

**CONSUMERS' PERCEPTION OF COCOA RESEARCH INSTITUTE OF NIGERIA COCOA BREAD:
A CASE STUDY IN COCOA VALUE ADDITION**

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ABSTRACT

The low consumption of cocoa products has been a major concern to cocoa producing African countries over the years. In Africa, 3 percent of cocoa is consumed locally while the per capita consumption in Nigeria is only 0.12kg/head/year. This situation results in poor remunerative prices of cocoa beans and discourages production on the part of farmers. Cocoa bread is one of the products from wheat. It contains cocoa powder rich in anti-oxidants which help to fight heart diseases. It lowers blood pressure and prevents diabetes. The study investigated the perception of consumers of cocoa bread in terms of taste, colour, aroma, texture and packaging. The cocoa bread is produced by Cocoa Research Institute of Nigeria (CRIN) to promote value addition to cocoa. Purposive sampling technique was used to select 80 respondents in CRIN and environs using structured interview schedule. The data were analyzed using percentage, mean and standard deviation (SD). The results showed that 60.0% of the consumers were males. Married people (65.0%) purchased cocoa bread than the unmarried ones. The mean household size of respondents was 3.35±1.59. The data on consumers' perception of CRIN cocoa bread were ranked in order of their weighted mean and standard deviation. The mean colour (7.06±1.18), taste (6.68±1.34), texture (6.23±0.89), and aroma (6.21±1.57) of cocoa bread indicated that colour and taste were ranked high by the respondents. Consumers liked eating cocoa bread because these variables were of interest to them. However, 75.0 percent of the consumers observed that there should be improvement in packaging while 85.0 percent showed low perception level in the consumption of the product. For the bread to maintain good quality, the present acceptance of the colour and taste should be sustained and the bread re-packaged properly.

Keywords: Cocoa bread, consumers, value addition, perception, CRIN

INTRODUCTION

Bread is a major staple food that is virtually consumed at all times in every home in Nigeria and most countries of the world. It is a convenient form of food that has demonstrated characteristics desirable to all population, rich and poor, rural and urban.

Cocoa bread is one of the products from wheat and is made by inclusion of cocoa powder with wheat flour. Cocoa powder which is obtained from cocoa beans contains flavanoids which have potential beneficial effects on human health such as antiviral, anti-allergic, anti-platelet, anti-inflammatory, anti-tumor and anti-oxidant activities (Kelm *et al* 2006). Numerous studies have reported a relationship between the consumption of cocoa derivatives especially dark chocolate with beneficial health effects on cardiovascular diseases as a result of the anti-

oxidant activity of procyanidins (Keen *et al* 2005, Cooper *et al* 2008). The anti-oxidants help to fight heart diseases, overcome erectile dysfunction and sexual weakness. It lowers blood pressure, prevents malaria as well as diabetes. The presence of flavanoids in cocoa also prevents fat-like substances in the blood stream from oxidizing and clogging the arteries. The regular intake of natural cocoa powder helps to boost immunity among consumers (Olubamiwa, 2007, Akinroye, 2010 and Jayeola, *et al* 2011). Cocoa bread and cocoa powder are from a main commodity crop known as cocoa.

Cocoa serves as the single largest non-oil foreign exchange earning contributing about 38% to the nation's Gross Domestic Product (Okelana, 2012). There was a significant shift in emphasis from commercial agriculture in food crop production (for domestic consumption) and tree

crop production including cocoa (for export) during the early 1960s to food importation from late 1970s as indicated by Idachaba (2000).

Nigeria is among the major exporters of this commodity. Cocoa Producers' Alliance (COPAL) countries currently producing about 76% of world output are embarking on increasing production but not doing enough in promoting local processing to add value and reduce world stock. Olubamiwa and Jayeola (2003) reported that the fluctuating prices occasioned by glut in the international market remains a problem to date. African cocoa producing countries produce about 70% of world production, 3% of cocoa is consumed locally out of the total annual output while the per capita consumption in Nigeria is only 0.12kg/head/year (Coulibaly, 2012). Experts consider this as abysmally low despite its numerous health benefits. Increased consumption of cocoa in producer countries has been suggested as one of the main solutions for encouraging value addition and regulating price volatility in international market.

Cocoa is consumed more in industrialized countries of Europe and America. Today, the United States of America is the highest consumer of cocoa products (Abimboye, 2010). In Brazil, all cocoa produced are consumed by the country and this improves entrepreneurial dynamics.

