

CHALLENGES IN MARKETING OF AGRICULTURAL FOOD PRODUCTS AND THE IMPLICATIONS ON FOOD SECURITY IN KANO METROPOLIS, NIGERIA

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ABSTRACT

The paper aims at examining the challenges facing traders of agricultural food-product markets in Kano Metropolis so as to see the implications on food security. This study centres on specialized agricultural food-product markets in the metropolis with particular attention to Dawanau, Yan Lemo and Yan Kaba markets. The study used focus group discussion with ten traders each of the markets. The traders were challenged by marketing problems of transportation, storage, packaging, seasonality of products, perishability of products and improper disposal of spoiled products. The implications of the problems on food security included increased marketing costs, preservation of products against heat, insects and rodents, and using some spoiled fruits as industrial raw materials, soup ingredient and source of energy. To enhance food security, it was recommended that there should be provision of more infrastructure such as water, electricity, modern means of preservation or storage facilities, waste disposal facilities and good internal road network; facilitate the formation of cooperative organization among the traders to ensure financial empowerment through credit facilities, seeking government's attention and cooperation of traders by the leadership of the markets, and education of traders through provision of highly efficient and technical extension services in the areas of agricultural marketing activities.

Key Words: Agriculture, specialized markets, food security, product preservation and waste management

INTRODUCTION

Food insecurity is a global phenomenon. More than 800 million people throughout the developing countries and some other 40 millions in developed world do not have enough food to meet their basic needs and millions more experience hunger, malnutrition, growth retardation and sometime death due to starvation (Idachaba, 2004). In Nigeria, the population segments

with the highest vulnerability to food insecurity include poor farming households in the Sudano-Sahelian zone of Northern Nigeria and the humid forest zones of Southern Nigeria, and pastoralists scattered over Northern Nigeria. The Sudano-Sahelian zone is particularly drought-prone, the humid forest zones are particularly flood-prone, and pastoralists commonly face

fodder and water deficits due to low rainfall situations in the North (Grant et al, 2009: 4)

The process of urbanization has brought changes in terms of social and economic behavior and one important element of the behavioral changes is the pattern of consumption of foodstuffs and other essential commodities (Sada and McNulty, 1974: 9). Societies have access to adequate food supplies for survival, and the continued existence of most states have largely depended on availability of agricultural products. Therefore, in the world over foodstuff has become more commercialized. This is more so for sub-Saharan Africa which is said to be urbanizing more rapidly than any other part of the world and there is an escalating demand for fresh foodstuffs from the urban population (World Bank, 1995; Binns and Lynch, 2007).

In Nigeria, marketing of foodstuff is a major feature of the economy (Diche, 2000: 76). This is necessitated by the ecological variation as the main source of regional specialization of production. Grains, vegetables and livestock are mainly from the North, fruits, root crops from the Middle Belt and both together with tree crops in the South. These products enter the national and even international exchange, through the medium of mostly specialized markets located mainly in urban centers.

Kano State is an important center of commercial activities. In particular, the expansion in the population of Kano because of rapid urbanization has resulted in greater demands on agricultural production and marketing systems. The Kano Region produces substantial surplus agricultural

products and, together with supplementary products from outside the state, has elicited the development of specialized agricultural food products markets within metropolitan Kano (Sani and Sulaiman, 2002:4). Apart from meeting internal demand, grains, vegetables and livestock, through the medium of these markets, are sent to other parts of Nigeria and exported to foreign countries. Also, the markets receive other products like fruits and tubers from middle and southern belts of Nigeria.

