 81 to 90, while those in the efficiency range of between 91and 100 accounted for 16.5%. It is equally noted from the analysis that the operational efficiency of the retailers within same categories of the wholesalers accounted for 1.7%, 74.8% and 25.5% respectively. Majority of both wholesalers and retailers falls within the efficiency range of 80-90 %. In comparing the efficiencies of the wholesalers and retailers, the retailers' shows higher operational efficiency than wholesaler, except at range 70-80 where wholesalers had 19.8% as against 1.7% for retailers. Overall, both wholesaling and retailing functions are operationally efficient. This means that these functions of marketing were performed at the lowest costs possible in the area.

Table 6: Operational efficiency analysis

Range	Frequency		Percentage	
(percentage)	Wholesaler	Retailer	Wholesaler	Retailer
70 - 80	06	01	19.8	1.7
81 - 90	19	44	62.7	74.8
91 - 100	05	15	16.5	25.5

Source: Data analysis, 2015

Markup analysis

Markup is the percentage added to the cost of goods to obtain selling price.

$$\text{Markup} = \frac{SP-BP-MCx\ 100}{SP}$$

$$\text{Markup value for Wholesalers} = \frac{17750-14666-1074\ x\ 100}{17750}$$

$$= 11.3\%$$

$$\text{Markup value for Retailers} = \frac{16433-14008-787\ x\ 100}{16433} = 9.9\%$$

From the above, it is seen that the markup price for wholesalers and retailers were estimated at 11.3% and 9.9% respectively, which is a sign of reasonable pricing of yam in the area, in view of supply coming from far places.

Constraints faced by yam marketers in the area

Problems associated with yam marketing in the study is analyzed and captured in Table 7. From the table, it is seen that the wholesalers are faced with insecurity challenges (33.3%) as the most serious constraint, followed by price uncertainty (16.7%) and high cost of yam (13.3%). The Retailers reported high cost of yam (26.7%) as the most serious constraint followed by price uncertainty (23.3%), capital intensive (16.7%) and fragile nature of yam (13.3%) as the major constraints, besides high cost of rent (8.3%), insecurity (8.3%) and high cost of transportation (3.4%) respectively. Similar findings were also reported by Folayan (2013) in Ekiti State.

Table 7: Constraints of yam marketing faced by wholesalers in the study area

Constraints	Frequency		Percentage	
	Wholesaler	Retailer	Wholesale	Retailer
High cost of rent	02	05	06	08.3
Capital intensive	03	10	10.0	16.7
High cost of yam	04	16	13.3	26.7
High transportation	03	02	10.0	03.4
Insecurity	10	05	33.3	08.3
Fragile nature of yam	03	08	10.0	13.3
Price uncertainty	05	14	16.7	23.3
Total	30	60	100.0	100.0

Source: Data analysis, 2015

CONCLUSION AND RECOMMENDATIONS

The comparative analysis of wholesalers and retailers showed difference in marketing cost, marketing margin, marketing profit and markup. The concentration ratio, for wholesalers and retailers revealed that the market is perfectly competitive and the business as reported is profitable for both wholesalers and retailers. The market is price and operationally efficient, while most constraints affecting the smooth running of the business include high cost of yam and price uncertainty at retail level and insecurity at wholesale level. Based on the findings, the following recommendations are drawn:

i. Government and stakeholders should help in the construction and development of market infrastructure for efficient and effective marketing system. This will serve as revenue booster to all tiers of government

ii. Good storage facility should be provided relevant stakeholders to reduce yam spoilage.

iii. Traders should be encouraged to form formidable co-operative groups for the purpose of accessing relevant inputs for the continuity and sustainability of their business.

iv. Rural roads network be provided and rehabilitated in the area in order to alleviate the problems of transportation; this will also help in stabilizing the price of the commodity.

REFERENCES

Ada-Okungbowa CL (2006). The Market Structure, Conduct and Performance for Yam in Ondo State, Nigeria. Agrosearch, 4 (1&2): 12-20.

Adegeye AJ, Dittoh JS (1985). Essentials of Agricultural Economics. Ibadan: Impact Publishers.251 pp.

Adekanye TO (1977). Market Structure for Foodstuff: Problems and Prospect for Rural Development in Nigeria. In: TO Adekanye (Ed.): Reading in Agricultural Marketing. Ibadan. Longman Nigeria, pp. 101 – 107.

Anuebunwa FO (2002). A Structural Analysis of Yam Trade Flows into Abia State of Nigeria. Nigerian Agricultural Journal, 33:17–22.