There is need to promote the intake of cocoa products in Nigeria so as to enhance food security and boost production from its current 250,000 tonnes/annum to 500,000 tonnes by 2015 and 1 million tonnes by 2018 (Babatunde, 2012 and Coulibaly, 2012). This idea is in line with the Federal Government policy on Cocoa Transformation Agenda which is aimed at boosting production and promoting value addition.

In view of this, the Cocoa Research Institute of Nigeria (CRIN) developed some products from cocoa among which is cocoa bread as value

addition strategy. The perception of consumers about this product will further improve the bread in terms of colour, taste, texture, aroma, packaging and preference. Some other products made from cocoa by CRIN include chocolate, wine, cake, beverage, cream, soap and gari fortified with cocoa powder. These products when harnessed by investors will enhance local and international market opportunities for all players in the cocoa value chain.

The objective of the study therefore is to assess the perception of consumers of CRIN cocoa bread in terms of taste, colour, aroma, texture and packaging. Specifically, the study identified areas for improvements on CRIN cocoa bread by consumers and examined the socio-economic profile of cocoa bread consumers.

METHODOLOGY

Purposive sampling technique was used to pick sales centres in CRIN and environs. This was because the regular sales of CRIN cocoa bread were predominant in CRIN headquarters and within few places outside the Institute. The respondents were selected based on the number of buyers per centre. This was done with the assistance of the personnel at the CRIN marketing section. Five sales points were chosen. They include CRIN Headquarters, Aba quarters, Junior staff quarters, Idi-Ayunre and Low-Cost area. Based on bread production record and distribution to centres for a month, questionnaire was administered proportionately to each centre. CRIN headquarters had 50 percent of the respondents while other centers were 12.5 percent each. This translated to 40 respondents from CRIN Headquarters and 10 respondents from each of the four remaining centres. The total amounted to 80 respondents.

Measurement of variables

The variables considered in this study in terms of consumers’ perception of CRIN cocoa bread include colour, taste, texture, aroma and packaging. Others were areas for improvement on cocoa bread, socio-economic characteristics such as sex, marital status, age, educational status and household size.

Twelve perceptual statements were raised and validated by experts in the Product Development and Utilisation arm of CRIN. The consumers’ perception on identified variables were operationalised with five point Likert scale ranging from Strongly Agree-Agree-Undecided-Disagree and Strongly Disagree. A mean score ± standard deviation was used to categorize their perception into high, medium and low in order to know their opinion about the bread. Simple analytical tools such as frequency counts, percentage, mean and standard deviation were adopted in data analysis.

RESULTS AND DISCUSSION

Consumers’ perception of CRIN cocoa bread

The results in Table 1 showed the mean and standard deviation of the perceptual statements by respondents on CRIN cocoa bread. This is further explained in Table 2.

Table 1: Perceptual statements of CRIN cocoa bread.

Statements	Mean	Standard Deviation
Taste		
1. Is cocoa bread bitter to taste.	2.80	1.37
2. It is sweet.	3.87	0.72
Aroma		
3. The aroma is appealing.	4.03	1.04
4. I do not like the aroma.	2.16	1.39
Colour		
5. I like white bread.	2.90	1.29
6. The chocolate colour is attractive.	4.16	1.09
Texture		
7. Cocoa bread is soft.	4.05	1.12

8. The bread is hard when cut. 2.18 1.13

Packaging

9. The nylon and label on the bread is okay. 2.26 1.51

10. The packaging is poor. 3.81 1.39

Preference to other bread

11. I do not prefer cocoa bread to other bread. 2.21 1.28

12. Cocoa bread is always my choice. 3.22 1.37

Source: Field survey, 2012.N=80

In Table 2, the consumers’ disposition in terms of colour and taste were ranked high among other variables implying that the two variables attract them in taking cocoa bread. This result is similar to the sensory evaluation carried out by Olubamiwa and Jayeola 2003. They reported that colour and flavour were scored high for cocoa bread.

Table 2: Distribution of consumers’ perception of CRIN cocoa bread in order of ranked weighted mean

S/No	Variables	Mean	Standard deviation	Rank
1.	Colour	7.06	1.18	1 st
2.	Taste	6.68	1.34	2 nd
3.	Texture	6.23	0.89	3 rd
4.	Aroma	6.21	1.57	4 th
5.	Packaging	6.08	1.95	5 th
6.	Other bread types	5.44	1.60	6 th

Source: Field survey, 2012.N=80

Perception level of CRIN cocoa bread by consumers

In Table 3, 15% of the consumers indicated high perception while 85% showed low perception level in terms of the identified consumption variables. Those at the middle according to the rule of thumb still have issues to settle and tend more to the lower category hence they were classified as low. It therefore means that some improvement needs to be done to increase consumers’ opinion about the CRIN cocoa bread.

