# Consumers' Attitude towards Indigenous Rice in Lokoja Metropolis, Kogi State, Nigeria

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## Abstract

This study investigated consumers' attitude towards indigenous rice in Lokoja Metropolis, Kogi state, Nigeria. Specifically, it determined socio-economic characteristics of rice consumers; their attitude towards indigenous rice; rice attributes that are of interest to consumers; and challenges faced in consumption of indigenous rice in the area. The study adopted a descriptive survey research design. Multistage sampling procedure was used to select a total of 125 consumers for the study. Data were collected using structured questionnaire and analyzed using descriptive statistics. The consumers strongly believed that indigenous rice is mainly for poor people ($\bar{x}$=3.47, S.D=1.09), less attractive than foreign rice ($\bar{x}$=3.28, S.D=0.91) but has higher health benefits ($\bar{x}$=3.10, S.D=1.09). They strongly declined their support on federal Government's ban on rice importation ($\bar{x}$=1.40, S.D=0.49). Summarily, about 51.7% of the respondents have negative attitude towards indigenous rice. The rice attributes of important to consumers are: neatness of rice grains ($\bar{x}$=1.67), price ($\bar{x}$=1.59), taste and aroma of the grains ($\bar{x}$=1.57), swelling capacity of rice grains after cooking ($\bar{x}$=1.57), grains consistency after cooking ($\bar{x}$=1.39), packaging/labelling ($\bar{x}$=1.20). The challenges faced by consumers include presence of stones, broken grains, sands/debris ($\bar{x}$=1.66±0.62), and unpleasant odour ($\bar{x}$=1.48±0.77). The study recommends among others the need to sensitise the public on the health and economic benefits attached to consumption of indigenous rice in the country.

**Key words:** Indigenous, Rice, Consumption, Attitude, Challenges, Consumers

## Introduction

Market competition orchestrated by globalisation has made consumers across the world to become more aware of the quality assurance and attributes of different commodities

found in the market. Consumers often choices of goods with attributes that best appeal to their personal desires and taste (Mhlanga, 2010). The consumers often express their preferences for product quality by paying premium for the commodities with the desired attributes. These premiums give producers a motivation to improve product quality and quantity consequently enhancing the welfare of both the producers and consumers. No wonder, Lancaster cited in Miškolci (2011) noted that all goods possess characteristics or attributes that are demanded by the consumers, not the goods themselves; adding that consumers do not demand for food in itself, but rather the nutrients, flavours and satisfaction in the food. For example, in the case of rice, the characteristics (attributes) have important price based implications in terms of incentives for both the producers and consumers.

Rice (*Oryza Sativa*) has risen to a position of pre-eminence among other crops in the world; it is a staple food to more than half of the world populations; human consumption accounts for about 78 percent of the world's production while the balance serves other purposes such as feed for animals (Udemezue, 2018). At the global market, rice has continued to top the chart as it provides food, income and source of livelihoods to many. According to Seck et al. (2013) rice has become a highly strategic and priority commodity for food security in Africa and the consumption is growing faster than that of any other

major staple on the continent because of high population growth, rapid urbanization and changes in eating habits.

Rice is widely consumed and there is hardly any country in the world where it is not utilized in one form or the other (Isa et al., 2012). It is consumed by over 4.8 billion people in 176 countries and is the most important food crop for over 2.89 billion people in Asia, over 40 million people in Africa and over 150.3 million people in America (Busari and Idris-Adeniyi, 2015). In Nigeria to be specific, rice is one of the few food items whose consumption has no cultural, gender, socioeconomics, religious, ethnic or geographical boundary (Isa et al., 2012 and Osabuohien, Okorie, and Osabohien, 2018). An average Nigerian consumes about 24.8 kg of rice per annum, representing 9 percent of annual calorie intake (Bamidele et al, 2010).

