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Rethinking Ghanas Cocoa Quality: The Stake of License Buying Companies (LBCs) in Ghana

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Abstract

Grounded on the industry's tripartite actors, coupled with the fundamental role LBCs play in the domestic supply chain of cocoa in Ghana, the study aimed at assessing major quality control practices instituted in ensuring quality cocoa in the domestic cocoa market. Both qualitative and quantitative methods were employed to analyses responses obtained from a sample size of ninety-five (N=95) involving 10 District Managers (DM's) and 85 Purchasing Clerks (PC's) of Cocoa Merchant Ghana Limited (CML). The study espoused, notwithstanding the competitive nature of the industry, major quality control practices (QCP's) such as constant education and training of farmers on proper fermentation and all along the supply chain, efficient packaging, storage and haulage of goods in transit, drying, picking of placenta and foreign matter were instituted. Also, CML ensures that DMs encourage PCs to present good quality cocoa beans for grading and sealing to the QCC as well as provision of good storage facilities; pallets, tarpaulins etc. to farmers. CML concentrates much effort to ensuring physical quality to the neglect of bio-chemical and process quality. It is therefore suggested that efforts be marshalled to encapsulate the other cocoa quality types.

Keywords: Cocoa; Fermentation; Supply chain; Sampling

Introduction

The cocoa industry's unmatched recognition as the mainstay of the Ghanaian economy makes it's a worthwhile industry for scrutiny. The significance obtained from the cocoa industry surpasses the boundaries of improving economies to sustain the livelihoods of millions of people the world over. Based on cocoa trading exports, Ghana exported 526,761 metric tons of cocoa beans in the season 2009/2010, up from 485,785 in 2008/2009. Again, the exportation of cocoa beans amounted 40 per cent of Ghana's foreign exchange earnings and was placed second as the largest cradle of export dollars [1-3].

Free competition is a key element of an open market economy. It stimulates economic performance and offers consumers a broader choice of better-quality products and services and at more competitive prices. Competition becomes a major impediment to small firms in an industry dominated and controlled by a few companies with larger market share percentages [1].

It was the Government of Ghana's policy objective that liberalization and privatization would improve the operational and financial performance of Ghana's cocoa marketing system to ensure higher and competitive producer prices [4]. Abdul-Wahid puts forward that the liberalization and privatization of cocoa purchasing seem to have led to declining quality and yield of cocoa, thereby undesirably affecting farmers' and Ghana's earnings in terms of premium payment on the international market [5]. This assertion is buttressed by Lundstedt and Pärssinen who unraveled that though the quality level of Ghana's cocoa has still been high, there has been a decline in quality since the liberalization of cocoa purchase [6].

According to COCOBOD, the standard against which all cocoa is measured throughout the world is that of Ghana's cocoa due its theobromine and flavonoids high content. This makes it the best cocoa for high quality chocolates according to COCOBOD in 2011. The International Cocoa Standards (ICS) obliges cocoa of merchantable quality to be fermented, meticulously dried, free from smoky beans, abnormal or foreign odor and any indication of adulteration. Also, it must be reasonably free from living insects, broken beans and fragments, and the beans must be seasonably uniform in size (devoid of admixture) [7].

There is great patronage for Ghana's cocoa in the world commodities market and Ghana also receives quality premium that enhances export earnings from cocoa, all due to the quality of cocoa. However, there have been a lot of concerns raised about the fallen standards of quality of Ghana's cocoa during the competition in purchasing. This revelation spurred the researcher to examine the contributions LBCs make towards ensuring high quality cocoa in the domestic market. The focus of the research is to examine the role of LBCs in their pursuit to maintain the world recognized quality standard of the Ghanaian cocoa. This will encompass an assessment of the Quality Control Practices (QCPs) instituted by Cocoa Merchant Ghana Ltd (CML) in maintaining quality standards.

Materials and Methods

Research design

The population of the study involved two hundred and fifty (250) employees of Cocoa Merchant Limited (CML). By employing Krejcie and Morgan's method for determining sample size, the study utilized ninety-five (N=95) respondents; ten (n=10) were District Managers and the remaining eighty-five (n=85) being Purchasing Clerks (PC's) [8].

