



GHANA

STRATEGY SUPPORT PROGRAM | WORKING PAPER 48 | May 2018

# Assessing Quality Attributes that Drive Preference and Consumption of Local Rice in Ghana

---

Selorm Ayeduvor

## TABLE OF CONTENTS

1	Background and context .....	1
2	Methodology.....	2
3	Results.....	3
3.1	Local rice market situation in Ghana .....	3
3.2	Rice types in the market .....	5
3.3	Brands of local rice.....	6
3.4	Price formation and differentials.....	8
3.5	Packaging and labelling of local rice .....	10
3.6	Quality attributes of local rice .....	10
4	Conclusions .....	11
	References .....	12

## LIST OF TABLES

Table 3.1.	Rice types, varieties and quality attributes in open traditional markets, supermarkets and malls.....	3
Table 3.2.	Retail prices of unbranded local rice in selected traditional open markets in Ghana, GH¢/kg.....	8
Table 3.3.	Retail prices of branded local rice in mini-supermarkets in Ghana, GH¢/kg.....	9
Table 3.4.	Retail prices of selected imported rice brands in supermarkets in Ghana, GH¢/kg.....	9

## LIST OF FIGURES

Figure 3.1.	Types of unbranded local rice in Ghanaian markets.....	5
Figure 3.2.	Branded local rice in Ghana .....	7

## ABSTRACT

Rice consumption in Ghana has more than quadrupled in the last 60 years, becoming a common staple food. However, this increasing demand is being met by imports. The rise in rice imports has led to a renewed interest in promoting domestic production of rice to substitute for imported rice. However, it is not clear how current rice development policies are informed by the preferences of consumers for specific quality attributes of rice. This study assesses the preferred rice qualities that drive consumption of local rice in Ghana. Through a review of previous studies on consumer preferences of rice complemented with information collected through interviews with local rice traders, millers, and other stakeholders, this paper describes the types of rice and their sources, the types of rice consumers, and the packaging and quality attributes of local rice in key markets in Ghana.

We find that the quality of branded local rice types has improved in recent years. However, unbranded local rice in Ghana is still commonly contaminated with foreign materials, is made up of co-mingled varieties, and has a large share of broken and yellowish grain. In addition, local rice continues to be sold at a lower price than imported rice of same quality. This is largely due to the perceived low quality of local rice by consumers that results in low demand. Marketing campaigns and sensitization to advocate for consumption of local rice are recommended policy options to increase consumer awareness and to build demand for quality local rice in Ghana.

**Keywords:** Ghana; rice; quality attributes

## 1 BACKGROUND AND CONTEXT

Rice is the second most important grain food staple in Ghana, next to maize (MoFA 2016). The rapid diet shift to rice is largely due to income growth, changing consumer tastes and preferences, rapid population growth in urban areas, and rice's relative ease of preservation and cooking. Increased consumption has resulted in the import of large volumes of rice. Data from the Ministry of Food and Agriculture shows that annual per capita rice consumption has more than quadrupled over the last 60 years, from 6.5 kg in 1957 to 32 kg in 2015, resulting in a growing gap between local supply and local demand. This unmet demand for rice in Ghana is being met by imports. In 2015, Ghana imported 54 percent of its rice consumption requirement from China, Thailand, Vietnam, and the USA. Currently, Ghana's annual demand for rice is just over one million mt and is anticipated to rise further. The large deficit in domestic rice supply output has several causes, including low yields, high production costs (including cost of credit, farm inputs and improved seeds), inefficient processing facilities, and low demand for locally produced rice due to its perceived low quality (MoFA 2011).

Asante et al. (2013) assessed how the quality attributes of rice available in Ghana results in consumers preferring improved rice varieties over local types. The researchers found that Ghanaian consumers prefer imported rice to locally produced rice because of an absence of foreign materials, better grain quality, improved ease of cooking, and the aromatic quality of many of the imported varieties. Anang et al. (2011) ranked the factors that rice consumers in Ghana identified as the attributes that they preferred. The study found that the attributes that define the quality of rice the most were taste, cooking quality, cooking time, and aroma.

Consumer preferences for rice are heterogeneous among countries and even between different areas within the same country (Calpe 2003). Whereas rice with specific cooking and processing characteristics are very important for consumers in America, those in the Middle East have a high affinity for long grain varieties that are well-milled with a strong aroma. In Europe, consumers prefer long grain rice with no scent (Musa et al. 2011). In Nigeria, researchers found that consumers prefer clean, tasty and long grain rice, and these qualities are among the reasons why many prefer imported rice to locally produced rice (Lancon et al. 2003). In Togo, urban consumers prefer imported non-parboiled rice to local non-parboiled rice, mainly due to its cleanliness, better taste, higher swelling capacity, and longer shelf-life after cooking (Fiamohe et al. 2014). Consumer preference for specific quality characteristics in rice has market-specific effects on local rice prices (Anang et al. 2011).

Rice cooking qualities, including cooking time, water uptake ratio, elongation ratio, swelling capacity, and amylose content, also determine consumer preferences. Grain elongation on cooking is dependent on genetic factors as well as the degree of milling. Highly polished rice tends to have a higher elongation ratio due to less bran on the grain restricting expansion of the starch granules. Additionally, smaller grains and highly polished rice have lower cooking times than those types that are larger and with coarser surfaces (Mohapatra and Bal 2006). Rutsaert et al. (2013) note that rice that swells more is viewed as being able to satisfy a larger number of consumers for the same amount of grain. The variety and the length of time the rice has been in storage explains the swelling capacity of cooked rice. Increased storage time of rice also tends to lengthen the cooking time for rice. According to Diako et al. (2011), local aromatic varieties in Ghana are superior to imported varieties in their nutrient content. Nonetheless, imported rice has preferred cooking characteristics. Ghanaian domestic rice varieties require longer cooking times, have a higher water uptake ratio, and higher amylose content than imported varieties.

