Export Potential of Nigerian Horticultural Fruits Industry

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Abstract

Increased awareness of the health benefits of fruits has resulted in phenomenal growth in the demand for fruits and fruit juices in Nigeria. Increasing population, expanding middle class, increasing urbanization as well as consumers changing taste has also increased fruit juice consumption. This study examines the trend in the demand for fruit juices and fruit juice concentrates in Nigeria. The analysis reveals that in 2011, 93 million Nigerians demanded 452 million litres of fruit juice valued at $407 million and by 2015; it is projected that 139 million Nigerians would be consuming 607 million litres of fruit juice estimated at $546 million. By the year 2011, 54.2kg million kilograms of fruit juice concentrate valued at $160 million was imported into the country and by 2015; the import bill needed for 70.5 million kilograms of fruit juice concentrate will be $210 million unless the country is able to produce concentrate locally. Post harvest loses of fruits occur both on farm and off-farm in Nigeria and it is estimated at 45 percent. The current efforts in the transformation agenda aimed at developing the fruit juice industry through value addition, is therefore, a timely one. Reduction in post harvest losses will have a multiplier effect on improved nutrition, increased income, increase in foreign exchange earnings as well as employment generation for the populace. This is an area of concern for the National Horticultural Research Institute that is saddled with the production, processing and value additions to fruits and other horticultural plants in Nigeria.

Key words: Nigeria, horticulture, fruits export, value addition

Introduction

The agricultural sector remains pivotal to overall economic development, contributing significantly to Gross Domestic Product (GDP), employment generation, increase in income, and food security. In 1960 when Nigeria got political independence, agricultural exports were the main source of foreign exchange earnings and accounted for about 32 percent to 37 percent of the GDP (Akinwumi, 2011). Today, agriculture contributes about 45 per cent of the country's GDP and employs around 75% of the workforce, including 90% of the rural population (Efisue, 2012). The International Food Policy Research Institute valued Nigeria's agriculture at 99 billion dollars in 2010 and it is projected to grow to 256 billion dollars by 2030, through yield expansion (44%), area expansion (33%) and diversification into high value crops (23%).

Also, with the diverse ecologies and favourable weather conditions, Nigeria has an immense comparative advantage and potential to lead in the world trade in tropical fruits (NIHORT, 2008). Nigeria is rated as one of the 7 largest producers of tropical fruits in the world. The country is ranked 4th in citrus production (1.2 million MT), 11th in plantains (0.5 million MT), 3rd in guava, 6th in both Mango and papaya in the world's tropical fruit production. The world production statistics for vegetables also reveals that Nigeria is ranked 2nd, 4th, 7th, and 15th for pepper, dry onions, fresh vegetables and okra respectively (FAO, 2004; FAO, 2006). The potential economic yearly contribution of fruits, vegetables and other horticultural produce and products to Nigeria's agricultural economy was estimated to be 20 billion Naira (approximately 133 million US Dollars). However, the country was only able to realize 1 million US Dollars in 2002 and 5 million US Dollars in 2003 from the export of 9 MT and 3.2 MT of fresh/dried horticultural produce/products respectively (Idowu, 2009). This goes to show that the enormous potential of horticultural crops export has been underexploited.

Nigeria still occupies the 8th position in the world ranking of mango producing countries as at 2006. The main producing states in the country include Benue, Jigawa, Plateau, Yobe, Kebbi, Niger, Kaduna, Kano, Bauchi, Sokoto, Adamawa, Taraba and FCT, Abuja. Nigeria has

greater potential over other world suppliers of tropical mangoes. This is in terms of the year round favourable agricultural and climatic conditions. The obviously high input cost is usually most compensated by the steadily rising of export of the mangoes fruit? The prices of the various grades of mangoes, single, concentrate and slice; ranges between $700 and $2,200 per ton. The price is still rising. An estimate from a private farm in the country shows that 50,000 mango trees had the capacity to produce 10,000 tonnes of mangoes annually, representing 200 kg of mango per tree. If juice is made from 10,000 tonnes of mangoes at the present price of juice in the market, estimated income is about N5 billion, while all it would cost to process the juice will not be more than N1.5 billion. This will give an annual profit of N3.5 billion. This estimate underscores the potential contribution of mango fruit to income generation in the country.