Both primary data and secondary data collection methods were used. The primary data were collected through face-to-face semi-structured questionnaires comprising both open and closed ended questionnaires to both Purchasing Clerks (PC's) and District Managers. Secondary data was obtained from the Cocoa Merchant Ghana Limited (CML) 2013/2014 company operational reports. Written reports and online articles were also used as supporting documents (Table 1).

CML Employees	Population	Sample Size
District Managers	10	10
Purchasing Clerks	100	85
Total	105	95

Table 1: Population Guide for the study.

Sampling procedure: The study used stratified random sampling to group the fifteen (15) cocoa districts in the Ashanti region in which CML operates. The simple random sampling technique was adopted in the selection of five (5) coca districts; Antoakrom, Nsokote, Konongo, Nyinahin and Asante Bekwai. In selecting PCs, quota sampling technique was employed in the selection of the total eighty-five respondents from the selected cocoa districts. Purposive sampling technique was used to select ten (10) District Managers due to their position and achieved knowledge base on the operations of CML and the cocoa industry in general (Table 2).

Cocoa Districts	Population	Sample Size
Antoakrom	18	17
Ashanti Bekwai	25	24
Konongo	24	23
Nsokote	16	15
Nyinahin	17	16
Total	100	95

Table 2: Using quota sampling for selecting Purchasing Clerks (Source: CML, 2014).

The confidentiality of the information collected from the study participants were considered by ensuring that their names and other information that could bring out their personal identities were not disclosed in the data collected. They were also made to understand their role in the data collection activity and, they were given the choice to opt out if the exercise would affect them in any way (Figure 1).

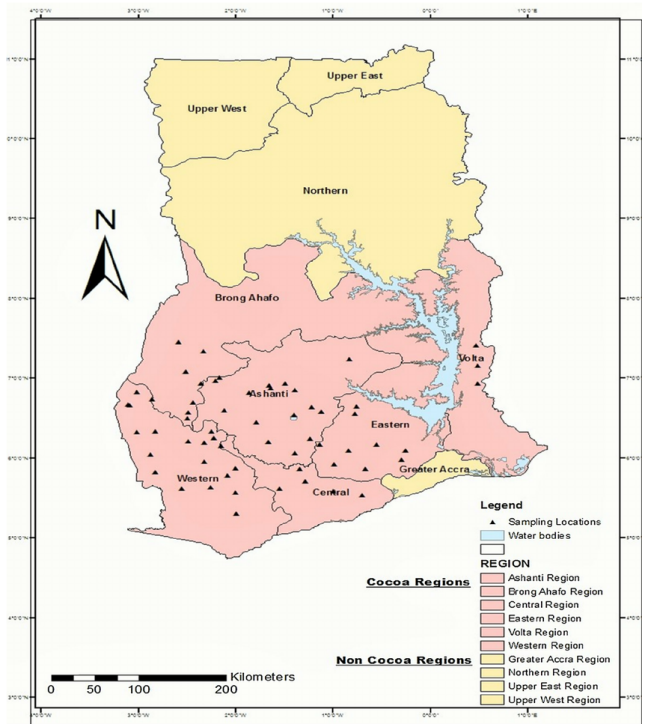

Figure 1: A map of Ghana showing cocoa growing regions.

Results and Discussion

Based on respondent's socio-occupational physiognomies, majority were between 20-49 years old, i.e., 60%. According to Ghana Statistical Service, the active working population range is between 15 to 59 years. More males (70%) were involved in the purchasing of cocoa in the selected cocoa districts. Promising results were unraveled in terms of respondents' educational attainment as 96% had achieved levels of formal education. Abagale et al. stated that there is a positive relationship between formal education and productivity of labor. The findings therefore imply that with majority of respondents' having obtained basic formal education, productivity levels of PC's and DM's is likely to increase since they are able to acquire and possibly apply scientific knowledge in their activities [9].

Majority of DM's and PC's had achieved at least 10 years and 5 years' experience in the cocoa business respectively and therefore could easily decipher between high quality standard cocoa beans or otherwise (Table 3).

