

Consuming What You Produce: Perception and Consumption Habits of Cocoa-based Products by Cocoa Farmers in the Eastern Region of Ghana

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Abstract – In recent times, the concerns of the government of Ghana have been on the need to increase the share of locally processed cocoa by 50%. To this end, there has been efforts through campaign by Ghana Cocoa Board (COCOBOD) to whip up interest amongst Ghanaians to cultivate the habit of cocoa consumption to sustain the sector which continues to export huge raw cocoa beans with minimal value addition. The concerns are whether or not cocoa consumption by farmers has the potential to contribute to the local cocoa processing and manufacturing agenda set by government. This study examined the perception and consumption habits of cocoa products by farmers in the Eastern Region of Ghana. Using a multi-stage sampling technique, a survey was conducted on 120 respondents, twenty (20) each from five cocoa producing communities in the Eastern Region. Descriptive statistics and likert scale analysis were performed on the survey data. A majority (33%) of farmers consume cocoa powder, followed by chocolate (30.83%) and 14.9% (cocoa based products: cocoa cake; pastries; liquor and butter) once a year. Notable amongst the factors perceived by farmers that limit their consumption of chocolate and cocoa-based products is low income. Furthermore, the study revealed that the low awareness of health benefits of chocolate and coco-based products at the farmer level is underpinned by lack of education, inadequate advertisement and sensitization by COCOBOD and relevant stakeholders. It is concluded that, the patronage in terms of consumption habits of chocolate and cocoa based products amongst respondents is minimal. It is recommended that while government creates a favorable business environment for more private sector participation in the local cocoa processing and manufacturing, this should go along with massive campaign and extension education on the health benefits of cocoa consumption at the farmer level. Again, it is advocated that the low income status of farmer which limit their patronage and consumption could be addressed through better producer price by government and introduction of viable additional livelihood programmes through cocoa extension. This has the potentials to enhance farmer's consumption, hence contribute to the development of the local processing and manufacturing of cocoa.

Keywords – Chocolate, Cocoa Products, Farmer Consumption habit, Health benefit, Likert Ratio, Ghana.

I. INTRODUCTION

The chronology of cocoa began in 2,000 B.C, the date attributed by historians to the oldest drinking cups and plates that have ever been discovered in Latin America at a small village in the Ulúa valley in Honduras, where cocoa played a central role. In 200-900 AD, cocoa was one of the main products in Mayan agriculture and religion. For instance, cocoa is used as a gift to deceased dignitaries at their funeral ceremonies and as currency (Barry Callebaut, 2008). The word cacao is derived from the Olmec and the subsequent Mayan languages (kakaw) and the chocolate-related term cacahuatl is Nahuatl (Aztec language) derived from Olmec/Mayan etymology (Dillinger *et al*, 2000). In 1737, the cocoa tree was named *Theobroma cacao* which refers to the myt-

-hical background of the tree literally means “cocoa, food of the gods”.

Dillinger *et al.* reported that medicinal uses of cocoa had been traced from Mexican (Aztec) sources and approximately 150 uses of cocoa for medical treatment had been documented. Various parts of *Theobroma cacao* have been utilized, namely cocoa beans prepared as chocolate, cocoa bark, cocoa butter, cocoa flower, cocoa pulp and cocoa leaf. Cocoa was brought to Europe by the Spanish in 1505. By 1653, cocoa was used in Europe as a medicine rather than as a delicious foodstuff. The use of chocolate was recognized as stimulating the healthy function of the spleen and other digestive functions. Moreover, in the 17th and 18th century, chocolate was regularly prescribed or mixed into medications for all sorts of ailments and diseases from colds and coughing, to promote digestion, fertility, reinforce mental performance and as an anti-depressant (Barry Callebaut, 2008).

Studies on the health benefits of cocoa and cocoa products have been conducted over the past decade, with a major focus on degenerative diseases. These benefits could be due to their significant amounts of flavonoid monomers (catechin and epicatechin) up to tetradecamers. Most of the early studies focusing on health benefits of cocoa polyphenols came from human clinical trials. Moreover, the study on health benefits of cocoa was not limited to that of human intervention but had also been extensively studied *in vitro* and *in vivo* (Vinson *et al.* 2006) Cocoa’s high levels of flavanols, plant-based compounds with medicinal properties, appear to promote cardiovascular health as well as visual and cognitive function.