STATEMENT OF THE RESEARCH PROBLEM

Von Braun, Bouis, Kumar and Pandya-Lorch (1992) observed that Food security is jointly determined by availability of food and accessibility to the food. Availability of food is a function of food production, stock holding and food marketing. To ensure food security in Nigeria, a number of Agricultural Development Institutions were set up and special programmes and projects were launched, which include: National Accelerated Food Production Programme, NAFPP (1973); Agricultural Development Project, ADP (1975); Operation Feed the Nation, OFN (1976); River Basin Development Authorities, RBDA (1977); National Seed Service, NSS (1977); Agricultural Credit Guarantee Scheme, ACGS (1977); Rural Banking Scheme, RBS (1977); Green Revolution, GR (1979); Directorate of Food Road and Rural Infrastructure, DFRRI (1986); National Agricultural Land Development Authority, NALDA (1992); National Fadama Development Project, NFDPP (1992); Nigerian Agricultural Cooperatives and Rural Development Bank, NACRDB (2000); National Agricultural Development Fund,

NADF (2002); Commodity Marketing and Development Companies, CMDC (2003) (Christopher et al, 2010: 6-12). Majority of these efforts have centered on increasing food production, even though they have not been impressive enough in achieving their desired objectives (Ihimodu, 2004).

Thus, more emphasis is usually placed by government on policies to increase food production with little or no consideration on how to distribute the food produced efficiently and in a manner that will enhance increased productivity. In other words, food marketing by farmers and their families, mostly in the immediate post-harvest period, usually involves a lot of costs and in Nigeria these costs are so high that lowering the costs through efficient marketing system may be as important as increasing agricultural production (Olayemi, 1982, Ahmed and Rustagi, 1987). In its National Program for Food Security (NPFS) released in 2008, Nigeria set objectives to achieve not only increased food production but also increased processing and storage capacity as well as development of the market and physical infrastructure required to achieve food security (Grant et al, 2009: 4). An efficient food marketing system would reduce post-harvest losses, ensure adequate returns to farmers' investment and stimulate expansion in food production thereby enhancing the level of food security in Nigeria (Ladele and Ayoola, 1997: 88).

Despite having markets for agricultural food products, Kano Metropolis is one of the food insecurity stricken areas in Nigeria (Grant, Charette and Field, 2009: 4). Thus, this paper looks into the challenges facing

marketing of agricultural food products and the implications on food security in the Metropolis.

AIM AND OBJECTIVES

The aim is to examine the challenges facing traders of agricultural food products in specialized markets in Kano Metropolis so as to see the implications on food security. The achievement of this aim is through the following objectives:

- (i) To identify the problems facing traders of agricultural food products markets in the dry land city of Kano.
- (ii) To examine the implications of the marketing problems on food security in Kano city.

RESEARCH QUESTIONS

- (i) What marketing problems face traders of agricultural food products markets in Kano City?
- (ii) How does food product marketing influence food security in the area?

THE STUDY AREA

Location and Size: The study area is Kano metropolis, which is located between longitudes 8° 25'E to 8° 40'E and latitudes 11° 54'N to 12° 06'N. It is composed of eight metropolitan Local Government Areas: Dala, Fagge, Gwale, Kano Municipal, Kumbotso, Nassarawa, Tarauni and Ungogo (Figure 1). Kano metropolis occupies an area of about 683 km², with an areal distance of 19 km from East to West and about 15 km from North to South (Ibrahim, 2005).