Variable	Frequency	Percentage (%)
Age		
20-29	14	14.7
30-39	20	21.1
40-49	27	28.4
50-59	20	21.1
60-above	14	14.7

Total	95	100
Sex		
Male	66	69.5
Female	29	30.5
Total	95	100
Marital Status		
Single	16	16.9
Married/Cohabitation	65	68.4
Separated	10	10.5
Widow/Widower	4	4.2
Total	95	100
Educ. Status		
None	4	4.2
Primary	10	10.5
JHS/Middle School	14	14.5
SHS/Vocational/Tech.	30	31.7
Tertiary and +	37	38.9
Total	95	100
Experience		
Below 5 Years	32	33.7
5–10 Years	29	30.5
11–20 Years	21	22.1
Over 20 Years	13	13.7
Total	95	100

Table 3: Socio-demographic characteristics of respondents (Source: Field Survey, 2014).

Perceptions on the quality of Ghanaian cocoa

Findings revealed that 64% of respondents agreed to the assertion that the quality of cocoa had fallen while 25% did not agree. Also, 10% of respondents held they had not noticed whether there has been any change in the quality of cocoa or not. Findings revealed that, the fallen quality of cocoa could be attributed to the competition among LBC's in the purchase of cocoa. Respondents believed competition was a threat to quality cocoa due to the assertion that, PC's with the aim of buying more cocoa beans to attract higher commissions frequently overlook quality for quantity (Figure 2).

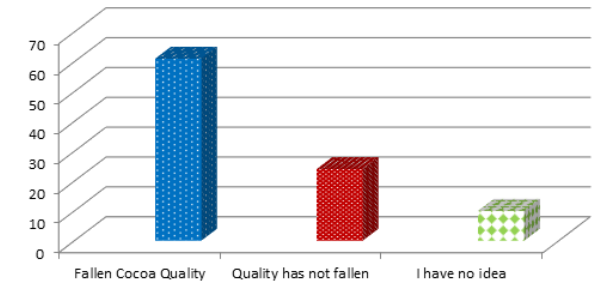

Figure 2: Respondents view on the quality of Ghanaian cocoa (Source: Field Survey, 2014).

Quality control practices undertaken by Cocoa Merchant Ghana LTD (CML)

Quality control in Ghana commences at the farm level and it is discovered that 80% of cocoa quality is dependent on farmers' ability to adopt the correct pre-harvest growing practices, and post-harvest drying and fermentation [10,11]. Therefore, the study expounded the various practices adopted by CML to ensure cocoa quality management in areas of physical, bio-chemical, process and origin quality according to the International Cocoa Market's (ICM) definition.

Responses showed that most of the QCP's were concentrated on ensuring the physical quality of cocoa (75.8%) followed by bio-chemical quality (17.8%), 6.4% concentrated on process quality. This finding explains the specific type of quality respondents easily control. As earlier explained, respondents have a higher propensity to apply indigenous knowledge on promoting the physical quality of cocoa beans than ensuring bio-chemical quality or process quality (Figure 3).

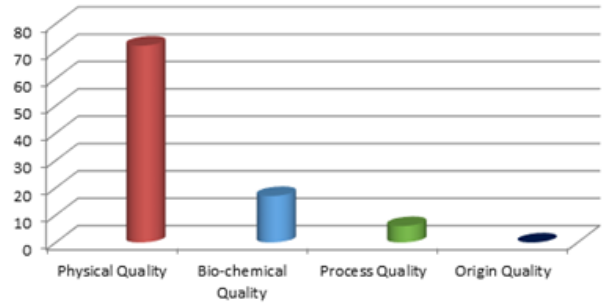

Figure 3: Area concentration of QCPs (Source: Field Survey, 2014).

Practices undertaken to encourage physical quality of cocoa bean by CML

This section unearths the major QCP's instituted by CML to encourage the physical quality of cocoa. Based on the views and suggestions by both PC's and DM's, the following interventions were uncovered. The reasons for these interventions according to the study were because of the acknowledged importance of quality cocoa bean in both the domestic and international world market.

In general, the results from the study revealed that majority of respondents (71%) acknowledged the importance of cocoa bean quality to the development of the sector and therefore accounted for CML's contribution to ensuring quality management of cocoa. The perception of PC's and DM's concern for quality is in line with COCOBOD's vision to "Encourage and facilitate the production and processing of premium quality cocoa." Also, according to Wallace, Ghana grows the finest cocoa in the world.