Consumer preferences among rice types is also based on its use, whether for plain cooked rice, Jollof rice (a local dish), *omo tuo* (rice balls), *waakye* (rice and beans), fried rice, or rice porridge, among other uses. Rice is used in various ways in Ghana. While Jollof rice is the most preferred rice dish in Accra (Diako et al. 2010), consumers in the Eastern region prefer plain rice followed by rice balls and soup (Alhassan et al. 2015). This implies that demand for different types of rice may be restricted to specific geographical areas depending on the preferred dishes.

Consumers also report that the physical appearance of raw rice, when sold, is the most important attribute that influences their preference (Alhassan et al. 2015). Consequently, milling, cleaning, and other preparation; presentation (packaging); and branding are all important to building consumer demand for a particular type of rice.

Different varieties and brands of imported rice compete with locally produced rice in both urban and rural markets. Imported brands include Sultana, Lele, Royal Feast, Uncle Sam, Uncle Bob, Savanna, Neat, Tiger, Special Lady, and Cindy. These brands differ from each other and from the local rice based on origin, taste, flavor, ease of cooking, price, and grade (generally, percentage broken grains).

Information regarding the factors that explain consumer preference for locally produced and processed rice in Ghana is limited. A study by Diako et al. (2010) with 390 rice consumers in Accra revealed that knowledge and consumption of local rice in general and of local aromatic types in particular is limited.

In conclusion, the preference for and consumption of rice is not uniform for all varieties and brands. Factors such as physical appearance, ease of cooking, aroma, absence of foreign material, percentage of broken rice, perception of nutrient content, and origin influence consumer preferences for particular types of rice. Consumers pay much attention to the brands or the types of rice they buy depending on quality attributes that they observe in the market and when they consume it. In a liberalized market, consumer experience and marketing strategies are important to building customers' loyalty to a particular type of rice. Ensuring that local rice types are produced and processed in a way that enables them to meet the quality attributes desired by consumers will be necessary to build increased demand for local Ghanaian rice, build its competitiveness, and contribute to securing future markets for rice producers. Such efforts to meet consumer demand should complement ongoing efforts to improve rural livelihoods through rice productivity improvement.

This study provides an overview of local rice markets in Ghana and identifies the type, varieties, and grades of branded and unbranded local rice. We examine the quality attributes of local rice and the manner in which it is packaged and presented to the consumer. Our objective is to better understand variation in the quality of local rice along important dimensions that affect consumer behavior and how these variations in quality are related to the level of demand for local rice types in Ghana.

## 2 METHODOLOGY

The study was conducted in three key rice market centers: Accra, Kumasi, and Tamale. In order to understand the various quality attributes that drive consumption of local rice, views of rice traders were collected through personal and telephone interviews. Interviews were carried out in five market places in Accra (Kanashie, Medina, Ashaiman, Nima, and Agbogbloshie markets) and in three market places in both Kumasi (Kumasi Central, Asafo, and Banatama markets) and Tamale (Tamale Central, Aboabu, and Sakasaka markets). A total sample of 165 individual traders of local rice in

traditional open markets, mini-supermarkets (unregistered), and supermarkets was compiled for the study. In each of the 11 market places, ten traders from the traditional open market and five from supermarkets (both registered and unregistered) were purposively selected for interviews. The traders interviewed provided their insights and knowledge on issues such as the types of rice they sold, their sources, the quality of the rice, the types of consumers they served, and the relative prices of local rice compared to imported rice.

Other stakeholders were also interviewed, including representatives of the Ghana Rice Inter-professional Body (GRIB), AVNASH Ghana Limited, two shopping malls, and ten millers of local rice in Kumasi. Data from a rice retail outlets survey in 2017 conducted by International Food Policy Research Institute (IFPRI) in Cape Coast and Accra were also incorporated. Furthermore, data from previous studies on the rice value chain in Ghana were reviewed.

### 3 RESULTS

In this section, we present results from the Ghana rice markets survey in Accra, Kumasi, and Tamale. We discuss the market situation for local rice, including the local rice types and brands available in these markets. We also examine price formation and the differences in prices between local rice types and between local and imported rice. Finally, we study the quality attributes of the local rice offered by traders in these markets.

#### 3.1 Local rice market situation in Ghana

Rice markets in Ghana are segmented. Rice is sold in traditional open markets, supermarkets (large registered shops selling food and household items), mini-supermarkets (unregistered shops selling food and household items), and shopping malls (large enclosed area where food and household items are sold). While many supermarkets and malls primarily sell imported rice and branded local rice, traders in traditional open markets sell mostly unbranded local rice differentiated by source/origin and color and size of the grain. In the markets surveyed for the study, a majority of rice retailers in traditional open markets in urban areas sell local rice by the bowl and sack (Table 3.1). Supermarkets, on the other hand, sell only imported branded rice that are well packaged in different weights (1, 2, 5, 10, 25, and 50 kg packets), with clear indications on the packaging of the rice brand and its place of origin.