1.1. *The Cocoa Sector in Ghana*

Cocoa (*Theobroma cacao*) is Ghana’s most important agricultural export crop and the backbone of the country’s economy (Bulir, 2003; Dormon *et al.*, 2004; Tutu, 2011). Cocoa is important to the Ghanaian economy as a major source of government revenue and household income in the cocoa growing districts of Ghana. It is estimated that there are about 865,000 cocoa farmers in the country and an estimated 2 million people whose employment and earnings hinge on cocoa (Gakpo, 2012). According to Asamoah and Baah (2002), the cocoa sector in Ghana employs over 800,000 smallholder farm families made up of farm owners, share croppers and their dependants. The number of cocoa farm owners is estimated at 350,000. In addition, it is estimated that smallholder farmers derive about 70 – 100% of their annual household incomes from cocoa production.

The level of socio-economic development in Ghana depends largely on the significant growth and development of the cocoa industry. According to IFPRI (2008), significant growth and development of cocoa subsector will contribute to achieving the millennium development goal of halving the proportion of the national population living on less than a dollar a day by the year 2015. Ghana’s cocoa sector has staged an impressive recovery in recent years. Production has reached record highs of nearly 1 million metric tons. Moreover, there has been an upwards trend in the share of global producer price being passed on to farmers since 2002/03. This is critical in sustaining the sector and ensuring higher production (Table 1). Ghana is the second largest producer of cocoa in the world after Cote d’Ivoire, and its chocolate and other cocoa derivatives produced from its premium cocoa are on high demand worldwide.

1.2. *Cultural Significance of Cocoa and Chocolate*

Cocoa and other chocolate products are enjoyed by billions of people around the globe, but surprisingly few p

People know the history of the confection. In fact, cocoa has appeared in different cultures worldwide for hundreds of years. Cocoa was first developed as a crop in many ancient South American cultures, with the Aztecs and Mayans being the most well-known of these indigenous populations. Researchers have found evidence of cocoa-based food dating back several thousand years. To secure the future of chocolate and ensure that it's available for generations to come, it's essential that sustainable farming practices and ethical means of production are implemented in the cocoa supply chain (World chocolate foundation).

The introduction of Valentine's Day as National Chocolate Day to promote the consumption of chocolate and other cocoa products among the population since 2007 serves as an add on to the various festivals that Ghana celebrated. This has become a way of life of Ghanaians undergoing cultural significance of cocoa and chocolate consumption. The move by Government is based on the principles that to end the effects of price fluctuation on the world market, it is critical to nurture a local market for cocoa consumption.

“The government has indicated that we need to process about 50 percent of the cocoa that we produce. So there is the need to tell people about the good use of cocoa,” said Benjamin Teye Larweh, Principal Public Affairs Officer at Ghana Cocoa Board. “The patronage has been high this year. People have bought into the idea such that there is even a shortage of chocolate products now days. The unstable world price of cocoa on the global cocoa market coupled with climate change puts the country at a greater risk of losing its economic position as a major foreign exchange earner and main economic-driver of the agriculture sector. Annual production levels have been alternating. However relative to the 1980's, there have been significant improvements in production levels as shown in table 1.

Table 1. Cocoa Production levels, producer prices and percentage of FOB price paid to Farmers in Ghana (2002/2003 to 2010/2011).

Crop Year	Production Level (tones)	Producer price per tonne		Percentage of FOB
		GHC (Approx)	USD	
2002/03	496 846	850	570	68.11
2002/04	736 975	900	603	69.00
2004/05	599 292	900	603	73.01
2005/06	740 458	900	603	72.66
2006/07	614 532	915	613	72.19
2007/08	680 000	950	636	70.97
2008/09	710 642	1 632	1 093	N.A
2009/10	632 037	2 208	1 479	71.10
2010/11	1,024,554	3 200	2 144	N.A 75

Source: Author's compilations from (Quartey 2007; CSAE 2009 and COCOBOD RME office,*1tonne = 16 bags of cocoa; 1 bag = 64kilogram.

Over the years and now, the country exports a humongous chunk of its dried cocoa beans to countries which have more cocoa processing firms producing various chocolate and cocoa-based products for large scale consumption. The same cannot be said in regards to Ghana which has a few cocoa processing firms with low consumption habits of the modicum cocoa-based products which are produced.

Cocoa-based products are seen to be the preserve of the rich regardless of its tremendous health benefits. Cocoa and cocoa products have received much attention due to their significant polyphenols contents. Cocoa and cocoa products, namely cocoa liquor, cocoa powder and chocolate (milk and dark chocolates) presents varied polyphenols contents and possess different levels of antioxidant potentials. However, it is worthy of note that, regardless of the multitude of health benefits cocoa has, consumption among farmers (major stakeholders in the sector) is not documented leaving a gap in the literature on the patronage and consumption habits of coca.

