



ANALYSIS OF HOUSEHOLD'S CONSUMPTION PATTERN AND PREFERENCE FOR COWPEA-BASED FOODS IN CENTRAL ZONE OF BAUCHI STATE, NIGERIA

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ABSTRACT

This study examined the households' consumption pattern and preference for cowpea-based foods in Central zone of Bauchi state, Nigeria. A multi-stage random sampling technique was employed in the selection of 140 households for this study. Data were collected using questionnaires and analyzed with descriptive statistics the findings revealed a mean household size and mean income of 11 persons and ₦34,461.07, respectively. The result indicated that household highly preferred *Akara*, *moin-moin*, and cowpea dumpling with mean values of 2.9, 2.3 and 2.1 which are greater than the gross mean of 2.0. This implies that the higher the mean value of cowpea products, the higher the level of preference for the cowpea products. The mean values of 1.8 and 1.5 are for cowpea porridge and cowpea soup, respectively which are less than the gross mean of 2.0. This implies that household heads moderately or slightly preferred cowpea porridge and cowpea soup. The study concluded that households highly preferred *kanannado* cowpea type. In addition, the most preferred cowpea product was *akara*. The study recommended that cowpea farmers should produce more of *kanannado* cowpea type through awareness by extension agents to cowpea farmers and cowpea farmers should be educated on the potentials that exist in cowpea processing and how they can seize the opportunities to increase their income.

Keywords: Cowpea, Consumption, Food based, Central, Preference, Bauchi.

INTRODUCTION

Cowpea (*Vigna unguiculata*) commonly referred to as 'beans' in Nigeria has been a major food legume for several decades. Cowpea is an important source of protein. The crop is grown in many parts of Nigeria though much of its production takes place in the savannah region of the country. However, the domestic production is in the hand of small-scale farmers who obtain yield of 200-350kg/ha (Singh and Jackai, 1985; Bakoji *et al.*, 2017). Cowpea contains 20-25% protein and 64% carbohydrate. It therefore has tremendous potentials to contribute to the alleviation of malnutrition specifically among poor. Protein shortage of calories (energy foods) this constitute the problem of malnutrition and pronounce spread of human disease, (Fleck, 1981; Bakoji *et al.*, 2017). Nigeria being one of the developing countries of the sub-Saharan Africa is producing protein food items to meet nutritional needs of its teeming population (Nworgu, 1997; Bakoji *et al.*, 2017). In Africa cowpea provide source of income for women farmers who produce, make and sell snacks food from these nutritious legumes, (Singh *et al.*, 1997; Bakoji *et al.*, 2017). Cowpea has a high potential to increase farmers' and traders' incomes, thereby contributing to poverty reduction and food security. As a food crop, cowpea is a primary source of cheap protein for the ever-growing population of both rural and urban dwellers.



The consumption pattern of a household is the combination of qualities, quantities, acts and tendencies characterizing a community or a human group's use of resources for survival, comfort and enjoyment (Consumption report, 2012). Of course, the type of food and non-food items consumed, vary from region to region. Consumption patterns normally contribute greatly to the social and economic policy of the country. In a developing country like Nigeria, the consumption pattern is skewed towards food i.e., food accounts for a higher proportion of the total expenditure, while in developed countries the opposite is the case. The more developed a society becomes, the less it spends on food and the more it spends on non-food items (Consumption report, 2012). Cowpea provides feed, forage, hay, and silage for livestock, and green manure or maintaining the productivity of soils. When intercropped with cereals, it compensates for the loss of nitrogen absorbed by cereals through nitrogen fixation. It is also a good cover crop that limits soil erosion (Fantaye *et al.*, 2017)

In spite of the increase in population, total consumption of cowpea in Nigeria, especially central zone of Bauchi State remained almost stagnant. Reasons for such stagnation are not well established. Protein is required for the growth, maintenance and repair of all body tissues. Protein forms the foundation of muscles, skin, bone, hair, heart, teeth, blood and brain and the billions of biochemical activities going on in the body every minute. When inadequate amount of protein is consumed the blood and tissues can become either too acidic or too alkaline (Adetunji and Adepojo, 2011). Lack of dietary protein can retard growth in children and in adult, can be a contributing factor in chronic fatigue, depression, slow wound healing and the decreased resistance to infections (Iyangbe and Orewa, 2009). Among the most difficult problems confronting the world communities since the history of humankind have been those of food shortages and diet deficits. It is estimated that, more than 800 million people in developing countries, including Nigeria, are undernourished and the total gram of protein consumption per day is low in these countries as compared to the developed countries. For example, Ghana consumes 49.6 g/day, as compared to the USA (112.5g/day) (Nimoh *et al.*, 2012).