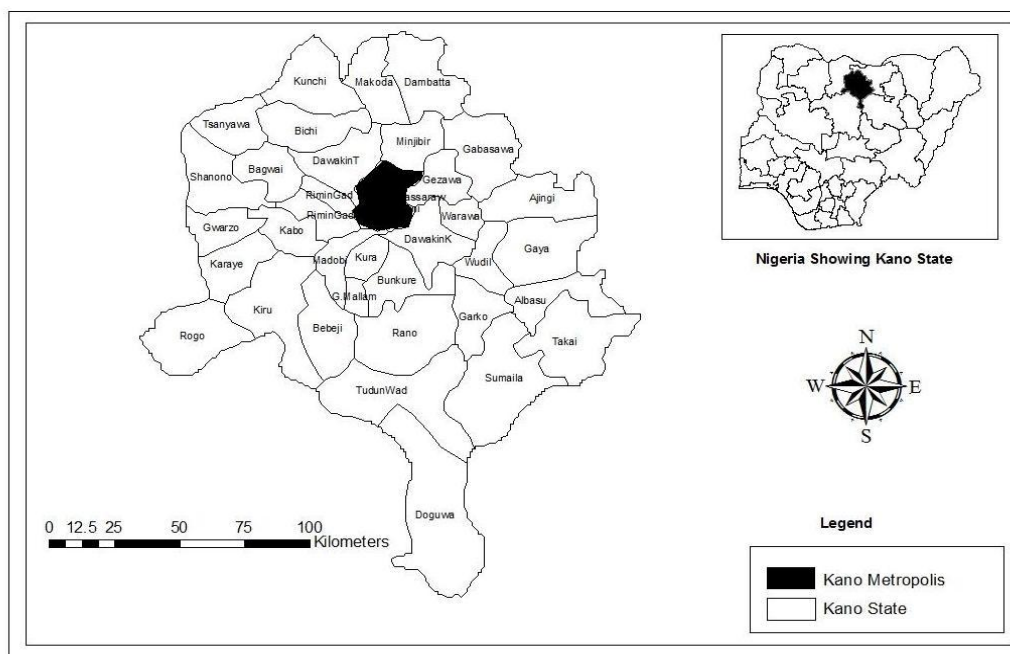


FIG. 1: Kano Metropolis in Kano State
Source: Kano State Survey Division (1999)

Population: Kano metropolis has a population of 2,826,307 (Federal Republic of Nigeria, 2009: 31-32). Hausa-Fulani constitutes the majority of the population while other dominant ethnic groups are Nupe and Kanuri “natives”, Yoruba and Igbo. Foreigners are mainly Lebanese, Asians and those from other African countries (Falola, 2002:146).

Physical Environment: The most important aspect of the physical environment of the study area is climate. The climate of the area is dry-and-wet, coded as Aw according to Koppen’s classification of climate. The fluctuation of the wet and dry periods is dictated by the seasonal migration of Inter-Tropical Convergence Zone (ITCZ). The wet season lasts from June to September while

the dry season extends from about mid-October of one calender-year to about mid-May of the next (Olofin, 2008: 12, 14). Long-term meteorological records at the Kano airport have shown that Kano has a mean annual rainfall of 884mm, a mean annual temperature of 26°C, relative humidity of 50%, evaporation is 1772mm and sunshine is about 8.5 hours per day.

Economic Activities: The importance of economic activities in the lives of the people in Metropolitan Kano can be traced to pre-colonial time. Shea (2003: 105) described Kano’s pre-colonial economy as “sophisticated and highly articulated” because of complex agricultural system that supported her industries and international trade, complicated system of markets and

trade, high water table that supported political and economic structures, and large population.

In the pre-colonial time, there were four conditions of agricultural food supply (Tanko, 2003: 122). First, the area was agrarian in nature because majority of the population were engaged in agricultural occupations. Second, farming was intensive, permanent and 'scientific'. Third, there was agricultural production within the city. Fourth, there was a lot of grain 'importation' into Kano. In terms of commercial activities, Kano metropolis had trade links with the Maditettarranean in the north and the Yoruba states to the south. The trade centre then was Kurmi market (Falola, 2002: 146). Kano was already a major centre of cottage industries.

The economy has become more complex since the colonial time. The colonial economy encouraged the production of cash crops like groundnut and cotton. At the beginning of post-colonial time, about 85% of the surface area of Kano was put under annual or perennial cultivation. Because of high population density, staple food and cash crops could be produced. In 1970s and early 1980s, oil boom and collapse of agricultural export from Nigeria contributed to the collapse of agriculture in urban and peri-urban Kano. So, imports of staple foodstuff were high. Thereafter, government initiated programmes aimed at improving the food situation. Dams were created, river projects introduced, and new crops and farming practices introduced (Tanko, 2003: 126-128).