More than 90 percent of global rice production occurs in tropical and semi-tropical Asia (Daramola, 2005). It is cultivated in all agro ecological zones of Nigeria even though, the quantity and quality of production varies across regions. The common production system in the country include rainfed upland, lowland, irrigated lowland, deep water floating, and mangrove swamp (Ezedinma, 2005; Obianefo, Nwigwe, Meludu, 2020). Due to its increasing contribution to the per capita calorie consumption of Nigerians, the demand for rice has been on the steady increase even at a much faster rate than

domestic production and more than in any other African countries since mid 1970s (Bamidele et al., 2010; and Diako et al., 2010).

However, domestic production in Nigeria has never been able to match the demand; which has made Nigeria one of the largest food importers in the world with annual food import bill of about $10 billion (Obayelu, 2015). Statistically, Nigeria's rice consumption rate has increased from 5.5 million metric tons in 2015 to 7.9 million metric tons annually. Meanwhile, the production rate currently stands at 5.8 metric tons per annum; with importation making up for the production deficit (Udemezue, 2018).The rice consumption figure in Nigeria has even been estimated to rise to 35million metric tons by 2050 (Onu, Obike, Ebe and Okpara, 2015). In 2016 for instance, national rice demand was estimated at 6.3 million metric tons while domestic supply stands at 2.3 million metric tons (Federal Ministry of Agriculture and Rural Development, 2016).

This further conforms to an earlier assertion by Ogunsumi, Ajayi, Amire and Williams (2013) on the gap between local demand and supply of rice in Nigeria. The authors stressed that the level of rice consumption in Nigeria increases with about 10 percent per annum as a result of changing consumer preferences amidst other factors. Hence, government had to retort to massive importation in order to bridge the supply-demand gap. The consumption figure is even expected to reach 36 million metric

tons by 2050 with 5.1 percent annual growth (Abbas, Agada and Kolade, 2018). They further report that the Nigerian Government spent a whopping $2.41 billion on rice importation between January 2012 and May 2015.

Continuous importation of rice is detrimental to Nigeria's economy in so many ways: Firstly, excessive importation of rice into the country will make life difficult for smallholder rice farmers thereby, aggravating their poverty level. Secondly, huge level of imported milled rice on regular basis into the country means that more jobs will be created in those countries where rice is being imported from leading to high level of unemployment and food insecurity in Nigeria. Thirdly, it gives room for dumping of low quality, sub-standard and sometimes expired rice into any country that allows it (Abbas, Agada and Kolade, 2018). Fourthly, the rising bills of rice importation over the years contribute to depleting of the country's foreign reserves and had also affected domestic production and patronage of Nigeria's local rice.

In spite of Government's efforts towards making Nigeria self-sufficient in rice production; the country has continued to suffer set-back (Adeyeye et al., 2011; Basorun, 2009; Alfred and Adekayode, 2014; and Mohammed et al, 2019). The rice farmers in Nigeria appear so worried and frustrated due to poor patronage of indigenous ice occassioned by several factors ranging from continuous changes in customers' attitude and behaviour, poor

processing facilities resulting in unpleasant smell, unappealing appearances and presence of foreign materials such as stones, sand and pebbles. It is therefore important to evolove ways of enhancing that consumer attitude towards indigenous rice, including that consumers in Lokoja Metropolis. For this to be done, it is necessary to determine consumer attitudes and behaviours toward indigenous rice. Empirical evidence detailing the consumers' attitude and behaviour that will guide the rice farmers and policy makers in the country are presently relatively inadequate.

## Objectives of the study

The main objective of this study was to investigate issues related to consumption of indigenous rice in Lokoja Metropolis. Specifically the study determined:

1. socio-economic characteristics of respondents;
2. respondents' attitude towards indigenous rice in the area;
3. rice attributes that are of interest to consumers in the area;
4. constraints militating against consumption of indigenous rice in the study area

## Methodology

*Research Design*: The descriptive survey research design was adopted for this study. This design was adequate because it sought the opinions of selected rice consumers in the study area.