Meanwhile, the agricultural sector is presently undergoing a transformation process with the policy trust of promoting export and import substitution as well as enhancing capacity for agricultural fresh produce production, value addition and exportation to other countries within and outside Africa. As part of the ongoing agricultural transformation agenda in Nigeria, the Federal Government is building cargo terminals for the export of perishable farm produce at strategic airports in the country. What the farmer needs essentially is to produce in accordance with the specifications of the target market. The terminals, which are being built at the food basket regions of the country are expected to transform subsistent farmers into exporters as their produce would be enhanced, stored and packaged for export. It has been estimated that farmers from 14 states of the federation, where the perishable cargo terminals are being located, will earn over N101 billion annually in the first two years, and this is expected to increase in subsequent years. There is an appreciable growing trend in local processing and export of fruits since the ban on the importation of fruits and fruit juices as well as related products came into force. Thus, horticultural crop production could serve as an engine for economic growth. It creates more jobs per hectare, on-farm and off-farm, than most other agricultural enterprises. This benefits farmers and labourers in rural and urban areas who feed the majority of the Nigerian populace.

Problem statement

The world production of tropical fruits increased from 40 million metric tonnes to 60 million metric tonnes between 1990 and 2000, with over 90% of this production coming from developing countries in Asia, Latin America and Africa. Mango, pineapple, avocado pear and papaya are the most widely traded fruits in the world. International trade in tropical fruits is estimated at over USD 75 billion annually. Nigeria is rated among the seven largest producers of the major tropical fruits traded worldwide. Other countries are Brazil, Mexico, Thailand, Kenya, Philippines and Indonesia (Anon, 2012 A & B). Kenya mainly exports Avocado and citrus and is the eight largest producer of Avocado in Africa after South Africa, Chile and Peru. Exportable fruit crops in Nigeria include plantain, banana, citrus (especially grape fruit, shaddock) pineapple and guava, Irvingia (Babatola, 2004), (Fig. 1 and 2). The production of these fruits is spread over the different seasons of the year. Hence, Nigerians never lack availability of one fruit or another, throughout the year.

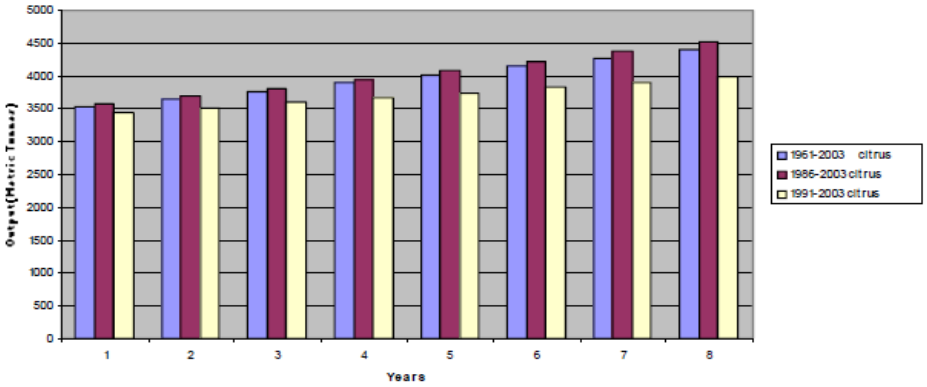


Figure 1: Citrus production in Nigeria between 2003 and 2010
Source: Yusuf, S.A. and Saliu, A.S., 2010

In the last decade (1990-2000), world production of tropical fruits increased from 40 million metric tonnes to 60 million metric tonnes. About 98% of the world's production was from developing countries in Asia, Latin America and Africa of which Nigeria accounted for more

than 20%. Mango, pineapple, avocado pear and papaya are the most widely traded fruits in the world. International trade in tropical fruits is estimated at over USD 75 billion annually. Nigeria is rated among the seventh largest producers of the major tropical fruits traded worldwide. Other countries are Brazil, Mexico, Thailand, Philippines and Indonesia (Anon, 2012 A & B). In the comparative analysis of the volume and percent share of the World's permanent tree crops and production places, Nigeria is in the third position. The United States of America is leading, followed by Brazil (Table 1). The country's yield figures of some fruits compared with the World at large are also shown in Table 2.

Table 1: Comparative status of world production volume of permanent crops production (2004 cropping season)

Country	Hectare ("000)	Production Volume (000 tonnes)	Share in the world (%)
USA	176,018	69,387	5.01
Nigeria	**30,055**	**17,397**	**1.26**
South Africa	14,753	7,769	0.56
Ghana	-	3,475	0.25
Cote d'lvoire	-	2,516	0.18
Burkina-Faso	4,040	310	0.02
Brazil	57,640	43,774	3.16
Canada	45,810	3,228	0.23

Source: FAO production statistics division 2008 http/faosta.fao.org

Table 2: Comparative status of world yield figures of some fruits (2006 cropping season) (kg ha)