This worrisome trend has necessitated COCOBOD the main state-regulator to drum home the need to market finished cocoa-based products to help sustain the subsector which is the main driving force of the agriculture sector. Thus the need to consume more cocoa firstly because of its enormous health benefits as well as developing the local market for the few cocoa processing plants in the country to be in good business to support the sector and the economy as a whole. However campaigns. (i.e. cocoa, chocolate festivals, fairs etc) to popularizing cocoa consumption has been concentrated in the cities distant away from the farmers creating a huge gap of unawareness.

It is therefore, imperative to investigate how often farmers consume cocoa and cocoa products, what would inform a farmer to consume cocoa-based products and how farmers perceive cocoa -based products in regards to what nutritional/ health benefits they stand to gain when they consume cocoa products. Any study which therefore seeks to understand why much of what cocoa farmers in regards to their numbers and families produce but less is consumed by them in terms of finished cocoa based products would be setting the path for the cocoa industry (including local and foreign processing plant) to take advantage of this big market segment to sustain the industry and the Ghanaian economy underscore the relevance of this study. The main objective of this study was to examine the perception and consumption habit of cocoa based products by farmers in the Eastern Region of Ghana. Specifically the study was intended to:

- i. Identify the types of cocoa-based products farmers consume and how often they consume such products.
- ii. To examine the factors that would allow a farmer consume cocoa and finished cocoa-based products from the cocoa he/she produces.
- iii. To assess farmers' general knowledge on the health benefits of consuming cocoa and cocoa-based products.

II. LITERATURE REVIEW

Cocoa products are products that were prepared from cocoa or cocoa-related components namely cocoa liquor, cocoa butter, and the products ranging from chocolates, cakes and pastries, mousses and crème, and drinks. Cocoa had long been identified as a polyphenols-rich food. The flavonoid content of cocoa products depends on the cocoa beans used to make them, for example type of cocoa bean, origins, and amount added in the production of the products (Krawczyk, 2000). It is important to know the factors which influence the polyphenols content of finished products. Cocoa from different varieties exhibited differences in polyphenols content by up to 4-fold (Clapperton et al., 1994). In terms of polyphenol content in regards to country of origin of the cocoa bean, it was found that the highest phenolic content was in Malaysian beans followed by Sulawesian, Ghanaian and Côte d'Ivoire. The health properties of cocoa and cocoa products are not solely dependent on their polyphenol contents, but also contributed to by other components such as methylxanthines (caffeine and theobromine), peptides, and minerals.

Cocoa is also rich in methylxanthines, namely caffeine, theobromine, and theophylline. These compounds, found in dark chocolates, are responsible for chocolate cravings (Smith et al., 2001) Besides polyphenols and methylxanthines, cocoa is also rich in proteins. Cocoa peptides are generally responsible for the flavor precursor formation (Biehl et al., 1982). Cocoa beans contain four types of proteins, namely albumins, globulins, prolamin, and glutelin. Of these, albumin constitutes the major protein fraction (Zak et al., 1976). Albumin and globulin fractions accounted for 52% and 43% of total bean proteins, respectively (Voigt et al., 1993). (Steinberg *et al.*, 2003) showed that minerals are one of the important components in cocoa and cocoa products.

Cocoa and cocoa products contained relatively higher amount of magnesium compared to black tea, red wine, and apples. Epidemiological studies suggest that cocoa-rich products reduce the risk of cardiovascular disease, as flavanols found in cocoa have been shown to increase the formation of endothelial nitric oxide, which promotes vasodilatation and, therefore, blood pressure reduction.

2.1. Global Cocoa Consumption

Global consumption of cocoa beans, as measured by grindings, increased by 2.05% from 3.91 million tonnes in 2010/11 to 3.99 million tonnes in 2011/12. This was as a result of a shift in global consumption pattern in emerging countries particularly Asia. Prices of cocoa on the world market experienced a downward trend during the 2011/12 cocoa season. The average international cocoa prices as measured by ICCO daily price for the 2011/12 season settled at US\$2,396, a decrease of 22.81% over the 2010/11 price of US\$, 104. Price movements were asymmetrical during the 2011/12 season as a result of the unresolved European debt crises and its rippling effect on cocoa consumption as well as the bearish news of falling demand in European markets. Concerns over dry water conditions in West Africa were also fundamental in price volatility (Ghana Cocoa Board, 2012). However, exports of cocoa products by six (6) local cocoa processing factories namely Cocoa Processing Company Limited, Barry Callebaut, Plot Enterprise, Cargill (Ghana) Limited, Commodities Processing Industries Limited and Archer Daniels Midland Cocoa (Ghana) Limited during the year 2011/2012 year comprised 103,767 tonnes of cocoa liquor, 21,380 tonnes of cocoa butter, 9,587 tonnes of cocoa cake and 9,849 tonnes of cocoa powder. The bulk of these cocoa products produced by the local cocoa processing factories were delivered to the European buyers (Ghana Cocoa Board, 2012).