The broad objective of the study is to analyze the household consumption pattern and preference for cowpea-based food in central zone of Bauchi State. The specific objectives are to; describe the socio-economic characteristics of cowpea consumers, determine the level of preference for cowpea-based food and identify the constraints associated with consumption of cowpea-based foods.

MATERIALS AND METHODS

The Study Area

The study was conducted in central zone of Bauchi State which consists of six Local Government Areas (LGAs). These include Dambam, Darazo, Ganjuwa, Misau Ningi and Warji LGAs. The central zone lies between $11^{\circ}4'$ N and longitude $9^{\circ}34'$ E. It has a combined area of $5,250\text{km}^2$. The area has boundaries from the north with Jigawa and Kano also from the south with Bauchi LGA and from the west is Toro LGA. According to NPC (2015), the estimated population of central zone was 389, 960 at the rate of 3.86%. The rainfall starts from May and lasts to October with its peak at August (BSADP, 2016). The annual minimum temperature is 26°C and the maximum of about 40.2°C (BSADP, 2016). The major ethnic groups are Hausa, Fulani, Gerewa, Miyawa, and Kariyawa. The vegetation of central zone is Sudan Savannah type. The vegetation gets richer and richer towards the southern and central parts. The soil is a sandy loam type.

The most economic activities of the people living in the zone are iron work, trading, weaving and soap making. Agricultural activities which include, crop production and livestock



production. The major crops cultivated include cowpea, sorghum, maize, millet, sesame, tomato, onion, pepper, soya beans and groundnut. The livestock that are kept includes cattle, sheep, goats and poultry. The main occupation of majority of the indigenes in the area is crop farming and livestock production (BSADP, 2016).

Sampling Techniques and Simple Size

A multi-stage sampling technique was used for the study. First Stage: Two LGAs were purposively selected from central zone. This is due to highest concentration of cowpea production in the area. Second Stage: Three wards were selected from each LGA using simple random sampling techniques making a total six wards. Finally, from each of the wards selected, the sample size of 140 households was proportionally (10%) selected from the sample frame as obtained from BSADP as depicted in Table 1.

Table 1: Sampling procedures and sample size

LGAs	Wards	Sample Frame	Sample size 10%
Darazo	Tuaga	250	25
	Sade	250	25
	Wahu	200	20
Ganjuwa	Gubi	270	27
	Miya	260	26
	Yali	170	17
Total		1400	140

Source: BSADP (2019)

Data Collection

Primary data were collected by the used of structured questionnaires administered to 140 households with the help of trained enumerators.

Data Analysis

Data were analyzed using descriptive statistics and 3-point Likert scale to describe the socioeconomic characteristics of cowpea consumers, constraints associated with consumption of cowpea-based foods and level of preference for cowpea-based foods.

RESULTS AND DISCUSSION

Quantitative Socio-Economic Parameters of Household Heads

The age distribution of the households is presented in the table 2. The result shows that a minimum of 18years and maximum of 75years with the mean age of about 43years. This shows a true picture of most African societies where males are the head of the home and as such must provide for the daily needs of their family. This agrees with the findings of Abubakar *et al.* (2021), Ojedokun *et al.* (2020) and Mohammed (2011) who opined that the average age of all household heads were 42years in Bauchi State, 43 years in Oyo State and 40.3 years in Borno State, respectively. This also agrees with the findings of Bassey *et al.* (2013) who conducted a study on cowpea posited that cowpea marketers were at their youthful age, a situation which can promote market efficiency.