From the colonial time to date, there have been two levels in commercial

hierarchy of the metropolis. At the apex, there are three commercial units: the Kurmi, the Sabon Gari market and Central Business District (CBD). At the lower level are four all-purpose markets (Wambai, Rimi, Tarauni and Gama) and six specialized markets (Kwari, Kofar Ruwa, Yan Kaba, Kwanar Singa, Dawanau and Yan lemo). The specialized markets for agricultural food products came into being in the post-colonial time. Before, they were part of all-purpose markets (Falola, 2002: 146; Liman and Adamu, 2003: 165-166). Industrial production also received drastic change. From colonial period to the present time, four main industrial layouts (or estates) have been established: Bompai, Sharada, Challawa and Gunduwawa/Hadejia road. In addition, there are small scale industries that dot the city centre.

The Markets: In the metropolis, there are seven specialized markets for agricultural food products.

- i) Dawanau market – for staple food, tubers and grains.
- ii) Yan Lemo at Maikalwa – for fruits.
- iii) Yan Kaba market – for vegetables.
- iv) Yan Awaki market at Unguwa Uku – for the sale of animals.
- v) Kara market of “Kofar Mazugal” for the sale of animals.
- vi) Yan Goro (Kola nut market) at Mariri.
- vii) Yan Rake at Goron Dutse for sugarcane. (See Figure 2)

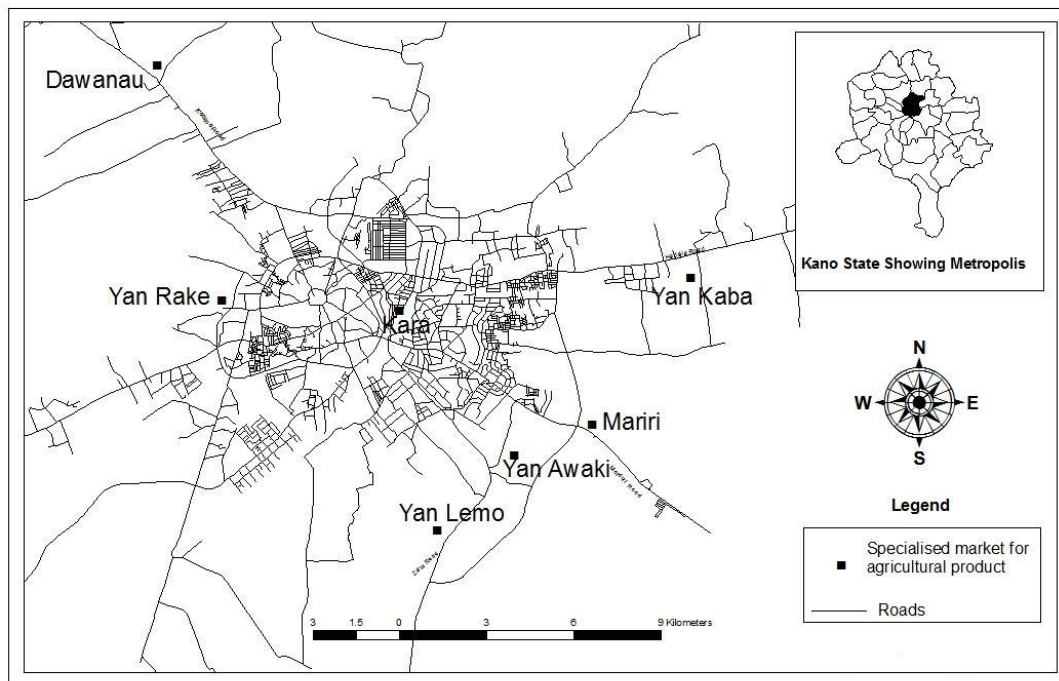


FIG. 2: Location of Specialized Agricultural Products Markets in Kano Metropolis

Source: Kano State Ministry of Land and Physical Planning (2008)

CONCEPTUAL BACKGROUND

(i) Marketing of Agricultural Food Products

Forces of demand and supply operate to make markets functional. This operation, known as marketing, “includes all those legal, physical and economic services, which are necessary to make the product from the farm available to the consumers” (Babalola et al, 2002: 156). Marketing involves packaging, storage, transportation and pricing, risk bearing, and even product design. So, it becomes a total system of economic activities concerned with the flow of agricultural products from producer to final consumer (Babalola et al, 2002: 156; Olukosi et al, 2005: 1).