**Table 3.1. Types, varieties, and quality attributes of rice sold in traditional open markets and in supermarkets and malls in Ghana**

	<b>Traditional Open Markets</b>	<b>Supermarkets and Malls</b>
<b>Rice types sold</b>	Unbranded rice by origin and colour	Imported rice and locally branded
<b>Rice varieties</b>	AGRA rice, Jasmine, Togo Marshal, Mandi, Viwonor and TOX 308	Jasmine and Basmati
<b>Packaging</b>	Sold by the sack or by the bowl	Different weights, brands, and origin
<b>Quality attributes</b>	Medium-size grain; presence of foreign materials; yellowish grains; broken grain common	White; long grain; aromatic; low share of broken grains; absence of foreign materials

Source: Field Survey, 2018

Branded local rice was primarily found to be sold in mini-supermarkets and supermarkets in Kumasi and Tamale, but not in Accra. Only one company, Thrive Company Ltd., sells branded and packaged local rice in Accra, with outlets in Kaneshie, Ministries, Oyarifa, Dansoman and Anyaa markets. Other brands of packaged local rice, such as Royal Farmers, DUQ, Aduanehene, Babrina, and Esisel, was only found in supermarkets in Tamale and Kumasi

How local rice is sourced and supplied to various markets also varies. In Accra, the open market retailers buy directly from established wholesalers in various markets located in rice-producing areas, mainly in Hohoe and Tamale. In addition, some retailers also purchase rice at the local markets in Accra from itinerant wholesalers who bring stocks to Accra from rice-producing areas. In contrast to the well-structured channels in Accra for the distribution of imported rice, there are no major wholesalers of local rice established in the city.

In Kumasi, several wholesalers based in the city travel to four rice-producing regions – Afife and Hohoe areas in Volta region, Northern region, parts of Ashanti region, and Kpong, Akuse, and Asutuare in Eastern region – to buy rice. The wholesalers transport it back to Kumasi for processing at local rice mills. The main varieties of local rice purchased by these wholesalers from Kumasi are Jasmine 85, Togo Marshal, AGRA Rice, Gbewa, Jet 3, Rita 8, and Rita 9. These wholesalers, who are mostly women, dry the paddy rice, mill, winnow, and sometimes do manual picking of stones and other foreign materials in the processed rice. They sell the processed rice to rice retailers in all markets in Kumasi. Traders from Prestea, Takwa, Bogoso, and Asankragua in Western region also buy unbranded local rice from the rice wholesalers in Kumasi.

In Tamale, wholesalers buy paddy rice from various sources, both directly from farmers or through intermediaries or commission agents. The wholesalers parboil the paddy and then mill, winnow, and sort it. Retailers in various markets in Tamale purchase the milled rice from the wholesalers for onward sale to final consumers.

Farmers in Upper East, Northern, Volta, and Upper West regions produce about 80 percent of the local rice in Ghana (MOFA, 2016). The three northern regions produced about half of the rice grown in Ghana, making this area the regional hub for local rice production in Ghana. Difference in prices of paddy rice across Ghana's regions reflect the concentration of production in the north. For instance, a kg of paddy rice in the central market in Tamale, the principal urban center for northern Ghana, costs GH¢1.29, while it cost GH¢1.62 in Hohoe in Volta region in south-eastern Ghana. However, rice aggregators in Kumasi reported that paddy from Volta and Eastern regions, such as that produced in areas such as Hohoe, Kpong, Asutua, and Afife, is of higher quality than rice produced in the northern regions. They attribute the poor quality of rice from the northern regions as being due to poor farm management practices, such as late harvesting that leads to waterlogging or over-dried grains. Waterlogging results in brown grains after milling, while over-dried paddy leads to high grain breakage (Manful et al. 1998).

There are two main rice milling sub-sectors in major rice consuming and production centers in Ghana. Small-scale local mills use Engelberg-type and 'one pass' mini rice mills. The output from these mills is of relatively poor quality. On the other hand, emerging large-scale millers, which use modern rice mills with de-stoners, polishers, graders, and bagging equipment, produce high quality rice. An example of such a large-scale mill is AVNASH Ghana Ltd., which is the largest rice processing plant in Ghana with a processing capacity of 500 mt per day.

Commercial distribution of local rice in Ghana is somewhat unstructured. In contrast, the distribution of imported rice is more structured and centralized. Wholesale traders in the port cities of Tema and Takoradi buy imported rice from the warehouses of importing companies – particularly Royal Bow Co., CCTC, Cereal Investment Co., OLAM Ghana, and Ezal Trading. The wholesalers then sell the imported rice to stores, sedentary retailers, restaurants, and consumers. Our study identified around 200 brands of imported rice in the three main rice consuming cities of Ghana. The leading brands are Cindy, Gino, Lele, Royal Aroma, and Fortune, and rice is imported mainly from Vietnam, Thailand, Pakistan, India, and USA. Jasmine rice is the most imported rice type in Ghana and most

preferred by consumers. Significantly smaller quantities of Basmati rice is imported from India and Pakistan.

### 3.2 Rice types in the market

Rice varieties in local markets were identified according to area of production. There is, however, limited knowledge of the local rice varieties sold in the market.

Most of the local rice found in markets in Accra is from the Hohoe area in Volta region, Tamale in the Northern region, and imported from Nigeria. While local rice from Hohoe and Tamale is available in both white and brown varieties, Nigerian rice is white and slightly longer grained, well graded, and better packaged than the local rice from Ghana (Figure 3.1).