*Area of the Study*: This study was carried out in Lokoja Metropolis which is the state capital of Kogi state, Nigeria. The state was created on 27th August, 1991 (Meludu and Onoja, 2018). Lokoja is an ancient city, a former capital of British Northern Protectorate and the first administrative town for the British colonial government after the amalgamation of the northern and southern protectorates in 1914 by the then Governor General, Lord Luggard. The area was selected for the study because of the high level of commercial activities necessitated by influx of people from different parts of the state and from neighbouring states of Nigeria. The Metropolis has three major daily (Monday - Saturday) markets, namely: International Market (New market), Old market and Kpata market. The people in the area are mainly civil servants and rely on the market for most of the food items they consume, rice inclusive.

*Population for the Study*: The population of the study was made up all the rice consumers living within Lokoja Metropolis. These consumers purchase rice for household consumption purposes from markets within within the area of the study. It was estimated that 1,250 rice consumers go to markets daily to purchase rice for household consumption. An average of 500, 400 and 350 rice consumers daily where recorded for New market, old market and Kpata market respectively.

*Sample for the Study*: A multi-stage sampling procedure was adopted to

select respondents for this study. This was done in two stages. In the first stage, the three major markets in Lokoja Metropolis (namely: New market, Old market and Kpata market) were purposively selected. They were selected due to high levels of commercial activities that go on in them. The second stage was simple random selection of 10 percent of rice consumers (New market 50, Old market 40, and Kpata market 35) who reside within the Lokoja Metropolis and came to the markets to purchase rice for household consumption purposes on regular basis. These gave a total of 125 rice consumers for the study.

***Instrument for Data Collection:*** Questionnaire was used for data collection. The questionnaire was divided into four sections: Section A, B, C, and D, covering demographic variables, attitude towards indigenous rice; rice attributes encouraging consumers' patronage and constraints militating against consumption of indigenous rice in the area. It was validated by three Agricultural Economists in a University. The instrument was also pretested to determine the internal consistency (reliability) using Cronbach's Alpha method which yielded reliability coefficient of 0.71.

***Data collection techniques:*** A total of 125 copies of questionnaire were administered to respondents by hand with the help of three research assistants. They served as interpreters where necessary. Only 120 copies were properly filled and returned. This represented 96 percent return rate.

***Method of Data Analysis:*** Data were analyzed using frequency and percents for demographic characters of rice consumers; means for specific objectives Nos 2, 3 and 4. Items on Objective No. 2 (Consumers' towards indigenous rice) had a 5-point Likert type scale with response options of strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (SD). A score of 5, 4, 3, 2, and 1, respectively were awarded for positively worded statements starting from SD and reversed order for negatively worded statements; giving a maximum obtainable score of 55 and a minimum of 11. Also, overall attitudinal mean score was computed from the respondents' attitudinal scores, and used as benchmark for categorising respondents into having positive and negative attitudes towards indigenous rice in the area. Such that, respondents whose scores are below the attitudinal mean score was categorised in "unfavourable group"; while those whose scores were equal or greater than the attitudinal mean score was categorised in "favourable group".

The items on objective No 3 (rice attributes that are of interest to consumers) had a 3-point Likert type rating scale with response options of "not important" (0), "somewhat important" (1) and "very important" (2). The mean value for each of the attributes were computed and used to rank the attributes in order of importance.

**Results of the study**

**Selected personal characteristics of the respondents**

Age categorisation of the respondents' revealed that high proportion (45%) were 31-40years, *22.5% were* 30years or less, 17.5% were 41-50years and 15% were 51years or more. On the aggregates, the respondents' mean age was computed as *39.1±11.3* years. Gender of the respondents revealed that both sexes were fairly represented in the study as 53.3% were females while 46.7% were males. Marital status of the respondents revealed that half (50%) of the respondents were reported married, 40.8% indicate single, while 2.5% and 1.5% indicate widowed and divorced respectively. Religion background of the respondents revealed that majority (54.2%) of the respondents were Christians, 43.3% were Muslims while only 2.5% practice African traditional religion.