2.2. Cocoa Products

There are so many products which can be derived from processed cocoa, some which are, cocoa liquor, pastries and biscuits made from cocoa, soaps, lotions and creams made from cocoa and cocoa drinks liquor is the product from which cocoa butter and cocoa powder are made. It is also the base raw material for making chocolate. No other ingredient in the chocolate formula has such an impact on the ultimate outcome of the product as cocoa liquor.

If it had not been for John Fry, it is debatable whether chocolate as we know it today would ever have come into existence. In 1847, he discovered one of the confectionery industry's greatest inventions by adding cocoa butter to a mixture of cocoa liquor and sugar. Another product which is cocoa powder, the two most prominent attributes of cocoa powder are its abilities to give color and flavor to a wide variety of food products. In many instances, the consumer will directly associate brown color with chocolate flavor, and the darker the color, the stronger the flavor expectation will be.

Early 19th Century Cocoa liquor and sugar was mixed with cocoa butter instead of warm water and the resulting paste was cast and hardened in a mold and with it, eating chocolate was born. 1847 the first manufacturer of chocolate in England creates the first chocolate bars. Their shop is called J. S. Fry & Sons. Cadbury exhibited it at Bingley Hall, Birmingham, in 1849. 1868 John Cadbury mass-marketed the first boxes of chocolate candies. (ADM, 2009).

2.3. *Chocolate Consumption Distribution Worldwide*

Not all countries are able to enjoy the sweet taste of chocolate equally. There is a huge difference between those nations that extract the raw materials and those who indulge in the finished product. As it is shown in the maps available, all but one of the top twenty countries that consume chocolate are considered 'well-developed' or 'advanced'. Brazil is the only country involved on the list that actually considers chocolate to be a natural resource. The reality exists that the processing and consumption of chocolate products is Western World dominated. 70% of the worldwide profit from chocolate sales is concentrated in these countries. 80% of the world chocolate market is accounted for by just six transnational companies, including Nestle, Mars and Cadbury. Europeans alone consume around 40% of the world's cocoa per year, 85% of which is imported from West Africa. There have recently been efforts to initiate a fair-trade movement which encourage the purchase of cocoa from developing country producers at a fair trade price. However: tariff escalation continues to be a major problem which acts to drive chocolate consumers and cocoa exporters further apart. Though the majority of cocoa consumption occurs within the developed world cocoa is grown in tropical regions of the developing world. In some countries of West Africa and Latin America, cocoa production is the primary income around the world, 90% of cocoa is grown and harvest on small family farms of 4.8 ha or less, while just 5% comes from plantations of 40 hectares or more as stated by Ted Weihe, 2013.

III. METHODOLOGY

3.1. *Study Area*

The choice of the Eastern Region is purposive; farmers and extension agents are relatively more accessible to the researcher. The study was conducted in the East Akim District which is one of the major cocoa growing districts in Ghana. The district was selected because of its proximity to Tema and Accra where most of the local cocoa processing factories are located. Moreso, the district is where the Cocoa Research Institute of Ghana (CRIG) is located. The institute houses the New Product Development Unit (NDPU) where most local cocoa based products are produced and sold together with those produced by the cocoa processing firms located in Tema and Accra. The stakes are therefore high that farmers in this district and those closer would be patronizing and consuming more cocoa and cocoa-based products. The district is located at the central portion of the Eastern Region with a total land area of approximately 725km². Crops grown in the district include cocoa, cocoyam, oil palm, plantain, cassava, and maize with cocoa and oil palm being the main money earners.

3.2. *Sampling procedure, Data collection and Analysis*

A multi-stage random sampling technique was used in the selection of respondents. First step involved random selection of six (6) out of the eleven (11) cocoa communities in the district. The communities included Kibi, Old Tafo, Osiem, Bunso, Asafo and Apedwa. Further, twenty (20) cocoa farm households were randomly selected from each of the communities. This gave a total sample size of 120 respondents. The head of each

household was interviewed irrespective of gender. Face-to-face interviews were conducted with the selected farmers using a structured questionnaire. Data collected included farm level information and socio-demographic data, perceptions of farmers on the health benefits of cocoa, frequency of consumption of cocoa based products as well as factors that would influence a farmer to consume a cocoa based product.

Descriptive statistical tools were used to draw inference from data collection while the perception of respondents was gauged by use of Likert Rating Scale. Twenty-one questions on perception on health benefits of consuming cocoa products were asked and responses were received based on respondents' level of agreement or disagreement. The analysis was based on a 4-point Likert Rating Scale as employed by Agbo (2013). The mean score of respondents was computed as follows: $4 + 3 + 2 + 1 = 10/4 = 2.5$. Using an interval scale of 0.05, the upper limit is 2.55 while the lower limit is 2.45. Score equal to or above 2.55 are accepted as significant while those equal to or below 2.45 are regarded as no significant.