Figure 3.1. Types of unbranded rice in Ghanaian markets



Source: Field Survey, 2018

In markets in Kumasi, although likely purchased elsewhere, unbranded local rice comes to be designated as “Kumasi white or brown” because it is milled there. The unbranded white rice sold in all the Kumasi markets surveyed was purchased from rice mills from the Alaba cluster of local rice millers near Kumasi Central market. It is a mixture of three different varieties of white paddy rice bought from different parts of the country. This makes it difficult to classify the processed rice as either aromatic or non-aromatic. However, single types of paddy are also milled and sold, as in the case of Kumasi white Jasmine rice from Kpong (Figure 3.1, bottom center). This local rice variety is long grain, white, aromatic, and attractive to many consumers who consider these attributes when making rice-purchasing decisions. However, much of the local rice for sale in Kumasi is used mainly in the preparation of *omo tuo* (rice balls), *angwa mo* (rice and stew), fried rice, and Jollof rice. There

is demand for broken rice, both local and imported, in Kumasi, as consumers reported that broken rice is more suitable in preparing such dishes. Only small quantities of parboiled local and Nigerian rice are found in the Kumasi market.

In Tamale, unbranded local white rice varieties are identified by specific names and include Jasmine, AGRA Rice, TOX, and Mandi. TOX 3018 is a foreign variety of unknown source, but which is preferred by farmers due to its tolerance of rice blast (a common fungal disease in rice) and drought and is good for milling. However, it is difficult to thresh and is non-aromatic. Mandi on the other hand is a variety sourced from the Ministry of Food and Agriculture (MOFA) that is preferred by farmers in northern Ghana. The market women in Tamale buy paddy rice at either the farm gate or at the central market; they then parboil, mill, and clean foreign materials out of it in their processing of the local rice before sale. Almost all unbranded local rice is parboiled in Tamale. This gives a yellowish color to the rice grain.

With regards to brown rice, there are three main types of unbranded local brown rice in Ghana – Tamale brown, Hohoe brown, and Kumasi brown rice (Figure 3.1). Our survey found that Kumasi brown rice is sourced from either Hohoe or Tamale. The brownness of rice grain is due to varietal differences and to the method of processing (pounded or milled). While there are varieties of rice whose grains are naturally brown, milling and polishing removes the hull and the bran layer, rendering the grain less brown and more white. Brown rice from Hohoe is given local names, including Viowonor, Viotor and Awroema. Viowonor is an *Oryza glaberrima* (African rice) variety. Pounded brown rice is deeper brown, more nutritious, and more expensive than milled brown rice. Brown rice in Ghana does not face competition from imports, as no brown rice types are imported. Consumers buy brown rice mainly because of its health attributes. In all markets, traders reported that diabetic patients are the major consumers of brown rice in Ghana.

### 3.3 Brands of local rice

Most local rice in Ghana is sold unbranded in bowls or sacks by women traders in open markets. These traders are scattered in the market places, which makes searching for a desired quality and taste of local rice costly to the consumers. However, six local white rice brands were identified in the market – Bongo rice and Royal Farmer, which are processed and packaged by Avnash Ghana Ltd. in Nyankpala near Tamale; Copa Jasmine long grain rice and Aduanehene, which are produced by Wienco located in Sogakope, Mr Rabbit Jasmine Rice located in Asutuare; and Adom Rice (Figure 3.2). These packaged local rice brands are mostly Jasmine and AGRA rice types. AGRA rice are new rice varieties developed and released locally by Crop Research Institute (CRI) with support from Alliance for a Green Revolution in Africa (AGRA). These varieties are suitable for lowland and irrigated rice ecologies, are high yielding, tolerant to Rice Yellow Mottle Virus Disease and Iron toxicity, and have good cooking and aromatic qualities, making them farmer- and consumer-preferred varieties.

Additionally, there are three brands of brown local rice in the markets – Babrina Brown, which is packaged in East Legon, near Accra; Wealthy, packaged in Pokuase, Accra; and Esisel, which is processed and packaged in Ejesu, near Kumasi. Wholesalers of local rice brands include Ofram Ltd., which is located in the Tono irrigation scheme in Upper East region and distributes Gbewa branded local rice; House of Rema, which is located in Afife in Volta region and distributes Rema branded rice; CCTC, which also is located in Afife in Volta region and distributes Ghana Pride rice, and Kyei Enterprise, which is a distributor of all local rice brands.

Branded local rice is of high quality, but is not available in open traditional markets or in street shops in Ghana. Copa Jasmine, Royal Farmer and Mr. Rabbit Jasmine brands are of high quality in term of packaging, long grain, and absence of foreign materials. These branded local rice types are comparable in quality to some of the imported brands in the country. Despite these quality attributes, these brands of local rice are not readily available to the bulk of rice consumers in Ghana. Branded local rice types are found only in supermarkets and malls, whereas unbranded local rice is sold in traditional open markets and street shops, so is more readily available. Ghana’s local rice market is segmented based on type of sale outlet, serving different categories of consumers in consequence.

Our survey showed that on average ten different brands of imported rice are found in each (unregistered) mini-supermarket in Ghana, whereas no packaged local rice brands are found in the same shops. Rice traders reported low demand for branded local rice in both mini-supermarkets and in open markets in Ghana. As a result, the traders expressed their unwillingness to deal in branded local rice due to lower demand, even if it can be sold at a lower price than imported rice.