Education background of the respondents revealed that the respondents are learned as *81.7%* of them were educated up to the tertiary educational level; 13.3% and 1.7% had O'level and first school leaving certificates respectively. Only 3.3% of them do not have formal educational background. Occupation of the respondents revealed that they were more of (40%) civil servants, students (26.7%), traders (20%), farmers (9.2%) and artisans (4.2). Estimated monthly income of the respondents revealed that majority (42.5%) earned ₦ 30'001-50'000 only, 34.2% of them earned as much as ₦ 50'001 or more while 23% of them earned as low as ₦30'000 or less. On the aggregate, the mean income was calculated as ₦49,341.7±29,570.2 per month. Respondents' household size revealed that majority (55.8%) were in the range of 4-9persons, 17.5% had 3persons or less and others 0.8%. On the aggregate, the mean household size of 5.1±1.9 was obtained.

**Respondents' Attitude towards Indigenous Rice**

**Table 1: Mean Responses on Consumers' Attitude towards Indigenous Rice (n = 120)**

| S/N | Attitudinal statements | Mean ($\bar{x}$) | SD | Remark |
|---|---|---|---|---|
| 1. | They are mainly for poor people around us | 3.62 | 1.41 | SA |
| 2. | I feel uncomfortable buying them in public | 3.47 | 1.09 | A |
| 3. | I am in support of Federal Govt's ban on foreign rice | 1.40 | 0.49 | SD |
| 4. | Satisfaction is less compared to foreign | 2.38 | 1.34 | D |
| 5. | I feel proud eating them in a public gathering | 2.27 | 0.34 | D |
| 6. | My patronage on the rice creates employment | 2.10 | 1.14 | D |
| 7. | They taste better as compared to foreign | 2.03 | 1.34 | D |
| 8. | They are less poisonous than foreign rice | 1.94 | 0.11 | D |
| 9. | Higher health benefits compared to foreign rice | 3.10 | 1.09 | A |
| 10. | They are more nutritious than foreign rice | 1.78 | 1.09 | D |
| 11. | They less attractive than the foreign rice | 3.28 | 0.91 | A |

*Note: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree and SD = Strongly Disagree.* Numbers in parentheses are percentage. *Source: Field survey, 2019.*

The participants were asked to express their attitudes towards indigenous rice in their area to 11 indicators of attitude on a 5-point Likert type scale. Table 1 shows that consumers strongly believed that the indigenous rice are mainly for poor people around us ($\bar{x}$ = 3.47, S.D = 1.09) and added that indigenous rice are less attractive than the foreign rice ($\bar{x}$ = 3.28, S.D = 0.91). They however agreed that the health benefits derived from the consumption of indigenous rice are higher compared to foreign rice ($\bar{x}$ = 3.10, S.D = 1.09), even though they strongly declined their support on the federal Government of Nigeria's ban on foreign rice ($\bar{x}$ = 1.40, S.D = 0.49).

**Respondents' Categorisation by Attitude towards Indigenous Rice**

**Table 2: Respondents' Categorisation by Attitude towards Indigenous Rice**

| Attitude (n=120) | Frequency | Percent (%) | Mean ($\bar{x}$) |
|---|---|---|---|
| Negative (14.00 - 25.79) | 62 | 51.7 | 25.80 |
| Positive (25.80 - 42.00) 58 | 48.3 | | |
| Total | 120 | 100 | |

*Source: Field survey, 2019*

Table 2, shows categorization of respondents into two groups of those having positive and negative attitude; using their overall attitudinal mean score as benchmark. The Table reveals the maximum attitudinal score as 42, and the minimum as 14, with the overall mean score of 25.80. Respondents with scores of 25.79 and below were therefore categorized as having negative attitude while those with scores of 25.80 and above were categorized as having positive attitude. Therefore, the study reveals that slightly above half (51.7%) of the respondents were categorized as having negative attitude towards indigenous rice.