Table 2 also revealed that a minimum number of 2 people and maximum of 30 people with mean number of 10 people per household was recorded. This implies that the more people are in the households the higher will be the consumption of cowpea products. This agrees with the findings of Abubakar *et al.* (2021), Ojedokun *et al.* (2020) who reported an average mean household size of 10 people in Bauchi State and Oyo State, respectively. Table 2 also showed



the monthly income of the household head in the study area. The table revealed that a minimum of ₦8,000 and maximum of ₦150,000 with a mean monthly income of ₦34,461.07. This indicated that the higher the income the higher the consumption of food items especially cowpea products. This finding agrees with Abubakar *et al.* (2021) who reported that the average monthly income of households in western zone of Bauchi State was ₦35, 485.71.

Table 2: Quantitative socio-economic parameters of household heads (n = 140)

Variable	Minimum	Maximum	Mean	Standard Dev.
Age	19	74	43.44	11.639
Household size	2	30	10.64	6.886
Income	8,000	150,000	34,461.07	21681.622

Source: Field Survey, 2021

Level of Preference for Cowpea Based Foods among Households

Table 3 shows the distribution of households according to level of preference for cowpea products among households. The result indicated that household highly preferred *Akara*, *moin-moin*, and cowpea dumpling with mean values of 2.9, 2.3 and 2.1 which are greater than the gross mean of 2.0. This implies that the higher the mean value of cowpea products, the higher the level of preference for the cowpea products. Therefore, households highly preferred *akara*, *moin-moin*, and cowpea dumpling than any other cowpea products. The mean values of 1.8 and 1.5 are for cowpea porridge and cowpea soup, respectively which are less than the gross mean of 2.0. This implies that household heads moderately or slightly preferred cowpea porridge and cowpea soup. This disagrees with Abubakar *et al.* (2021) who reported that households in western zone of Bauchi State highly preferred *alale* than any other cowpea products.

Table 3: Level of preference for cowpea-based foods among households

Level of preference	Highly preferred	Moderately preferred	Slightly preferred	Total	Mean
<i>Akara</i>	104	42	4	400	2.9
<i>Moin-moin</i>	76	35	29	327	2.3
Cowpea dumpling	65	34	41	304	2.1
Cowpea porridge	46	29	65	261	1.8
Cowpea soup	18	36	86	212	1.5

Source: Field Survey, 2021.

Constraints Associated with Consumption of Cowpea-based Foods by Households

Table 4 shows the distribution of households according to constraints associated with consumption of cowpea products. The result revealed that 85.7% of the households are faced with the problem of insect infestation on cowpea before been processed into different cowpea-based foods which ranked as 1st, followed by high cost of cowpea which hinders the purchase of cowpea before processing it to other form which ranked 2nd. Risk of constipation ranked 3rd, poor storage of grains at home ranked 4th, unavailable of cowpea all year round ranked 5th and longtime of cooking ranked 6th. This implies that households in central zone of Bauchi State were faced with problem of storage of cowpea due to insect infestation. High cost of cowpea due to unavailability of the grain all year round, and risk of constipation can be severe in some



people for consumption of cowpea-based foods. The finding agrees with Abubakar *et al.* (2021) who reported that households in western zone of Bauchi State were faced with high cost of cowpea and abdominal discomfort as constraints associated with household preference for cowpea and its based foods.

Table 4: Constraints associated with consumption of cowpea-based foods

Constraints	Frequency*	Percentage	Rank
Insect infestation	120	85.7	1 st
High cost of cowpea	114	81.4	2 nd
Risk of constipation	111	79.3	3 rd
Poor storage of grain at home	65	46.4	4 th
Unavailable all the round	59	42.1	5 th
Long time in cooking	51	36.4	6 th

Note: Multiple responses were recorded

Source: Field Survey, 2021.

CONCLUSION AND RECOMMENDATIONS

The study concluded that the major constraint to consumption of cowpea-based foods is the severe insect infestation that were facing most of the households which may reduce the cowpea-based foods consumption which is attributed to damage done by insect during storage of the crop. Also, high cost of cowpea and risk of constipation are challenges encountered by households in consuming cowpea based-foods. Based on the findings of this study, it is recommended that:

1. Cowpea farmers should be educated on the potentials that exist in cowpea processing and how they can seize the opportunities to increase their income.
2. Researchers should develop simple appropriate cowpea storage technologies for adoption by consumers and retailers.
3. Processors and other stakeholders of cowpea sub sectors should focus on designing marketing strategy that integrates all the above attributes so that their products and services can satisfy customers' needs and wants.

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