Market as a physical location where people meet for marketing and trading is a remarkable feature of the economic landscape of every West African country. One classification of markets is that they can be either specialized or all-purpose. As the name implies, specialized markets are those that specializes in the buying and selling of a single or a category of similar products (Onyemelukwe and Filani, 1983: 175-176).

Marketing of foodstuff is one of the major features of the Nigeria’s economy (Diche, 2000: 76; Onyemelukwe and Filani, 1983: 127-128). In the system, root and tree crops (yam, processed cassava [gari], banana, orange, etc.) are sent to the northern markets from the south and middle belt. In

exchange, grains, vegetables and livestock are sent southward from the north.

There are four main characteristics of agricultural products in relation to marketing (Babalola et al, 2002: 157-158; Olukosi et al, 2005: 4). These are that they are bulky, perishable, seasonal and are produced in small quantities by many small holder farmers. The existing marketing system of agricultural food products in Nigeria is characterized by large number of small traders, strong competition, multitude of markets in the rural and urban areas, poor physical marketing facilities, rough or non-existent grading of produce, absence of standard system of weights and measures, considerable variation in quality, and large seasonal fluctuation in availability and prices (Babatola, 2004: 74; Onu and Iliyasu, 2008: 617-618).

The Nigerian urban inhabitants depend on the flow of agricultural products from farmers in the rural areas, and the efficiency of the flow would depend on the available transport facilities (Mbagwu, 1981: 89). In Kano metropolis, there exists both specialized and all-purpose markets for marketing of food products. While describing the structure of Kano economy, Sani and Sulaiman (2002: 4-5) made a surface inventory of specialized food products markets in Kano metropolis: Yan Kaba, Yan Lemo, Rimi, Dawanau, Kwanar Singa, Goron Dutse, Yan Rake, Yan Kura, Kara, Kurmi, Muhammadu Abuabakar Rimi Market, Kasuwar Mangwara. This classification is unsatisfactory because some of the markets in the list are not specialized markets but all-purpose markets, while some truly specialized markets in Kano metropolis were not included.

(ii) The Concept of Food Security

Food security is a flexible concept and, therefore, has changed over time. Clay (2002) summarized the trend in its conceptualization. As a concept, food security originated in the 1974 World Food Summit, defined as availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices. This initial focus, reflecting the global concerns of 1974, was on the volume and stability of food supplies. It was primarily on food supply problems - of assuring the availability and to some degree the price stability of basic foodstuffs at the international and national levels.

In 1983, FAO expanded the scope of the concept to include securing access by vulnerable people to available supplies, implying that attention should be balanced between the demand and supply side of the food security equation. In this sense, food security is about ensuring that all people at all times have both physical and economic access to the basic food that they need.

In 1986, the World Bank focused attention on the temporal dynamics of food insecurity. It introduced the widely accepted distinction between chronic food insecurity, associated with problems of continuing or structural poverty and low incomes, and transitory food insecurity, which involved periods of intensified pressure caused by natural disasters, economic collapse or conflict. Food security could be defined here as access of all people at all times to enough food for an active, healthy life.

The 1996 World Food Summit adopted a more complex definition, that food security, at the individual, household, national,

regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This definition was again refined by FAO in 2002, which says that food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Based on these definitions, food security stands on three pillars:

- Food availability: sufficient quantities of food available on a consistent basis.
- Food access: having sufficient resources to obtain appropriate foods for a nutritious diet.
- Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

The challenges of food security can be at national, regional, local or household levels. At the national level for example, a nation is food secure when the majority of the population have access to food of adequate quantity and quality consistent with decent existence at all times.

RESEARCH METHODS

This study employed qualitative approach in the collection and analysis of data. Two main instruments were used in data collection. The first was the use of Focus Group Discussion in which ten traders of Dawanau, Yanlemo and Yankaba markets were involved, comprising of wholesalers

(also serve as suppliers), commission agents and retailers. The discussion centered on general marketing problems, effects of the problems and prospective solutions. The author facilitated the discussion, while the research assistant took records of the issues raised.