**Rice Attributes that are of Interest to Consumers in the Area**

**Table 3: Mean Responses on Rice Attributes that are of Interest to Consumers in the Area**

| S/N | Rice Attributes | Not Important F (%) | Somewhat Important F (%) | Very Important F (%) | Mean ($\bar{x}$) | Remarks |
|---|---|---|---|---|---|---|
| 1. | Neatness of the grains | 08 (6.7) | 24 (20.0) | 88 (73.3) | 1.67±0.60 | A |
| 2. | Price of the rice | 12 (10.0) | 25 (20.8) | 83 (69.2) | 1.59±0.67 | A |
| 3. | Swelling capacity after cooking | 12 (10.0) | 28 (23.3) | 80 (66.7) | 1.58±0.68 | A |

*Table 3 Contiuned*

| S/N | | | | | |
|---|---|---|---|---|---|
| 4. | Taste and aroma of the grains | 13(10.8) | 26 (21.7) | 81 (67.5) | 1.57±0.68 | A |
| 5. | Grains cohesion after cooking | 21(17.5) | 31 (25.8) | 68 (56.7) | 1.39±0.77 | A |
| 6. | Packaging and labeling | 36 (30.0) | 24 (20.0) | 60 (50.0) | 1.20±0.88 | A |
| 7. | Size of the grains | 36 (30.0) | 26 (21.7) | 58 (48.3) | 1.20±0.87 | A |
| 8. | Colour of the grains | 39 (32.5) | 26 (21.7) | 55 (45.8) | 1.13±0.88 | A |
| 9. | Ease of cooking | 48 (40.0) | 28 (23.3) | 44 (36.7) | 0.97±0.88 | D |
| 10. | Hardness of the grains | 55 (45.8) | 30 (25.0) | 35 (29.2) | 0.83±0.85 | D |

Note: Numbers in parentheses are percentage, A = Agreed, D = Disagree. Source: *Field survey, 2019*

Table 3 presents the result of rice attributes that are of major interest to consumers in the study area. The mean ($\overline{x}$) scores of their responses ranged from 0.83-1.67 and with the standard deviation (SD) of0.60-0.88. Item no 1, neatness of the grains had the highest mean $\overline{x}$) score of 1.67±0.60 while item no 10, hardness of the grains had the least mean ($\overline{x}$)score of 0.83±0.85. The mean ($\overline{x}$) scores in 8 items out of the 10 items examined were above the criterion level ($\overline{x} \geq 1.0$), indicating that the respondents actually utilised 8 items identified as rice attributes they often watch-out for when buying rice in the market. Meanwhile, item no 9and 10 which are ease of cooking ($\overline{x}$ = 0.97±0.88) and hardness of the grains($\overline{x}$ = 0.83±0.85) were rejected because their mean ($\overline{x}$) responses were below the criterion level, which implies that these items have little or no impact on their choice of rice varieties purchased from the market. Also, the standard deviations were low in all the responses, indicating that the values were close to the mean ($\overline{x}$).

**Constraints to consumption of indigenous rice**

**Table 4: Mean Responses on Constraints to Consumption of Indigenous Rice (n=120)**

| S/N | Constraints | Not a Constraint F (%) | Mildly a Constraint F (%) | Seriously a Constraint F (%) | Mean ($\overline{x}$) | Rank |
|---|---|---|---|---|---|---|
| 1. | Presence of stones, broken grains, sands and debris etc | 09 (7.5) | 23 (19.2) | 88 (73.3) | 1.66±0.62 | 1st |
| 2. | Unpleasant odour | 20(16.7) | 22 (18.3) | 78 (65.0) | 1.48±0.77 | 2nd |
| 3. | Cost of rice in the market | 26 (21.7) | 18 (15.0) | 76 (63.3) | 1.42±0.83 | 3rd |
| 4. | Poor taste and flavour | 18 (15.0) | 37 (30.8) | 65 (54.2) | 1.39±0.74 | 4th |
| 5. | Difficulty in cooking | 19 (15.8) | 38 (31.7) | 63 (52.5) | 1.37±0.74 | 5th |
| 6. | Poor storage ability | 20 (16.7) | 37 (30.8) | 63 (52.5) | 1.36±0.75 | 6th |