Table 3: Distribution of perception level of CRIN cocoa bread by consumers

Perception levels	Score	Frequency	Percentage
High	>41.23	12	15.0
Medium	>34.15	53	66.25
Low	<34.15	15	18.75

Source: Field survey, 2012.N=80

Maximum 47 Minimum 32 Mean 37.69Standard deviation ±3.54

Areas for improvement on CRIN cocoa bread

Table 4: Distribution of consumers by improvement on CRIN cocoa bread

SN	Areas for improvement on CRIN cocoa bread	Frequency	Percentage
1.	Use customized Nylon for label	50	62.50
2.	Maintain present Taste	55	68.75
3.	Increased supply For sale outside CRIN	54	67.75
4.	Reduce sugar Content	26	32.50
5.	Maintain cocoa aroma	57	71.30
6.	Maintain present texture	35	43.75
7.	Improved packaging	60	75.00
8.	Quality maintenance	27	33.80
9.	Advertise CRIN bread	24	30.00
10.	Introduce sliced bread	28	35.00

Source: Field survey, 2012.N=80

*Multiple responses

Distribution of socio-economic characteristics of cocoa bread consumers

The results in Table 5 indicated that 60.0% of the consumers were males while 40.0% were females. It implies that the CRIN cocoa bread was consumed more by males than their female counterparts in the study area.

Majority (52.5%) of the consumers of CRIN cocoa bread were between the age range of 30-41 years old with a mean of 33.6 and standard deviation of 10. This indicates that they were within the active youth of the populace. This will help government in making policy and programmes targeting this category of people for value addition

The results in Table 4 showed that overall packaging of cocoa bread should be improved by using branded nylon thereby making it more attractive. Taste and aroma should be maintained. The texture needs to be improved to have the desired quality. The quantity produced should be increased so as to increase supply outside CRIN in order to promote more sales and adoption of the product. There is need to introduce sliced bread for people who prefer taking sliced type of bread. This will ensure maximum satisfaction by consumers.

intervention and promoting health benefits of cocoa in Nigeria.

Married people (65.0%) purchased and eat cocoa bread than the unmarried ones who formed the minority. What this means is that family influence may likely affect the demand for the consumption of the product mainly among married people in the society.

The educational level of respondents showed that 2.5% of the respondents had no formal education while 67.5% constitutes tertiary education holders. It therefore means that educated persons formed the major category of consumers of CRIN cocoa bread. This could be attributed to the

academic background of most respondents in the study area.

The household size of consumers of cocoa bread revealed that 36.2% of the consumers of CRIN cocoa bread constitute 3-4 household

members with a mean of 3. This implies that those whose average household size among the consumers took cocoa bread more than those with relatively large members.

Table 5: Distribution of socio-economic characteristics of CRIN cocoa bread consumers (N=80)

Variables	Frequency	Percentage	Mean	Standard deviation
Sex				
Males	48	60.0		
Females	32	40.0		
Age				
18-23	5	6.3	33.57	10.0
24-29	21	26.3		
30-35	26	32.5		
36-41	24	30.0		
42-47	4	5.0		
Marital status				
Married	52	65.0		
Single	26	32.5		
Divorced	2	2.5		
Educational status				
No formal education	2	2.5		
Primary	2	2.5		
Secondary	19	23.8		
Tertiary	54	67.5		
Adult education	3	3.8		
Household size				
1-2	27	33.8	3.35	1.59
3-4	29	36.2		
5-6	23	28.7		
Above 6	1	1.3		

Source: Field survey, 2012

CONCLUSIONS AND RECOMMENDATION

From the study, the conclusion is that consumers liked eating CRIN cocoa bread mainly because of the colour and taste. They had low perception about the bread and observe that there should be improvement in packaging of the bread with an attractive nylon that will not create suffocation. Young people were the major consumers of cocoa bread with more males than their female counterparts. The present taste and colour of CRIN cocoa bread are well accepted by consumers and should be sustained in order to maintain good quality. Efforts should be made by producers of the product in improving the cocoa

aroma, texture and packaging to enhance sustainability.

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