IV. RESULTS AND DISCUSSION

4.1. Demographics and Farm level information

Farmer level information in terms of farm size, age, gender, marital status, educational level, and household size, monthly income from cocoa and income generated from nonfarm activities was obtained from the respondents (Table 1). Majority (88.3%) of the farmers are between the age range of 40-59 years and above depicting the dominance and participation of older rural folks in cocoa cultivation. Their ages could somewhat tell on their experiences and add to indigenous knowledge regarding what they perceive to obtain from consuming cocoa and what is being used for. Most of the farmers (55%) have a household size above 6 dependents. This is quite a large family size in the rural setting and could give credence to whether household size is likely to be a factor when it comes to consuming cocoa based product.

Majority (86.6%) of the respondents have had one form of education or the other. This is very critical to this work as it would determine the level of awareness of farmers when it comes to health benefits of cocoa products. Farmers receive information from various sources which may raise their awareness of developments in the cocoa production system. Awareness may lead to knowledge accumulation which in turn may challenge already held construct concerning technologies or issues related to cocoa. It is assumed that with education, the farmer could have heard or read about health benefits associated with consuming cocoa based products hence patronization.

Furthermore, the study revealed that cocoa cultivation remains a male dominated activity with most of the respondents (87%) being male. Apart from a majority (52.5%) of the farmers who earn a monthly income between less than a GHC 100 and GHC200 from their cocoa activities, 29.2% receive between less than GHC 100 and GHC200 as an additional income from off farm activities such as teaching, petty trading, carpentry, masonry etc (Table 1).

Farm level information in regards to respondents farm size revealed that, majority (70.84%) have a farm size holding of less than 2.0 hectares (ha).This depicts the subsistence nature of farming practiced by the respondents. This is likely to have an influence when to come to a farmer determining to patronize a cocoa based product or not.

Table 1a. Demographics and Farm Level Information of Farmer.

Characteristics	Frequency	Percentage
Age		
Less than 20 years	2	1.7
20-29 years	3	2.5
30-39 years	9	7.5
40-49 years	57	47.5
50-59 years	40	33.3
More than 59 years	9	7.5
Marital Status		
Single	3	2.5
Married	86	71.7
Divorced	18	15.0
Widowed	13	10.8
Sex		
Male	87	72.5
Female	33	27.5
Level of Education		
Primary	31	25.8
Secondary	42	35.0
Tertiary	31	25.8
None	14	11.7
Household size		
1-3 people	7	5.8
4-6 people	39	32.5
More than 6 people	66	55.0
Source: survey Data, 2014		

Table 1b. Farm Level Information.

Other NFI		
YES	59	49.2
NO	61	50.8
Income Generated from NFI		
Less than 100 GH	10	8.3

101-200GH	11	9.2
201-200GH	14	11.7
301-400GH	7	5.8
401-500GH	4	3.3
More than 500GH	10	8.3
Monthly Income From Cocoa Activities		
Less than 100 GH	30	25
101-200GH	18	15
201-200GH	15	12.5
301-400GH	18	15
401-500GH	12	10
More than 500GH	24	22.5
Farm Size		
0.1-0.5 Ha	9.2	9.2
0.6-1.0 Ha	15.8	15.8
1.1-1.5 Ha	15.0	15.0
1.6-2.0 Ha	22.5	22.5
2.1-2.6 Ha	31	25.8
Total	120	100.0

Source: Survey data, 2014.

4.2. General Perception of Farmers on Finished Cocoa- based products and their Patronage

According to the publication by (ICHG, 2012), many people in this regard (cocoa farmers) do not even know what the finished product of their labor looks like, leave aside how it tastes. This fact will be well established in this section. In order to establish farmers general perception on some well known cocoa based products, seven (7) main product were listed. Firstly, the products were displayed and farmers asked to identify and indicate their frequency of consumption for the previous year. The cocoa based products include, cocoa powder, chocolate, cocoa drink, cocoa butter, cocoa pastries, cocoa liquor and cocoa cake. The frequency of consumption were given as, once a year, two to three times a year, four to five times a year, once a month, two to three times a month, once a week, two to three times a week, once a day and those who have not consumed any.

In general, the study revealed that, most of the farmers have not had a taste of any of these products in the previous year and with those who did, it was seldomly done (Table 2a).