The second instrument involved observation of the markets' facilities, displayed commodities on sale, damaged commodities, and systems of packaging and preservation.

The data collected was qualitatively analysed through careful collation, arrangement and use of relevant units of measurement, and the results presented in tables.

Out of the seven specialized markets for agricultural food products, three (Dawanau, Yan Lemo and Yan Kaba) markets were chosen for study. Three main reasons influenced their choice. One, these markets are particularly large, being international markets. Two, they are located along main roads leading to other states. Three, each of the markets specializes in the marketing of a large group of products especially important in the diet: tubers and grains, vegetables and fruits.

FINDINGS

(a) Marketing Problems

The marketing problems in the three agricultural food products markets centered on transportation, storage, packaging, uncertainties, quality, market environment and capital. Table 1 provides the main marketing problems and their causes.

Table 1: Marketing Problems in Dawanau, Yan Lemo and Yan Kaba

Problems	Causes of the Problems
Transportation	Long distance haulage of products High cost of prices and instability of supply of fuel Dilapidated road conditions
Storage	Poor and inadequate storage infrastructure Ineffectiveness of chemicals and methods of product preservation
Packaging	Packaging devices such as sacks and baskets
Uncertainties	Seasonality of products
Quality	Perishability of products especially fruits and vegetables
Market Environment	Improper disposal of spoiled products
Capital	Low capital

Source: Fieldwork (2011)**Table 2: Packaging, Storage and Damage of Products (Yanlemono)**

Product	Factors of Damage		Quantity Damaged (1 Week)			
			Peak Period		Off-Peak Period	
	Methods of Packaging and Storage	Climatic Factors	Bags/Baskets/ Pieces (Out of 100)	Kg	Bags/Baskets / Pieces (Out of 100)	Kg
Orange	Packaged in sacks and stored outside	Heavy rainfall and heat	10 *	2700	20	5400
Banana	Left in pieces and stored in shades	Heat	7 ***	0.3	33	1.2
Pine Apple	Left in pieces and stored outside	Rainfall and heat	40 ***	80	10	20
Water Melon	Left in pieces and stored outside	Rainfall and heat	30 ***	120	20	80
Coconut	Packaged in sacks and kept in stores	Rainfall and sun's heat	15 *	1080	10	720
Mango	Packaged in baskets and stored outside	Rainfall	20 **	1800	30	2700
Paw Paw	Left in pieces and stored outside	Heat	50 ***	150	10	30
Agwalumo	Packaged in baskets and stored outside	Rainfall and heat	30 **	1800	50	3000
Cashew	Packaged in baskets and stored outside	Sun's heat	20 **	1000	30	1500
Oro	Packaged in light sacks and stored outside	Rainfall	5 *	350	10	700

Source: Fieldwork (2011)

* Bags

** Baskets

*** Pieces

Table 3: Packaging, Storage and Damage of Products (Yankaba)

Product	Factors of Damage		Quantity Damaged (2 Days)			
			Peak Period		Off-Peak Period	
	Methods of Packaging and Storage	Climatic Factors	Bags/Baskets/Pieces (Out of 100)	Kg	Bags/Baskets/Pieces (Out of 100)	Kg
Tomato	Packaged in baskets and stored outside	Rainfall and heat	20 **	1000	80	4000
Red Pepper	Packaged in sacks and stored outside	Rainfall and heat	10 *	300	60	1800
Hot Pepper	Packaged in sacks and stored outside	Rainfall and heat	10 *	300	60	1800
Onion	Packaged in sacks and stored outside	Rainfall and heat	1 *	80	40	3200
Okra	Packaged in sacks and stored outside	Heat	10 *	250	1	35
Pumpkin	Left in pieces and stored outside	Heat and Rodents	10 ****	130	50	650
<i>Kasuwar Turawa</i>	Packaged in sacks and stored in shades	Rainfall and heat	*			3600 1800 1800 900 900 900
Irish Potato		50		6000	20	
Cabbage		50		3000	30	
Carrots		2		3000	1	
Cucumber		5		1500	2	
Garlic		8		1500	2	
Green Beans and Peas		10		1500	5	