Figure 3.2. Branded local rice in Ghana



Source: Field Market Survey, 2018

Additionally, there is limited knowledge among rice traders in all the major markets in Ghana about branded local rice. The lack of knowledge is partly because each producer of local rice brands distributes their brands on their own, selling their brands through limited supermarkets and malls in the country. As a result, most local rice brands are popular within specific locations. The only exceptions to this are the packaged local rice brands produced by Alvanash and Wienco, the distributors of Royal Farmers, Copa, and Eduanehene, which are the only local rice brands distributed across the country. Local rice brands have small distribution networks. In order to increase visibility of local brands in Ghana, distributors must adopt stronger marketing strategies to attract traders in mini-supermarkets, open traditional markets, and other sale outlets across the country, and move beyond large supermarkets and malls to sell their local rice products.

### 3.4 Price formation and differentials

The price of local rice types in traditional markets varies with the origin of the rice and the color of the grain. Prices in all traditional open markets in Accra of local rice from Hohoe generally are higher than those for local rice from Tamale. For instance, our survey results show that on average one kg of unbranded white rice from Hohoe cost GH¢4.16 while a similar amount of rice from Tamale cost GH¢3.16 (Table 3.2). Given the higher costs of transportation for bringing rice from Tamale to Accra relative to rice coming from Hohoe, one would expect the Tamale rice to be more expensive. However, according to the traders, Hohoe rice is of higher quality in terms of grading and tastes better than local rice from Tamale. Consequently, Hohoe rice is preferred by consumers in Accra and the higher demand results in a higher price. In addition, southerners prefer milled over parboiled rice. Much of the local rice from Tamale is parboiled.

**Table 3.2. Retail prices of unbranded local rice in selected traditional open markets in Ghana, GH¢/kg**

Town	Rice type	Color	Market				Average	
<b>Accra</b>	Hohoe	White	<b>Medina</b>	<b>Nima</b>	<b>Kanashie</b>	<b>Ashaiman</b>	<b>Agbog-bloshie</b>	
		Brown	4.1	4.1	4.2	4.1	4.3	4.16
	Tamale	White	4.0	4.1	4.8	4.1	4.8	4.36
		Brown	3.0	3.0	3.0	3.0	2.9	3.16
	Nigeria	White	3.0	3.0	3.9	3.0	2.9	3.16
		White	3.6	3.9	3.6	3.6	3.6	3.66
<b>Kumasi</b>	Kumasi milled	Brown	<b>Central</b>	<b>Asafo</b>	<b>Bantama</b>			
		White	3.6	2.7	2.7			3.00
	Tamale	White	3.6	3.0	3.3			3.30
		White	3.0	3.0	3.0			3.00
<b>Tamale</b>	Tamale	White	<b>Central</b>	<b>Aboabu</b>	<b>Sakasaka</b>			
		Brown	2.1	2.1	2.1			2.10
	Tamale	White	2.1	2.1	2.1			2.10

Source: Market Survey, 2018.

The market price of branded local rice is higher than unbranded local rice of the same weight. One kg of branded local white rice cost between GH¢5.00 and GH¢5.80 compared to between GH¢2.10 to GH¢4.60 for unbranded local white rice. Branded white rice cost almost twice the price of unbranded local white rice. The survey revealed that packaged and branded local rice is of higher quality than loosely-sold unbranded rice in terms of absence of foreign materials, long grain, taste, and being well-polished. The price of branded brown local rice is exceptionally high in the market, costing almost twice the price of branded white local rice (Table 3.3). Despite the high price, there is

high demand for branded brown rice, partly because there is no substitute for it in the market – this is in contrast to brands of local white rice, which compete with several brands of imported rice.

**Table 3.3. Retail prices of branded local rice in mini-supermarkets in Ghana, GH¢/kg**

Company	Origin	Brand name	Rice type	Price
<b>Avnash Ltd.</b>	Tamale	Royal Farmers	Jasmine	5.50
<b>Wienco Ghana Ltd</b>	Sogakope	Copa Rice	Jasmine	5.60
		Aduanehene	Jasmine	5.70
<b>Thrive Ghana Ltd</b>	Accra	Bongo Rice	White	5.80
			Brown	9.00
<b>Richland Agric. Machinery Ltd</b>	Asutuare	Mr Rabbit	Jasmine	5.00
<b>Sustainable Agro</b>	Asutuare	DUQ Rice	Jasmine	5.16
<b>Wealthy Place Ltd</b>	Pokuase	Wealthy Rice	Brown	10.00
<b>Babrina Ventures</b>	Accra	Babrina Rice	Brown	13.99
<b>Esisel Company</b>	Kumasi	Esisel rice	Brown	12.90

Source: Field survey, 2018

The price of branded local white rice is lower than that of branded imported rice in Ghana. While one kg of branded local rice costs between GH¢5.00 to GH¢8.00, the price of imported rice ranges between GH¢6.85 to GH¢9.62 (Table 3.4). The lower price of branded local rice is partly due to the perceived low qualities of local rice in Ghana. Even branded and well-packaged local rice is perceived to be of lower quality relative to imported rice and, hence, commands a lower price.