Data in (Table 2b) show that, throughout the year, a majority (33.3%) of the farmers consume cocoa powder once a year with 24.17% not tasting this product at all in the whole year. This is followed by chocolate with



30.83% of farmers consuming it once a year and majority (40%) not consuming it at all. Moreso, cocoa-based products such as cocoa cake, cocoa liquor, cocoa pastries and cocoa butter recorded together 14.97% patronage by the farmers once a year with a high level of non consumption or patronage of these products by farmers in the previous year. In conclusion the patronage of these cocoa- based products in terms of consumption habit by the respondent in the study area is very minimal and not encouraging.

Table 2a. General Perception of Farmers on Finished Cocoa- based products and their Patronage.

Product	1's ayr	2-3× a yr	4-5× a yr	1's a mth	2-3× a mth	1's a wk	2-3× a wk	1's a day	NAA	Verdict
Cocoa Powder	40	11	14	13	3	3	5	2	29	Once a yr
Cocoa Liquor	3	-	2	1	-	-	-	-	114	Not at all
Cocoa Butter	11	19	14	8	9	1	3	12	43	Not at all
Cocoa Cake	3	2	1	2	-	-	-	-	112	Not at all
Cocoa Pastries	1	-	1	2	-	3	-	1	112	Not at all
Chocolate	37	3	12	12	1	-	3	4	48	Not at all
Cocoa drink	13	6	6	13	11	6	9	1	55	Not at all

Table 2b.

Product	1's ayr	2-3× a yr	4-5× a yr	1's a mth	2-3× a mth	1's a wk	2-3× a wk	1's a day	NAA	Verdict
Cocoa Powder	33.3	9.17	11.67	10.83	2.5	2.5	4.17	1.67	24.17	Once a yr
Cocoa Liquor	2.5	-	1.67	0.83	-	-	-	-	95	Not at all
Cocoa Butter	9.17	15.83	11.67	6.67	7.5	0.83	2.5	10	35.83	Not at all
Cocoa Cake	2.5	1.67	0.83	1.67	-	-	-	-	93.33	Not at all
Cocoa Pastries	0.83	-	0.83	1.67	-	2.5	-	0.3	93.33	Not at all
Chocolate	30.8	2.5	10	10	0.83	-	2.5	3.33	40	Not at all
Cocoa Drinks	10.8	5	5	10.8	9.17	5	7.5	0.83	45.83	Not at all

Source: survey Data, 2014

4.3. Awareness of Farmers on Factors that will Influence them to Purchase and Consume Cocoa based products

To ascertain the awareness of farmers on factors that could hinder their patronage of cocoa based products, eleven (11) perception questions were raised. These questions were put in such a way to address general factors that have the likelihood of limiting a farmer from patronizing or consuming a certain cocoa-based product (Table 3).

In general, majority of the respondents accustomed their main reason to lack of money or financial constraints. This was captured by the use of the Likert Scale Rating. Likert scores below 2.25 were tagged disagree and those above or equal to 2.25 were tagged 'agree' (Table 3b). After the Likert ratio was computed, the respondents agreed to ten (10) out of the eleven (11) perception questions that were raised. The study revealed that, for a cocoa-based product to be consumed or patronized by a cocoa farmer, the product availability, affordability, accessibility, health benefit of the product, income of the farmer, age of farmer,



packaging of the products, farm size, family size and educational status remains a major determinant. Only one of questions (marital status) was disagreed by the respondents as a non factor or determinant when it comes to consuming or patronizing cocoa based products.

Expatriating further on the degree of disagreement/agreement on the factors that are likely to influence a farmer to consume/patronize a cocoa-based product, availability of the products could be attributable to the handful of companies who are into the processing of these cocoa-based product as well as the insufficient availability of raw beans available for processing in the study area. This affects supply as demand may go up making it difficult to get or very scarce. This findings go to support the publication made by (MAFAP, 2013), which states that, there are four major cocoa processing companies in Ghana that process the cocoa beans into primary products such as, liquor, butter, powder and cake and out of this only 10 percent of the locally processed cocoa is used for the production of confectionary products for the local market.

Aside the major companies there exist about ten (10) companies that produce cocoa confectionery products, such as, chocolate, cocoa beverages, cocoa powder, other chocolate candies, ice cream and chocolate drinks for local consumption. In the mist of the few companies it is evident that, the production of these products will be very low and will affect the supplies. Additionally considering that only a small quantity of the light crop is sold by COCOBOD to local processing companies, the nation's consumption of cocoa based products is negligible.

Furthermore, on product affordability, since the supply of the product is minimal, there will be a shot up in the price of such product. This is closely linked to the few number of cocoa processing companies, the modicum availability of raw materials hence the scarcity of the cocoa-based products they manufacture. This corroborates the findings of several authors such as Kotler and Keller 2006: Jobber, (2007) who stated in their respective publications that, in the developing countries (including Ghana) where income levels are low, affordability is of great importance to consumers (cocoa farmers).