Based on the established Grade 1 cocoa bean quality standards, CML encourages its PC's and DM's to constantly value cocoa beans with lesser moisture content (7.5% for Grade 1), minimum disease infestations, low defectiveness of beans (less than 3% for Grade 1), uniform bean sizes per bag, low/no moldiness and lesser foreign matter.

The researchers further illuminated the characteristics that define cocoa beans as being of higher quality or otherwise. A question was posed to allude some of the defects which indicate low quality in cocoa. The following (Table 4) cocoa defects were divulged:

Defect of Cocoa beans	Explanation
Not Thoroughly Dry (NTD)	Cocoa beans with great moisture content
Admixture also known as Average Tolerance Level (ATL)	a mixture of cocoa beans of different sizes or a mixture of uneven/unusual beans
Mold	cocoa beans that become moldy, tastes bitter and lacks flavor
Weevil	cocoa beans infested with weevils and cocoons, damaging the food
Purple	cocoa beans in purple color and tasting bitter and flavorless
Foreign material	Cocoa beans mixed with debris, stones, or cow dung etc.
Flat beans	beans that are very light in weight due to smaller food in them
Smoky beans	cocoa beans contaminated with smoke

Table 4: Major defects of cocoa beans identified by PC's (Source: Field data, 2015) [5].

Based on the thematic analysis of findings, the study revealed the following ways as pragmatic ways of reducing cocoa bean defects to promote quality in the selected cocoa districts (Table 5).

Cocoa Defect	Required Restorative Measure
NTD	Re-drying and general bulking of cocoa.
Purple beans	No curative measure and should better be prevented. Cocoa is graded as sub-standard cocoa if purple is high.
ATL/ Admixture	Sieving, segregation and hand picking of abnormal beans.
Mouldiness	Re-conditioning if not too serious. Discard cocoa if mouldiness is very serious.
Cocoon infested	Spraying, fumigation, discarding infested sacks and re-bagging cocoa into new sacks.
Germinated beans	Hand picking of germinated beans from normal beans.
Black beans	Hand picking of black beans and general bulking.
Dampness	Re-drying and storing at worm temperature.
Foreign matter	Sieving of cocoa to remove rubbish. Hand picking of all pieces of placenta, sticks, stones and animal excrement;

Table 5: Suggested ways to avoid major cocoa defects by PC's (Source: Field Survey, 2015).

Major QCP's undertaken by CML to ensure cocoa quality

To irradiate the reasons why CML is very concerned about quality management practices, the statement below was made to elucidate the company's stance on quality.

'When it comes to cocoa quality, there is zilch you can do about it, because if you don't purchase quality cocoa, it will be rejected by COCOBOD…. even if it is accepted, they will pay you less...so, for quality, you have to consider the quality standards by COCOBOD'S'.

Farmers have the choice of selling their cocoa beans to several LBC's or their agents in each cocoa community. Mostly, these LBC's have sheds in the villages where cocoa beans are weighed, and farmers are paid according to the weight of their beans. This interaction is a simple spot purchase prearrangement which does not involve the signing of contracts. To ensure high quality, COCOBOD's purchasing rules require LBC's to test the quality of farmers' cocoa beans prior to purchase. A typical role actively performed by CML. In general, some of the major activities undertaken by CML to ensure cocoa quality covered the following:

- Education and training of farmers on proper fermentation of cocoa produce, drying, picking of placenta pieces and foreign matter from beans, good agronomic practices, inter alia through organized workshops.
- Ensuring that District managers present good quality cocoa for grading and sealing to the Quality Control Company (QCC) or face rejection.
- Ensuring that Purchasing Clerks (PC's) provide requisite assistance to farmers. Encouraging the use of banana and plantain leaves to cover the cocoa beans to give it a fine aroma. Assisting farmers with farm inputs, financial credit, as well as bonanza and award systems for farmers and PC's, to help improve yield and quality;
- Provision of good storage facilities; cocoa district depots, tarpaulins, pallets etc. to prevent bagged cocoa sacks from absorbing moisture contents from the ground due to the plants' hydroscopic nature. Through the acquisition of ware housing facilities, trucks for transportation purposes, and operational logistics such as weighing scales, tarpaulins, and gratins;
- Prompt payments of salaries and wages of staff associated with maintaining of product quality to motivate them to ensure good quality cocoa;
- Co-operating with COCOBOD and QCC in adherence to regulations in the cocoa purchasing industry especially those related to quality maintenance.