*Table 4 Contued*

| | | | | | | |
|---|---|---|---|---|---|---|
| 7. | Seasonality of the rice | 28 (23.3) | 38 (31.7) | 54 (45.0) | 1.22±0.80 | 7th |
| 8. | Stickiness of grains after cooking | 34 (28.3) | 28 (23.3) | 58 (48.3) | 1.21±0.86 | 8th |
| 9. | Unattractive appearance | 35 (29.2) | 31 (25.8) | 54 (45.0) | 1.16±0.85 | 9th |
| 10. | Size of the grains | 43 (35.8) | 37 (30.8) | 40 (33.3) | 0.98±0.84 | 10th |
| 11. | Colour of the grains | 48 (40.0) | 41 (34.2) | 31 (25.8) | 0.87±0.81 | 11th |

*Note: Numbers in parentheses are percentage. **Source:** Field survey, 2019*

Table 4 shows that the major challenged faced by consumers in the consumption of indigenous rice in the study area include presence of stones, broken grains, sands and debris ($\bar{x}$ = 1.66±0.62, ranked 1st), unpleasant odour ($\bar{x}$ = 1.48±0.77, ranked 2nd) amongst others.

**Discussion of findings**
The results of this study revealed that slightly above half (51.7%) of the respondents had negative attitudinal disposition towards indigenous rice. For instance, more than half (72.5%) of the respondents disagreed that the indigenous rice tastes better than foreign rice. In short, 68.4 percent of them confessed that they feel uncomfortable buying indigenous rice in public places. While 64.1% of the respondents claimed that the satisfaction they derived from consumption of indigenous rice is less as compared to foreign rice and more than half (53.4%) of them strongly declined their support on the federal Government of Nigeria' ban on foreign rice.

These suggest that the quality of indigenous rice in the area is yet to meet the consumers' specifications. These findings concur with Opeyemi et al (2015), who reported that the Nigerian rice is of a lower quality when compared with foreign rice. The findings also uphold Alfred and Adekayode (2014) report that consumer showed favourable attitudes towards importation of rice at the expense of the locally produced rice given the favourable natural resources at the nation's disposal. Thus, in order to expand the patronage there is need for rice farmers and the government at all levels to step-up not just the quantity of production but also the quality of rice produced in the country as well as to organise regular public enlightenment campaign on the health and economic benefits attached to patronage of indigenous rice.

According to Udemezue (2018), for consumers to accept and pay for a product, that particular product must possess attributes that are considered most important and attractive to consumers' attention. Hence, in this present study, the respondents were asked to indicate the rice attributes they considered very important when buying rice as demonstrated in Table 2. The study noted that consumers are so much interested in rice with neat grains but affordable prices. This finding affirmed the study of Oyinbo et al. (2013) that households preferred imported rice to local rice because of

their neatness and high quality standard. Usually, consumers are more concerned about the favourable pricing in their choice of items in the market and the indigenous rice appears to be cheaper as compared to imported rice reason being that they are produced and marketed within the country without extra cost such as import duties and so on (Diako et al., 2010; Nwanze et al., 2006). Other attributes pointed out by the respondents were swelling capacity of the rice grains after cooking; taste and aroma of the grains; grains cohesion after cooking; packaging and labelling; size of the rice grains and colour of the grains. The study also upholds the submission of and Tomlins et al. (2005) and Akaeze (2010) who found that consumers in Ghana and Nigeria respectively prefer imported rice to locally produced rice due to their cleanliness and swelling capacity, taste, availability and grain shape.

The challenges faced by consumers in the consumption of indigenous rice in the area include: presence of stones, broken grains, sands and debris, unpleasant odour, cost of rice in the market, and poor taste/flavour. The findings corroborates with the study of Bamidele et al (2010), who argued that the local Nigerian rice is of low quality and less tasty like the imported rice; it is broken and usually accompanied by little stones and other debris like rice husks. Others are difficulty in cooking, poor storage ability, seasonality of rice in the area, stickiness of the grains after cooking and unattractive appearance of the grains.