Moreso, it is worthy of note that, the knowledge on the health benefits of a product may affect the consumption, use or patronage of a product as agreed by the respondents in this study. Details of these are discussed in section 4.3. One would patronize a product based on the knowledge on the health or nutritional value that product offers. Farmers argued that, they would spend money only on products that would keep them physically fit to be in a farming business that requires a lot of energy.

The perception question which had the highest on the Likert ratio was farmers' income. Most farmers complained bitterly of the efforts and capital they put into their cocoa production and the little return they get at the end of the season. Despite their efforts in investing into cocoa farming activities, poor agricultural practices, lack of better farm skills etc. accounts for their low income levels. They argued that, with the little income that comes into their pocket coupled with large family size and its attendant household budget, it would be prudent to spend monies on taking care of their household than on products whose health benefits remains highly unaware to them (Table 4a).

Until recent times market operators acknowledged that the world cocoa economy had indeed entered a phase of structural deficit. Nonetheless, COCOBOD together with some non-governmental organizations have tried their best to heighten farmer's standard of living. Most cocoa farmers are still battling with losses in yields from the spread of pests and diseases. This still makes most of the farmers' income either stagnant or decline.

Finally, packaging is an utmost factor in a consumer’s preference of a particular product. The respondents again agreed to this. A package is basically the container, or the material wrapped around a product for preservation, protection and identification purposes. Respondents agreed that the way cocoa-based products are packaged and presented is likely to influence their decision when it comes to buying. This finding supports the works by Deliza and Macfie (1996), which state that a package does not only influence a consumers purchasing decision but also creates expectations in the consumer. Corroborating further, Under wood et al., (2007) suggested that consumers are more likely to imagine aspects of how a product looks, feels, tastes, smells or sounds while viewing product picture on the package.

Table 3a. Awareness of farmers on factors that will Influence them to Purchase and Consume Cocoa based products.

Factors	G.I	L.I	N.I	In	Verdict
Product affordability	43	37	32	8	Great influence
Product availability	43	32	33	10	Great influence
Product accessibility	41	25	42	8	No Influence
Health benefit of products	49	32	31	8	Great influence
Farmers income	67	23	14	16	Great influence
Age of farmer	27	21	52	20	No influence
Packing of the product	7	34	58	21	No influence
Farm size	18	36	44	22	No influence
Family size	19	39	38	24	Little influence
Educational status	12	38	46	24	No influence
Marital status	12	25	60	22	No influence

Source: Survey Data, 2014.

Table 3b.

Factors	H, A	A	F.A.	N.A.	L.R.	Verdict
Product Affordability	172	111	64	8	2.96	Agree
Product Availability	172	96	66	10	2.87	Agree
Product Accessibility	164	75	84	8	2.76	Agree
Health Benefit Of Products	196	96	64	8	3.03	Agree
Farmers Income	268	96	64	16	3.7	Agree
Age Of Farmer	108	63	104	20	2.46	Agree
Packing Of The Product	28	102	174	21	2.70	Agree
Farm Size	72	108	116	22	2.65	Agree
Family Size	76	117	114	24	2.76	Agree
Educational Status	48	114	92	24	2.31	Agree
Marital Status	48	75	120	22	2.20	Disagree

Source: Survey data, 2014.

4.4. Farmers Awareness on the Health Benefits of Consuming Cocoa and Cocoa Products

Literature was reviewed and questions on health benefits of consuming cocoa-based product were posed to farmers. Farmers were asked to indicate their degree of awareness in regards to these health benefits. On the whole twenty-one (21) set of questions were raised to test the farmers awareness on the health benefits one can derive from consuming cocoa-based product (Table 4a).

Likert ratio (Table 4a) showed that, apart from farmers being aware of the benefit of energy and vitality, which lingers even in a child’s mind due to the numerous advertisement on most radio stations as the benefit one derives from consuming cocoa beverages in the mornings, farmers are totally not aware of the twenty-one (21) listed health benefits one derives from consuming cocoa based. This could be attributed to why there exists low patronage amongst farmers in terms of consumption. Lack or inadequate education, inadequate advertisement and sensitization by relevant stakeholders in the cocoa industry could be a major factor. Once a farmer becomes aware of the benefits he/she derives from consuming a cocoa-based product and its nutritional value therein, it may lead to knowledge accumulation which in turn may challenge already held construct concerning the product hence its subsequent patronage and consumption.

In general some of the health benefits which remains ignorant or unaware to farmers include, source of energy and vitality, dietary supplement, stroke prevention, fight stress and dental decay, offers health levels of dietary fiber, improves memory as well as brain nourishment, promotes cleansing and detoxification of the body, boost blood circulation, reduction in menstrual and menopausal worries and to crown it all it boost ones well-being (Table 4a).