The state of quality control practices in the face of competition

Previous studies suggest that competition among LBCs in the cocoa industry gives larger LBCs undue advantage over those with smaller market shares, especially in terms of giving out extra incentives to

motivate farmers to sell [1]. Fold recommended that under a free market system the costs of maintaining the quality control system would not be cost efficient for the private sector, and therefore, Ghana's system of quality control can only be maintained under the COCOBOD's monopoly of exports. Nonetheless, CML has instituted measures aimed at ensuring the processing of quality cocoa beans for export [12].

The following were some of the views gathered.

"As a result of stiff competition between LBC's for farmers' cocoa beans, LBC's have resorted to taking some of the quality related responsibilities like drying and sorting of the cocoa beans. This has resulted in lowering the incentives for farmers to improve on their production practices towards quality".

The foregoing argument reveal that the competition in the internal market does not favor CML's operations and therefore strict competitive monitoring is needed to avoid the bamboozlement of smaller LBCs like CML in the domestic market. However, when questioned about whether they will reject poor quality cocoa, about 76% of District Managers claimed that PC's would reject poor quality cocoa. This was often qualified with the belief that:

'Purchasing low quality cocoa was worthless owing to the watchfulness of the QCD in quality control'. As noted by one DM.

Considering the competitive threat faced by rejecting a farmer's cocoa, an alternative was suggested by one of the PCs that rather than rejecting poor quality cocoa, PC's will now help the farmer recondition the cocoa to an acceptable level of quality. Reconditioning would normally involve additional drying of the cocoa or the separation of good from bad beans. Interviews with DM's also confirmed the practice of reconditioning.

It was also brought to the fore that they (DMs) are currently encouraging PC's to rarely reject a farmer's cocoa for fear of losing out to their competitors, but instead they would recondition the beans where possible. As observed by one DM.

'You need a very good relationship [with farmers], especially where there is competition, so you have to build rapport with them and even to the extent of petting them by taking on jobs that normally you would not have done'.

About factors that demotivate PC's from burdening themselves with the issue of reconditioning defective cocoa beans, respondents suggested that, due to the degree of urgency in the need to buy farmers' cocoa, PC's are always in a rush and therefore any additional reconditioning work carried out may not receive the time and care that the farmer can give. Findings from the study put forward that, Purchasing Clerks (PCs) face a momentous time constraint due to two major reasons.

1. Because of the organizational risk associated with the work of PC's, District Managers keep very tight control of any amount of money released to the PC. As such, the PC must account for any money received with physical cocoa in a short period of time.
2. The PC does not want to devote a large amount of time in cocoa bean reconditioning as this will inexorably decrease the extent of time they can spend in the field competing for more cocoa, and ultimately earn more commissions.

This was revealed by interviewed PC's in the selected cocoa district for the study. The argument put forward then relates to the attitudes of PC's towards recovering defective cocoa beans. It can therefore be stated that PC's compromise on quality for quantity and the higher chances of obtaining higher commissions from the number of cocoa beans bought. It is therefore recommended that, DMs constantly check such behaviors of their PC's in the cocoa purchasing business, so the amount of cocoa waste generated during every cocoa season could be reduced through timely reconditioning.

Conclusion

Generally, most of the quality interventions instituted by CML were aimed at ensuring the maintenance of the physical quality of cocoa. The study concludes that CML, like any other LBC contributes through education and training of farmers on proper fermentation, strictly adhering to quality principles by cooperating with COCOBOD and QCC, provision of storage facilities such as pallets, tarpaulins, storage depots etc., and provision of expert assistance to farmers through PCs. Also, competition in the internal market of the cocoa industry does not favor CML and as such a favorable competitive environment should be created for smaller LBCs to thrive.

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