## Conclusion

It was observed that rice consumption is a common practice among consumers in the area just like every other place in the country. Although more than half of them still display unfavourable attitude towards the indigenous rice in the area; suggesting that the quantity and quality of the rice is yet to meet the consumers' standards. The study further noted that rice consumers frequently watch out for neat grains with affordable prices in the market. Others attributes that were of major concern to them are taste and aroma of the grains, swelling capacity of rice grains after cooking, grains cohesion after cooking, packaging and labelling. The study identified the major barriers limiting the patronage and consumption of indigenous rice in the area to include presence of stones, broken grains, sands and debris; unpleasant odour; cost of rice in the market and poor taste/flavour.

## Recommendation

Following the findings of this study, it is recommended that:

1. The rice farmers should pool their resources together through cooperative groups to buy processing plants in locations closer to them so as to improve the quality of rice produce and make them more attractive and nutritious to consumers in the state

2. The government should invest in rice industries and initiate policies that will reduce rice supply-demand gap

which will eventually phase out rice importation gradually.

3. Efforts should be made by governments to stablise prices of locally produced staple foods.

4. There is need for extension agents and the nutritionists to educate the general public on the health and economic benefits attached to patronage of indigenous rice in country.

## References

Abbas, A.M., Agada, I. G. and Kolade, O. (2018). Impacts of rice importation on Nigeria's economy. *Journal of Scientific Agriculture*; vol. 2: 71-75

Alfred, S. D. Y. and Adekayode, A. B. (2014). Consumers' attitude towards local rice production and consumption in Ondo State, Nigeria. *Journal of Agric. Ext. & Rural Dev.*, 6(7): 242-248

Adeyeye, J. A., Navesero, E. P, Ariyo, J. O. and Adeyeye, S. A. (2011). Consumer preference for rice consumption in Nigeria. *Journal of Human., Social Sc. and Creative Arts*, 5(1):26-36

Akaeze, Q. O. (2010). Consumer Preference for Imported Rice in Nigeria – Perceived Quality Differences or Habit Persistence?. Unpublished Master Thesis, Michigan State University. Pp. 1-48.

Basorun, J. O. (2009). Analysis of the relationships of factors affecting rice consumption in a targeted region in Ekiti State, Nigeria. *Journal of applied quantitative methods Recession Prediction Modelling*, 4(2):145-153

Bamidele, F. S., Abayomi, O. O. and Esther, O. A. (2010). Economic Analysis of Rice Consumption Patterns in Nigeria. *Journal of Agricultural Science Technology.* Vol.*12: 1-11*

Busari, A. O and Idris-Adeniyi, K.M. (2015).Trade Policy and Nigeria Rice Economy. *International Journal of Agricultural Research and Review.* 3(1): pp 152-156,

Daramola B (2005). 'Government policies and competitiveness of Nigerian rice economy'.Paper presented at the workshop on rice policy and food security in Sub- Saharan Africa organized by Africa Rice Centre (WARDA), Cotonou, Republic of Benin, November 7-9, 2005.

Diako, C., Sakyi-Dawson, E., Bediako-Amoa, B., Saalia, F. K. and Manful, J. T. (2010). Consumer perceptions, knowledge and preferences for aromatic rice types in Ghana. Nature and Science, 8(12):12-19.

Ezedinma, C.I. (2005). Impact of trade on domestic rice production and the challenge of self-sufficiency in Nigeria. International Institute of Tropical Agriculture, Ibadan, Nigeria.

Federal Ministry of Agriculture and Rural Development (2016). The Agriculture Promotion Policy (2016-2020). Federal Ministry of Agriculture & Rural Development, Abuja, Nigeria. Pp.1-59.

Isa, J. O., Cyprian, C. A. and Sam, O. O. (2012). Resource use efficiency and rice production in Guma Local Government Area of Benue State: An application of stochastic frontier production function. *International Review of Social Sciences and Humanities,* 3(1):108-116

Miškolci. S. (2011). Consumer preferences and willingness to pay for the health aspects of food.Acta univ. agric. Et Silvic. Mendel. Brun., LIX, No. 4, pp. 167–176

Meludu, N.T. and Onoja, M. N. (2018). Determinants of edible insects consumption level in Kogi state, Nigeria. *Journal of Agricultural Extension Society of Nigeria (AESON).* 22(1): 156-170.