Source: Fieldwork (2011)

* Bags

** Baskets

*** Pieces

The causes of the marketing problems included long distant haulage of products, high and unstable costs of fuel, dilapidated road conditions, poor and inadequate storage infrastructure, wrongly applied storage chemicals and methods, poor packaging devices, seasonality of products, inadequate security arrangement in the markets, perishability of products (especially fruits and vegetables), improper disposal of spoiled products, inadequate parking spaces and public utilities e.g. toilets, poor

drainages, and low capital for continued and increased investment.

(b) Implications of the Problems on Food Security

The following were the implications of the problems on food availability, access and use:

- (i) In Dawanau Grain Market, seasonality created surpluses at harvest period, which must be sold at low prices, or stored for

future sale at greater costs. In off-season there was shortage of the products, which led to a gap in the supply-demand situation and high fluctuations in prices for grains.

(ii) Damage to products resulting from transportation related problems, and further deterioration due to poor packaging, poor storage systems and perishability of the products reduce their availability to consumers. This is particularly applicable to the fruit and vegetable markets. Tables 2 and 3 show the factors that induce damage of products in the markets and the estimated quantity of the damaged products. The fruits could be kept for about one week in the market without being damaged except cashew, which could only survive about two days. However, vegetables could be kept only for about two days in the market without damage, except the less easily perishable ones like okra and pumpkin, which could be kept for about one week.

In Yanlemono fruit market (Table 2), the products that were packaged in sacks or baskets and stored outside experienced more damage in the off-peak periods of supply. That is, in the wet and hot seasons for orange (120 per 100 bags or 5400 kg) and Agwalumo (*Spondias mombin*) (50 per 300 baskets or 3000 kg), in the wet season for mango (30 per 100 baskets or 2700 kg) and oro (*Irvingia garbonensis*) (10 per 100 bags or 700 kg), and in the hot season for cashew (30 per 100 baskets or 1500 kg). Banana gets damaged when it is exposed to heat, which necessitated storage in shades. That is why it was damaged more in the off-peak period (33 per 100 pieces or 1.2 kg). Pineapple, water melon and pawpaw were not packaged but left in

pieces and left outside within the market. Rainfall and heat made them experience more damage in the peak periods of supply. Coconut was kept in stores because it does not tolerate sun's heat. In the peak period, the stores became inadequate for the coconut supplied into the market. So, the excess must be kept outside, making them more susceptible to damage (15 per 100 bags or 1080 kg).

All the vegetables traded in Yankaba market, except okra and products of *Kasuwar Turawa* (section for *white man's* products), got more damaged in the off-peak periods, that is in the wet and hot seasons when the weather condition is unfavourable. The amount of damage was higher with tomato (80 out of 100 bags or 4000 kg) because it was more fragile. Products of *Kasuwar Turawa* (irish potato, cabbage, carrots, cucumber, garlic, green beans and peas, etc.) got damaged when they were exposed to heat, which necessitated storing them under the shades. With the exception of tomato and pumpkin, all the products in the market were packaged in sacks. Tomato was packaged in baskets to minimize damage through circulation of air. Pumpkin had no packaging device but left on the ground and in the open (Table 3).

(iii) Implications of waste generation and disposal. Yanlemono and Yankaba markets faced problems of waste generation and disposal because of the perishability of the products. The markets had areas designated for the disposal of spoiled products. In Yanlemono market, the waste disposal site was at the western side behind water melon and banana section. Not all the traders disposed

the wastes at the officially designated sites. Some of them dumped wastes indiscriminately in the different sections of the market, which decayed and produced offensive odour (Plates 1 and 2). Also, when some of the products were consumed directly by buyers and traders the remains were thrown within and around the market generating a lot of wastes.

For Yankaba market, the waste dumping site was at the southern part, across railway line that passes through Yankaba Quarters. The dumping site was very close to houses and a table water

processing industry. Therefore, it serves as a threat to the health of the people living around the area.