**Table 3.4. Retail prices of selected imported rice brands in supermarkets in Ghana, GH¢/kg**

Brand name	Country of origin	Type	Weight, kg	Price, GH¢								Average
				Accra						Cape Coast		
				East Legon	Osu	Achi-mota	Nima	Me-dina	Accra Mall	Cape Coast	Koto-kraba	
Milicent	Vietnam	Jasmine	1	8.5	7.0	6.5	6.5	6.5	-	6.5	6.5	6.85
			5	35	36	35	30	35	-	29	29	32.71
			25	150	145	135	130	135	-	145	145	140.70
Cindy	Vietnam/ UAE	Jasmine	1	7.0	7.0	6.5	6.0	6.5	7.5	6.5	6	6.62
			5	27	30	26.95	26	26	32	26	25	27.37
			25	130	135	130	125	130	166	125	125	133.20
Gino	Thailand	Jasmine	1	11.0	10.0	9.0	9.0	9.0	11.0	9	9	9.62
			5	40	49	56.9	41	45.9	50	42	42	45.85
			25	210	225	210	225	228	210	210	215	216.60
Lele	Thailand	Jasmine	1	10.0	11.5	10.0	8.5	8.5	10.5	8	9	9.50
			5	45	40	38	35	36	38	38	36	38.25
			25	236	220	225	230	210	210	217	177	189.30
Fortune	Vietnam/ Thailand	Jasmine	1	10.5	7.95	9.0	6.0	8.0	7.5	6.5	7	7.80
			5	26	30.5	30	26	27	28	30	25	27.81
			25	145	140	145	140	138	130	135	122	136.80
Royal Aroma	Vietnam/ Thailand	Jasmine	1	8.0	7.5	7.0	6.0	6.0	7.5	7	6	6.87
			5	29	33	30	25	27	28	26	26	28.00
			25	140	125	130	130	126	-	140	130	131.50
Basmati	Pakistan/ India	Basmati	5	30	27	25	25	26	30	28	28	27.37

Source: Revisit to retail outlets. Sample of 59 supermarkets.

The price of imported rice varies across locations in Accra. Prices in East Legon, Osu, and Accra Mall are higher than similar weights of rice in Nima or Medina (Table 3.4). However, imported rice is

more widely available in Accra than is local rice, whether branded or loosely sold. Coupled with a lack of information about branded local rice, this compels most consumers to demand imported rice. Additionally, the preferred quality attributes of consumers, such as quality of packaging, whiteness of grain, length of grain, and level of information about a brand (advertising) are important in the purchase decision of consumers in Accra.

Lele and Gino are the most expensive imported brands in Ghana. They cost between GH¢9.50 and GH¢9.60 per kg compared to other popular imported brands, like Cindy, Milicent, or Royal Aroma (GH¢6.60-7.80 per kg), and most common local brands, like Royal Farmers and Copa (GH¢5.00-5.80 per kg). Traders reported that rice imported from Thailand is of higher quality in terms of taste and cooking qualities than is rice from Vietnam. In all markets surveyed, Thai rice is more expensive than Vietnamese rice. These price differentials are observed within brands and between brands. For instance, one kg of Fortune rice imported from Thailand costs GH¢11.00, while the same weight and brand from Vietnam cost GH¢8.00. However, the two types of Fortune rice have similar quality attributes, including being long grain, white, aromatic (Jasmine type), and well-packaged. Thai rice is simply more expensive than imported rice from elsewhere. This implies that Gino and Lele, which are imported from Thailand, all things being equal, should be more expensive than Cindy, Milicent, and Royal Aroma, rice brands that come from Vietnam.

### **3.5 Packaging and labelling of local rice in Ghana**

Branded local rice sold in supermarkets and malls in Ghana is well labelled and packaged (Figure 3.2). Product labeling is the main source of information on a product. A typical label includes the name of the product, the net quantity of rice in the packet, the name and address of the distributor or producer, a list of ingredients, some indication of the shelf life of the rice, storage and cooking instruction, and nutritional information. However, local rice in traditional open markets is sold unbranded. In most cases, local rice sold in open markets is a mixture of different varieties. This compels consumers and traders to make their purchase decisions based on visible quality attributes alone.

There are five main companies processing and packaging local rice in Ghana. They are located in various rice production areas, primarily in Tamale, Sogakope, and Asutuare. The companies buy rice directly from farmers. They then grade and process the rice before packaging and distributing it under their own brands.

While unbranded local rice is mostly packed by the retailer in polythene bags after bulk purchase, branded rice, whether local or imported, is packaged in white woven or laminated bags of different weights with different quality of labelling. Most of the processing companies import their bags for packaging rice from Vietnam and India. These companies reported that bags produced in Ghana are of significantly lower quality than the imported bags. Despite efforts by Ghanaian processors of local rice, the number of brands of imported rice available in Ghana has quadrupled over the years (IFPRI 2017). These imported brands use high quality packaging in different weights (1, 5, 10, 25 and 50 kg). More importantly, the imported rice is of high quality due to the modern polishing and sorting machines used in the various countries of origin.

### **3.6 Quality attributes of local rice**

According to the United States International Trade Commission (USITC 2015), standard measure of rice quality attributes are percentage of broken kernels, the share of 'chalky' kernels, the degree of co-mingled varieties, and organoleptic properties (taste, sight, smell and moisture). However, these quality attributes are determined by interrelated factors, including varietal characteristics and

environmental conditions that occur during crop production, harvesting, processing, and handling (IRRI 2010b). Varietal characteristics include chemical characteristics – gelatinization temperature, apparent amylose content, gel consistency, alkali spreading value, and aroma. Physical characteristics include shape and size, the color of the grain, chalkiness, bulk density, thermal conductivity, equilibrium moisture content, and grain flow ability (IRRI 2010a). Environmental characteristics include moisture content, grain purity, physical and pest damage, cracked grains, and presence of immature grains (IRRI 2009).