Crops	USA	Nigeria	S/Africa	Ghana	Cot/d'l	Brazil	Malaysia
Citrus	24,191	**4,514**	18,344	-	12,243	-	5,512
Guava/Mangoes	4,384	**5,805**	1,916	11,000	4,996	15,959	4,337
Plantain	-	**6,094**	-	9,699	3,846	-	-
Pawpaw	21,736	**8,250**	10,212	4,470	23,915	48,337	10,011
Other fruits	18,000	**6,406**	10,434	3,461	7,166	13,157	7,319

Source: FAO production statistics division 2008 http/faosta. FAO

Table 2 shows Nigerian's position in horticultural fruit production. The country came 3rd in mango production and 2nd in plantain production when compared with other seven countries of the world. The situation can still be improved upon under the ATA programme. In order to improve the yield, quality and economic

potentials of horticultural crops in Nigeria, research activities at the National Horticulture Research Institute (NIHORT) have identified some crop varieties with acceptable qualities both for local and international markets. The characteristics of selected fruit crops in terms of varietal description, earliness to fruiting, fruit size and fruit yield per hectare are shown in Table 3.

Table 3: Characteristics of available fruit crops at NIHORT

Crop	Varieties	Yield Tons (ha)	Characteristics
Fruits			
Mango	Early Gold Saigon, Ogbomosho	5 tons	Small sized plants with small fruits 250-300g fruit size
	Julie	15-25	Medium size trees with fruits 350-500g size
	Zill Palmer Edward Haden Keitt	30-40	Large plants with big fruits 600g to over 1kg size
Pineapple	Smoth Cayene	60-100	
Pawpaw	Homestead	30-35	Dwarf, early fruiting and yellow pulp high yielding fruits
	Tsolo	15-20	100g each
Guava	Alliahabab safeda	7-10	White flesh, strong aroma, Fair seeds, White flesh,
	2885	7-10	Pink flesh
	2887	10	
Banana	Paranta	18	Desert bananas with good
	Omini (Red & Green)	18	eating qualities
	Dwarf Cavendish	15-20	Fingers 90-100g (paranta) each
	Gross Micheal	15-25	100-150g (Omini) 120-200g (D. Cavendish) 100-150g (Gross Micheal)
Citrus	Nigerian green skin		Not very good for fresh fruit
	Oranges (Etinan)	25	Market because of the green
	Tangelos	30	peel coulour as maturity but
	Lemon	15	good for processing
	Grape Fruit (Marsh Seedless)	25	
	Lime	22	

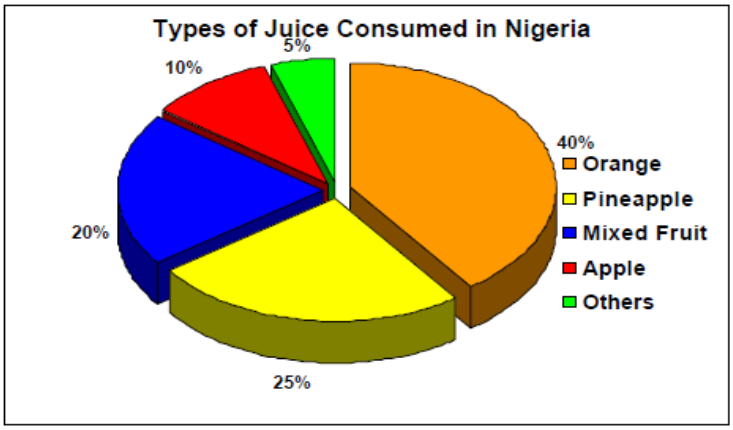
Demand for fruit juices

In Nigeria, the demand for fruit juices has been on the increase since the year 2002, when the Federal Government placed a ban on the importation of fruit juices into the country. There was an increase from the 200 million litres demanded in 2002 to 452 million litres as at the year 2011 and this was valued at $407 million (Table 4).

Table 4: Consumer demand quantity and import value of fruit juices in Nigeria

Year	Total Quantity of Fruit Juice consumed (Million Litres)	Quantity of Fruit Juice Imported (Million Litres)	Value of Fruit Juice Import (Million $)	Consumers (Million)
2002	200	180	250	15
2003	220	198	259	25
2005	266	239	290	45
2007	320	288	350	55
2009	374	337	432	74
2011	452	407	554	93
2013	547	492	670	112
2015	607	546	820	139

The various types of fruit juices consumed in Nigeria between 2002 to-date are shown in Fig 2.