Table 4a. Farmers awareness on the health benefits of Consuming Cocoa and Cocoa Products.

Health Benefit					Verdict
	G.I	L.I	N.I	In	Not Aware
Reduce blood pressure	8	29	17	66	Not Aware
Delays physical signs of ageing	9	22	23	66	Not Aware
Minimize menstrual pains	-	12	13	95	Not Aware
Minimize worrisome accompanying menopause	5	6	22	87	Not Aware
Boost sexual desire and performance	6	24	14	76	Not Aware
Prevent stroke	5	17	16	81	Not Aware
Fight stress	9	24	20	67	Not Aware
Fights dental decay	8	20	20	72	Not Aware
Provides energy and vitality	41	43	6	30	Not Aware
Boost fertility in both sexes	7	20	14	79	Not Aware
Inhibits dangerous blood clot	2	11	22	85	Not Aware
Affords Anti Cancer and cancer prevention properties	-	17	9	94	Not Aware
Promotes cleansing and detoxification of the body					



Health Benefit					Verdict
	G.I	L.I	N.I	In	Not Aware
	8	22	21	69	Not Aware
Rich dietary irons	5	31	21	63	Not Aware
Improves memory	15	26	25	54	Not Aware
Nourishment of brain cells	15	21	25	59	Not Aware
Essential dietary minerals	15	26	25	54	Not Aware
Offers health levels of dietary fiber	14	21	24	61	Not Aware
Protects blood vessels	14	24	20	62	Not Aware
Boost sense of well being	17	26	26	51	Not Aware

Table 4b.

Health Benefit	H.A	A	F.A	N.A	L.R	Verdict
Dietary Oxidant	44	75	28	70	1.08	Not Aware
Reduce blood pressure	32	87	36	66	1.86	Not Aware
Delays physical signs of ageing	36	66	46	66	1.78	Not Aware
Minimize menstrual pains		36	26	95	1.30	Not Aware
Minimize worrisome accompanying menopause	20	18	44	87	1.40	Not Aware
Boost sexual desire and performance	24	72	42	76	1.73	Not Aware
Prevent stroke	20	51	32	81	1.53	Not Aware
Fight stress	36	72	40	67	1.80	Not Aware
Fights dental decay	32	60	40	72	1.70	Not Aware
Provides energy and vitality	164	129	12	30	2.80	Not Aware
Boost fertility in both sexes	28	60	28	79	1.63	Not Aware
Inhibits dangerous blood clot	8	33	44	85	1.42	Not Aware
Affords Anti Cancer and cancer prevention properties		51	18	94	1.40	Not Aware
Promotes cleansing and detoxification of the body	32	66	42	69	1.74	Not Aware
Rich dietary irons	20	93	42	63	1.82	Not Aware
Improves memory	60	63	50	54	2.27	Not Aware
Nourishment of brain cells	60	78	50	59	2.10	Not Aware
Essential dietary minerals	60	78	50	54	2.01	Not Aware
Offers health levels of dietary fiber	56	63	48	61	1.9	Not Aware
Protects blood vessels	56	72	40	62	1.92	Not Aware
Boost sense of well being	68	78	52	51	2.08	Not Aware

Source: survey Data, 2014.

V. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

1. The study concludes that, patronage of chocolate and cocoa- based products in terms of consumption habit by the respondent in the study area is very minimal and not encouraging. The study revealed that, most of the farmers have not had a taste of any of these products in the previous year and with those who did, it was seldomly done.
2. The study also concludes that, Farmers demonstrated an appreciable level of indigenous knowledge on the use cherelles as well as the dried cocoa beans in the preparation of local soup and stew respectively. However, its associated health benefits could not be explained. This is because it has been a tradition of their forebears and transmitted down to current generation of cocoa farmer in the study area.
3. The study further concluded that, notable amongst factors namely: I the product availability, affordability, accessibility, health benefit of the product, age of farmer, packaging of the products, farm size, family size and educational status that affects farmer patronage and consumption, income of the farmer is a key determinate.

5.2. Recommendation

From the foregoing, the following recommendations are put forward:

1. It is recommended that, local processing of cocoa bean should be encouraged by government through deliberate policies that creates favorable business environment for private sector participation to thrive. This will ensure the availability and affordability of chocolate and cocoa-based products to our local farmers.
2. It is also recommended that, there should be massive campaign on the health benefits of cocoa and its products through extension education and chocolate and cocoa festivals at the farmer level.
3. Again, it is advocated that, the low income status of farmer which limits consumption should be addressed through better producer price by government and introduction of viable additional livelihood programmes through cocoa extension. This has the potentials to enhance farmer's consumption, hence contribute to the development of the local processing and manufacturing of cocoa.

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