Observations from the various markets visited in Ghana show that most unbranded local rice has more than 25 percent broken kernels. Hence, this rice is classified as low quality. However, some brands of local rice, such as Copa and Royal Farmers from Avnash are of high quality, with only between 5 and 15 percent broken kernels, while Bongo rice is of medium quality, with between 15 and 25 percent broken kernels. AVNASH has four types of rice under the brand name Royal Farmers. These vary by their broken rice content and by whether they are directly milled or first parboiled. Royal Farmers Everyday and Royal Farmers Explosive are both direct milled – Everyday has 25 percent broken grain, while Explosive has 5 percent. Parboiled types are Royal Farmers Premium, which has 5 percent broken grains, and Royal Farmers Select, which has 25 percent broken rice. Additionally, based on the percentage of bran removed in polishing and whiteness, Hohoe rice is judged to be of higher quality than Tamale rice, which is mostly parboiled, making the grain yellowish (Figure 3.1).

Regarding aromatic and non-aromatic rice type, almost all branded local white rice in Ghana is aromatic, of the Jasmine type, and is long grained. In contrast, unbranded local rice is generally a mix of different types. In Tamale, there are both aromatic (Jasmine and AGRA rice) and non-aromatic types (TOX and Mandi). However, in Kumasi, such classifications are difficult to make since most of the local rice available in the market is mixed from several sources.

The presence of foreign materials in the rice, such as stones, is still a major factor determining the quality of local rice, particularly for unbranded local rice. Branded local rice is well sorted, graded, and free of foreign materials. A physical observation test was conducted for six imported rice brands (Lele, Milicent, Cindy, Royal Aroma, Fortune and Mansa) and one local rice brand (Royal Farmers). Grain breakage, shape of grain, aroma, impurities, and color qualities were all examined. Royal Farmers was ranked second after Lele, while Royal Aroma, Cindy, Milicent, and Fortune were tied in the third rank. Mansa was ranked lowest. Mansa is a 100 percent broken rice imported from Thailand.

Co-mingling of different varieties is also a major factor contributing to low quality local rice in markets in Ghana. For instance, most brown rice is co-mingled with white rice (Figure 3.1). This mixing was found in unbranded local rice sold in all the markets surveyed. The resultant product has a high percentage of broken kernels because the varieties in the mixture have different milling properties. To prevent this, producers need to practice 'identity preservation' to avoid loss of quality. The method of harvesting can also prevent the co-mingling of rice types.

## 4 CONCLUSIONS

Improving the competitiveness of domestically produced rice is important for reducing Ghana's dependence on imported rice and will contribute to food security in Ghana. The competitiveness of locally produced rice against imported rice in Ghanaian markets depends principally on consumers' preferences based on quality attributes. The following are the conclusions from this study.

Local rice markets in Ghana are segmented based on the place of origin of the rice, type, color of grain, and various quality characteristics, including presence of foreign materials, cooking qualities, and taste. The place of origin was found to influence rice preferences indirectly through perceived quality. Unbranded local rice is sold only in traditional open markets and mini-supermarkets (unregistered), while branded local rice is sold in supermarkets and malls in Ghana.

The rice milling sector in Ghana is divided into small-scale private millers and emerging modern large-scale rice processors. While the former produce low quality rice, the latter's output is of high quality. Improving consumer attitudes towards local rice will entail substantially improving the milling of local rice by reducing losses and improving quality.

Local rice continues to receive a lower price than imported rice even when the quality objectively is similar. However, consumers do not perceive the quality to be so similar. This is largely due to the perceived low quality of local rice by consumers. This culminates in low demand for local rice, despite evidence of its higher nutritional value compared to imported rice. Perceived quality is central to the rice purchasing decisions of consumers and is the foremost reason why consumers prefer imported rice. However, demand is increasing for brown rice mainly due to health implications. This indicates that rice consumers are health conscious, providing a growing market for local brown rice.

Packaging of branded local rice is consistent with international standards. However, improving the competitiveness of local rice requires efforts to reform rice trading activities in open traditional markets by introducing grades, standards, and innovative packaging of local rice in these markets. Quality attributes such as low breakage of grains, long grain, aroma, absence of impurities, and white grains are identified in all branded local rice in Ghana. In contrast, unbranded local rice is still faced with the presence of foreign materials and a high proportion of broken grains, is often not white enough for consumers (yellowish, due to parboiling), and what is available in traditional markets is often made up of co-mingled varieties.