(iv) Low capital for continued and increased investment. The traders in all the markets complained of inadequate fund for investment in the area of bulk purchases, and development of storage and transport facilities. This prevented them from expanding their business, which has the tendency to bring down costs due to economies of scale.



Plate 1: Dumped Damaged Orange within Yanlemo Market



Plate 2: Dumped Damaged Mango within Yanlemo Market

(v) **Product Preservation and Waste Management**

Product Preservation: In Dawanau market, products were preserved in stores. The products susceptible to damage by insects and rodents particularly beans would be mixed with chemicals like *Novan EC 1000* and air spaces of the stores sealed with mud. As these chemicals have negative effects on human health, the International Institute for Tropical Agriculture (IITA) introduced modern sack for packaging and storage, which is very thick and strong. The market association shouldered the responsibility for enlightening

the traders on the dangers of continued usage of chemicals and the need for patronage of the modern sacks for preserving their commodities.

In Yanlemo market, traders used woven corn stocks and torn sacks to cover the products kept outside for storage or displayed for sale against sun's heat in the day time (Plate 3). In Yankaba market, thatch was used as protective bed below the products against ground surface heat and on top as protective cover against sun's heat (Plate 4).



Plate 3: Products Covered with Woven Corn Stocks against Sun's Heat in Yan Lemo Market



Plate 4: Products Bedded and Covered With Thatch against Heat in Yan Kaba Market

Waste Management: In Yanlemo market, not all the damaged products were dumped as wastes. The damaged coconuts were locally used as raw materials for making ointment that is used in hair dressing. Also, industries use the shells as raw materials for making mosquito coil. Plate 6 shows coconut shells ready for evacuation to industries. Cashew nuts

were used for making cooking oil. Oro nuts were useful in two ways. The inner parts of the nuts were used as soup ingredient. The shell of the nuts provided energy for cooking. Unlike Yanlemo market, the generation of wastes in Yankaba market is minimized through drying of damaged products and subsequent sale.



Plate 6: Collection of Coconut Shells in Yanlemono Market

CONCLUSION

Two main conclusions can be drawn from this study. One, with marketing problems of transportation, storage, packaging, uncertainties, quality, market environment and capital, it would be difficult to have food products available in large quantity and at all times. Two, an efficient marketing system could ensure availability of food products to consumers and, therefore, reduce food insecurity.

RECOMMENDATIONS

To encourage better marketing and food availability, the following recommendations are given:

- i) More infrastructure should be provided by the government, market

associations and the individual marketers, like water, electricity, improved preservation or storage facilities, waste disposal facilities, good internal road network, etc.

- ii) There should be greater financial empowerment for the traders. Instead of relying heavily on traditional sources, there is the need for institutional credits support. Formation of marketing cooperatives would help in this direction. Credit supply would help them inject more capital into the business. For instance, a well established cooperative organization among the traders, to be funded by government, commercial banks and more buoyant traders, will go a long

- way in addressing such problems as shortage of capital through credits.
- iii) The market leaders (*Sarkin Kasuwa*) and associations should seek government's attention in the provision of market facilities and credits for the traders, and elicit the cooperation of traders in sanitation and general market organization.
 - iv) There should be a means by which the traders will receive education since the education would enhance greater marketing participation. One way of doing this is to provide highly efficient and technical extension services in the areas of agricultural marketing activities. Also, the market associations should organize literacy classes for the traders who have not received Western education.
 - v) More small scale industries should be established, for processing not only damaged coconut, cashew and oro but all the damaged fruits and vegetables. That could reduce marketing costs of the traders.
 - vi) There should be increased investment in post-harvest technology research and development. In this regard, simple storage and processing equipment could be developed which can be used at the level of the farmers and marketers, so as to reduce post-harvest food losses.
 - vii) More research should be encouraged, particularly on food security through marketing of other agricultural food products like kola nut, sugar cane, livestock, etc. in Kano metropolis and other areas. The findings and recommendations from these researches could yield usefull ideas for the reduction of food insecurity.

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