Mhlanga, S. (2010). Economic analysis of consumer based attributes for rice in Benin. Being a thesis submitted to the Department of Agricultural Economics, McGill University, in partial fulfilment of the requirements for the award of the Degree of Master of Science. Pp. 1-11.

Mohammed, U. A., Ibrahim, S., Hayatu, M., Mohammed, F. A (2019). Rice (Oryza Sativa L.)

Production in Nigeria: Challenges and Prospects. Dutse Journal of Pure and Applied Sciences (DUJOPAS), 5(2b): 67-73.

Nwanze, K.F., Mohapatra S, Kormawa P, Keya S, Bruce-Oliver S. (2006). Rice development in sub-Saharan Africa. *J. Sci. Food Agric.* 86:675-677

Obayelu, E., A (2015). Transformation from Subsistence to Commercial Agriculture in Nigeria: The Effects of Large-Scale Land Acquisition on Smallholder Farmers. In Osabuohien, E. (Ed.), Handbook of Research on In-Country Determinants and Implications of Foreign Land Acquisitions Hershey, PA: Business Science Reference. Pp. 409-431.

Obianefo Chukwujekwu A., Cecilia Nwigwe, Nkiru Theresa Meludu (2020): Comparative Analysis Of Rainfed and Dry Season Rice Farming in Value Chain Development Programme in Ayamelum Local Government Area. Anambra State. *Journal of Development and Agricultural Economics.* 12(2):67-74.

Ogunsumi, L.O, Ajayi, A., Amire C.M. & Williams, S. (2013). Sustainability of AgriculturalTransformation Agenda. The place of Rice Farmers in Ogun State Nigeria. *Research on Humanities and Social Sciences*, 3(13), 66-78.

Opeyemi, G., Adedeji, S.O., Komolafe, S.E., Arotiba, K. and Ifabiyi, J. O. (2015).Analysis of consumers' preference in patronizing locally produced and imported rice in Niger state, Nigeria. *Nigerian Journal of Agriculture, Food and Environment.* 11(3):38-43

Onu, D.O., Obike, K.C., Ebe, F.E. and Okpara, B.O.(2015). Empirical assessment of the trend in rice production and imports in Nigeria (1980 – 2013). *International Research Journal of Agricultural Science and Soil Science.* Vol. 5(6). Pp. 150-158.

Osabuohien, E., Okorie, U. and Osabohien, R. (2018). Rice Production and Processing in Ogun State, Nigeria: Qualitative Insights from Farmers' Association. In Obayelu, E. (Eds). *Food Systems Sustainability and Envir. Policies in Modern Economics,* Hershey, PA:IGI, pp.188-215

Oyinbo O., Omolehin R.A. and Abdulsalam Z. (2013). Household Consumption Preference for Imported and Domestic Rice in KadunaState, Nigeria: Implication for Rice Quality Improvement. *Production Agriculture and Technology Journal, 9 (1):29-37*

Tomlins, K., Manful, J. T., Larwer, P.and Hammond, L. (2005). "Urban consumer preferences and sensory evaluation of locally produced and import rice in West Africa." *Food quality and preference,* 16: 79-89

Seck, P.A., Toure, A. A., Coulibaly, J. Y., Diagne. A. and Wopereis, M. C. S. (2013). Impact of rice research on income, poverty and food security in Africa: an ex-ante analysis. In Wopereis, M. C. S., Johnson, D. E., Ahmadi, N., Tollens, E., and Jalloh, A. (Eds.), Realizing Africa's Rice Promise. CABInternational, Wallingford, UK. pp. 24-33.

Udemezue, J.C. (2018). Analysis of Rice Production and Consumption Trends in Nigeria. *Journal of Plant Science and Crop Protection*, 1(3):305.