Source: Industry Estimates

Figure 2: Types of juice consumed in Nigeria

By 2015, the demand for fruit juices in the country is estimated to be about 607 million litres, estimated at $546 million. By the year 2002, about 1.5 million kilograms of fruit concentrate valued at $4.2 million was imported into the country (Table 5). Since that time, there has been a steady increase in the demand for fruit concentrate such that by 2007, this had increased to 30 million kilograms valued at $85 million.

In addition, increased awareness of the health benefits of fruits has resulted in a phenomenal growth in the demand for fruits and fruit juices in the country. In terms of population, 15 million consumers demanded fruit juices in the year 2002. By 2011, consumers of fruit juices rose to about 93 million and presently in 2015 it is projected that more than 139 million Nigerians would be consuming fruit juices. Besides, the potentials for continuous increase in demand for fruit juices in the country include; the ever expanding middle class, increasing urbanization, increasing income as well as changing taste of the people. Most fruit juices are packed in one-litre, 500ml and 250ml "TetraPaks". Other micro-packs are 50cl, 33cl and 25cl.

Table 5.Fruit Juice demand, quantity imported and import value

Period	Quantity Demanded (Million Kg)	Quantity Imported (Million Kg)	Value of Import (Million $)
2002	1.5	1.4	4.2
2003	3.5	3.3	10
2005	13.5	12.8	38
2007	30.0	28.5	85
2009	45.0	43.0	127
2011	57.0	54.2	160
2013	65.2	61.9	185
2015	74.3	70.5	210

Challenges of the fruit juice industry in Nigeria

The fruit industry is faced with numerous challenges along the value chain and these pose major threats to the attainment of the full potentials of the commodities in Nigeria, either for local consumption or foreign market. For instance close to 60.0% loss can be experienced during the peak production period of any fruit, whereas such fruits may

not be available during the off-season. Also, from the farm, fresh fruit produce meant for domestic consumption are often transported in overloaded open trucks and as extra luggage attached to tankers, packed with jute bags and cane baskets staked on top of each other. This results in huge losses which can be minimized using cold storage facilities which are currently not available for fruit produce in Nigeria.
Other challenges in the fruits industry include lack of post-harvest handling, that is, absence of sorting, grading and cold storage, poor road network and malfunctioning railway system, low utilization of improved seeds and seedlings (Nigeria uses 5%; East Africa 25% and Asia uses 60% improved seed/seedlings), low rate of fertilizer usage (Nigeria uses an average of 13kg/hectare, the western world uses 100kg/hectare and Asia uses 150kg/hectare). In the area of mechanization, Nigeria uses 10 tractors per 100 hectares, compared with Indonesia which uses 241 tractors per 100 hectares. Percentage of irrigated land: Nigeria, again scores low recording an average of 0.8%, while Thailand has 28% of its arable land irrigated. Low crop yield; Nigeria is only able to obtain 20-50% of that obtained in other developed countries of the world. In budget appropriation, Nigeria appropriates 2%, Burkina Faso, 10% while most Asian nations appropriate 16% of their National budget into agriculture annually.

Despite these challenges, when the export market is stimulated, viable businesses focusing on fresh produce production, processing, grading, packaging, transportation, marketing and short term cold storage will be developed. The current effort in the transformation agenda aimed at developing the fruit juice industry is a timely one. When the problem of processing and storage of fruits is tackled, it will have a multiplier effect of improved nutrition, increased income and foreign exchange as well as employment generation. It is therefore imperative, that all efforts must be geared towards curtailing post harvest losses through value addition. This is the challenge which NIHORT and other research Institutes saddled with production processing and value additions to tropical fruits must tackle.

The Nigerian Government is presently partnering with the Ministry of Finance, Trade and Industry and Central Bank of Nigeria (CBN) through the Nigerian Incentive-based Risk Sharing System for

Agricultural Lending (NIRSAL), for finance and lending to all agricultural value-chain operators, at single interest rate. The government is also developing Crop Processing Zones and shall put in place appropriate fiscal investment and infrastructure policies for these processing zones, as a form of encouragement to processors. Private sector agribusiness entrepreneurs are also being encouraged to set up processing plants for value addition, in the different zones of the country. The importation of such plants shall be at minimum import duty rate. In addition, farmer clusters/groups are being linked up with processing plants, so as to add value to their produce.

Conclusion and recommendations

The horticultural sub-sector has been identified as a major employer of labour and a source of arresting food and nutritional insecurity. In fact, adequate provision of nutritious food is synonymous with a nation's socio-economic security. Despite the numerous challenges, when the fruit market is stimulated, viable businesses focusing on fresh produce production, processing, grading, packaging, transportation, marketing and short-term cold storage will be developed. It is in this context that horticulture as a science needs to be employed so as to achieve the most desired results.

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