Atkinson FS, Foster-Powell K, Brand-Miller JC (2008). International Tables of GlycemicIndex and Glycemic Load Values: Diabetes Care. 31(12): 2281-2283. Retrieved from: https://doi.org/10.2337/dc08-1239

Babaleye T (2003). "West Africa improving yam production technology". ANB-BIA supplement issue/Edition Nr463.

Bekun FV (2017). Economics of Yam (Dioscoreaceae Dioscorea) Marketing: New Insights from Bosso Local Government Area of Niger State, Nigeria. *Preprints* 2017100092. (doi: 10.20944/preprints 201710.0092.v1). Retrieved from: https://www.preprints.org/manuscript/201710.0092/v1/download

Fasasi AR, Fasina OO (2005). Resource Use Efficiency in Yam Production. Proceeding of the 39th Conference of the Agricultural Society of Nigeria, October 9 – 23, 2005; 184 – 187.

Folayan, JA (2013). Assessment of structure and conduct of yam wholesale market in Efon Alaaye Local Government Area of Ekiti State, Nigeria. African Journal of Food Science. 7(2):14-24. Retrieved from: http://www.academicjournals.org/AJFS

Food and Agriculture Organization [FAO] (2011). Available online at: www.foastat.fao.org.

Food and Agriculture Organization [FAO] (2002). Food and Agricultural Organization Year Book. P. 56.

Huxley A ed. (1992). New RHS Dictionary of Gardening. Macmillan.

Hamidu K, Adamu Y, Mohammed SY (2014). Spatial Profit Differential of Yam Marketing in Gombe Metropolis, Gombe State, Nigeria. Journal of Biology, Agriculture and Health Care. 4(12):72-76.

Izekor OB, Olumese MI (2010). Determinants of yam production and profitability in Edo State, Nigeria. African Journal of General Agriculture. 6(4): 205 – 210. Retrieved from:http://www.asopah.org

John T (2003). White [1] planning and designing rural markets, FAO Rome.

Kay DE (1987). Root Crops. Tropical Development and Research Institute: London

Marion BW, HardyCR (2004). Marketing Performance: Concept and Measure, Agricultural Economic Report.

No. 244, Economic Research Service USDA Washington, D.C. pp. 11.
Mbah SO (2010). Analysis of Factors Affecting Yam Production in Ngor-Okpala Local Government Area of Imo State. In J. A. Akinlade; A. B. Ogunwale; V. O. Asaolu; O. A. Aderinola; O. O. Ojebiyi; T. A. Rafus; T. B. Olayeni, O. T. Yekinni
(Eds). Proceedings of the 44th Annual Conference of the Agricultural Society of Nigeria, LAUTECH, Ogbomoso, 18th - 22th October, 2010. Pp 340-344.
National Population Commission [NPC] (2006). National Population Census figures, NPC Bulletin.
NIMET (2013). Seasonal Rainfall Prediction. Retrieved from: *nimet.gov.ng/seasonal-rainfall prediction.* Pp. 1–20.
Okoedo-Okojie DU, Okwuokenye GF (2016)**.** Characteristics and Potentials of Retail Marketing of Yam in Delta State, Nigeria: Implications for the Extension Services. British Journal of Applied Science & Technology. 14(2):1-8.
Okwuokenye GF, Onemolease EA (2011). Influence of socio-economic characteristics of yam sellers on marketing margins among yam wholesalers in Delta State, Nigeria. Journal of Agriculture and Social Research (JASR).
11 (1):81-90.
Oladapo MO, Osundare OT, Osundare FO, Oyebamiji K (2015). Effects of infrastructure on yam tuber Marketing in four selected local government areas of Ekiti State, Nigeria. Academia Journal of Biotechnology 3(6): 097-103.
Olukosi JO, Isitor SU (2002). Introduction to Agricultural Marketing and Prices: Principles and Application. Living Books series, G.U Publication, Abuja F.C.T, Nigeria.
Opara LU (2003). Yams: Post-Harvest Operations. FAO/Massey University, Private Bag 11-222, Palmerston North, New Zealand. 22 pp.
Oreri ST (2004). The Structure, Conduct and Performance of the Yam Marketing System in Benue State. Unpublished M.Sc. Thesis, Department of Agricultural Economics and Rural Sociology, A.B.U Zaria.
Pius CL, Odjurwuedemie EL (2006). Determinants of Yam Production and Economic Efficiency among Small Holders Farmers in Southern Nigeria. J. Central Eur. Agric. 7(2):33-342.
Reuben J, Mshelia SI (2011). Structural Analysis of Yam Markets in Southern Part of Taraba State, Nigeria. J. Agric. Sci, 2(1): 39-44.

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