## REFERENCES

- Alhassan H., T. Frimpong, and A.S. Mohammed. 2015. "Do Ghanaian rural consumers prefer imported rice to local rice? Evidence from Akuapem North Municipality." *Applied Research Journal* 1 (3): 24-34.
- Anang, T.B., S.N. Adjetei, and A.S. Abiriwe. 2011. "Consumer preferences for rice quality characteristics and the effects on price in the Tamale Metropolis, Northern Region, Ghana." *International Journal of AgriScience* 1 (2): 67-74.
- Asante, M.D., B.O. Asante, G.K. Acheampong, S.K. Offei, V. Gracen, H. Adu-Dapaah, and Y.E. Danquah. 2013. "Farmer and consumer preferences for rice in the Ashanti region of Ghana: Implications for rice breeding in West Africa." *Journal of Plant Breeding and Crop Science* 5 (12): 229-238.
- Calpe, C. 2003. "Status of the world rice market in 2002." In *Proceedings of the FAO 20<sup>th</sup> Session of the International Rice Commission*, Bangkok, Thailand, July 23-26, 2002. Rome: Food and Agriculture Organization of the United Nations.
- Diako, C., E. Sakyi-Dawson, B. Bediako-Amoa, F.K. Saalia, and J.T. Manful. 2010. "Consumer perceptions, knowledge and preferences for aromatic rice types in Ghana." *Nature and Science* 8 (12):12-19.
- Diako, C., E. Sakyi-Dawson, B. Bediako-Amoa, F.K. Saalia, and J.T. Manful. 2011. "Cooking characteristics and variations in nutrient content of some new scented rice varieties in Ghana." *Annals of Food Science and Technology* 12 (1): 39-44.
- Fiamohe, R., T. Nakelse, A. Diagne, and P.A. Seck. 2014. "Assessing the effect of consumer purchasing criteria for types of rice in Togo: A choice modeling approach." *Agribusiness*. 31 (3): 433-452.
- IFPRI (International Food Policy Research Institute) 2017. Rice retail outlets survey in Cape Coast and Accra. Accra: IFPRI

- IRRI. 2009. *Milling/ Processing*: Rice Knowledge Bank. Los Banos, Philippines: International Rice Research Institute (IRRI). [<http://www.knowledgebank.irri.org/step-by-step-production/postharvest/milling>].
- IRRI. 2010a. *Measuring physical quality of paddy*. Rice Knowledge Bank. Los Banos, Philippines: International Rice Research Institute (IRRI). [<http://www.knowledgebank.irri.org/training/fact-sheets/postharvest-management/rice-quality-fact-sheet-category/item/measuring-physical-quality-of-paddy-fact-sheet>].
- IRRI. 2010b. *Physical quality of milled rice*. Rice Knowledge Bank. Los Banos, Philippines: International Rice Research Institute (IRRI). [<http://www.knowledgebank.irri.org/training/fact-sheets/postharvest-management/rice-quality-fact-sheet-category/item/physical-quality-of-milled-rice-fact-sheet>].
- Lançon, F., O. Erenstein, S.O. Akande, S.O. Titilola, G. Akpokodje, and O.O. Ogundele. 2003. *Imported Rice Retailing and Purchasing in Nigeria: A Survey*. Bouake, Cote d'Ivoire: West Africa Rice Development Association (WARDA).
- Manful, J., A Langyintuo, L. Hammond, and C. Coote. 1998. *An Assessment of Rice Post-Harvest Systems*, Study produced for the DFID project,, Improving the competitiveness and marketability of locally-produced rice in Ghana.
- MoFA (Ministry of Food and Agriculture) 2011. *Fact and Figures*. Accra: MoFA
- MoFA (Ministry of Food and Agriculture) 2016. *Fact and Figures*. Accra: MoFA
- Mohapatra, D. and S. Bal. 2006. "Cooking quality and instrumental textural attributes of cooked rice for different milling fractions." *Journal of Food Engineering* 73: 253-259.
- Musa, M., N. Othman, and F. Abdul-Fatah. 2011. "Determinants of consumers purchasing behavior for rice in Malaysia." *American Journal of Contemporary Research* 1 (3): 159-167.
- Rutsaert, P, M. Demont, M. Ndour, and E. Tollens. 2009. *Competitive rivals: Willingness to pay for Senegal River Valley versus imported rice*. Presentation at the 11<sup>th</sup> workshop on valuation methods in agro-food and environmental economics "Experimental auctions: Theoretical background and empirical applications." Barcelona, Spain. 2-3 July 2009
- U.S. International Trade Commission (USITC). Rice: Global competitiveness of U.S. rice industry. USITC Publication 4530. Washington, DC: USITC, April 2015

## About the Author(s)

---

**Selorm Ayeduvor** is a PhD Candidate in Agricultural Economics and Policy from University of Ghana. This paper was produced during his internship with the Ghana Strategy Support Program.

## Acknowledgments

---

The author would like to thank Shashi Kolavalli, Senior Research Fellow, IFPRI-Accra, for guiding the research and his mentoring role, Kwaw Andam, Research Fellow, IFPRI-Accra, for comments on earlier drafts, and the Ghana Strategy Support Program for the support provided, financially and otherwise, to undertake this research. Responsibility for all errors and omissions lies with the author.

**INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE** | 1201 Eye Street, NW | Washington, DC 20005-3915 USA  
T: +1.202.862.5600 | F: +1.202.862.5606 | Email: [ifpri@cgiar.org](mailto:ifpri@cgiar.org) | [www.ifpri.org](http://www.ifpri.org)

**IFPRI-ACCRA** | c/o IWMI, PMB CT 112 • Cantonments, Accra, Ghana | CSIR Campus (Opposite Chinese Embassy) • Airport Residential Area | T: +233 (0) 302 780 716 • F: +233 (0) 302 784 752 | [gssp.ifpri.info](mailto:gssp.ifpri.info)

The Ghana Strategy Support Program (GSSP) is managed by the International Food Policy Research Institute (IFPRI) and is financially supported by the United States Agency for International Development (USAID). The research presented here was conducted as part of the CGIAR Research Program on Policies, Institutions, and Markets (PIM), which is led by IFPRI. This publication has been prepared as an output of GSSP and has not been independently peer reviewed. Any opinions expressed here belong to the author(s) and do not necessarily reflect those of IFPRI, USAID, PIM, or CGIAR.

Copyright © 2018. Remains with the author(s). All rights reserved.