Effect of Good Product Design and Packaging on Market Value and the Performance of Agricultural Products in the Ghanaian Market

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Abstract
Packaging has found a crucial place in the agri-business value chain over the years. That is, packaging has developed well beyond its conventional purpose of simply protecting products to a key marketing role in developing shelf-appeal, providing product information, and establishing brand image and awareness. This in other words suggests that the visual appearance or look of a product with respect to its package design play a vital role to its marketability. It is therefore of essence that the effect of good product design and packaging on market value and the performance of agricultural products is looked into. This article looks at the effect of good product package design on the market value and performance of agricultural products in the Ghanaian market.

Subject Areas
Marketing

Keywords

1. Introduction
Packaging has found a crucial place in the agri-business value chain over the years. That is, packaging has developed well beyond its conventional purpose of simply protection of product to a key marketing role in developing shelf-appeal, providing product information, and establishing brand image and awareness. Packaging is considered as a differentiation tool, thus, it helps consumers to make a choice among a wide range of similar products, and also incites consumers’
purchasing behaviour (Wells, Farley, & Armstrong, 2007) [1]. Product design and packaging is very crucial to the marketability of products. This is because these elements provide an interface between the product and the consumer. It expresses the brand identity of the product, its intrinsic qualities, and philosophy. Design and packaging is the product’s first sales pitch, which is of key importance to its market positioning. The form, colours, design and texture of packaged products incite sensations in the consumer to draw closer, lift it up for a closer look, read it, handle it, purchase it and take it home for use (ITO Journal 2009). Various agricultural products have different handling needs, which results in different types of packaging to ensure products arrive safe, ready to sell and/or use. The level of market share for agricultural products plays a critical role both in enhancing production and accelerating economic development. Mass-media advertising and word of mouth have been applied as the major tools for marketing communication. However, the dynamics of marketing knowledge development coupled with current rapid change in consumer behaviour have brought product design and packaging to the fore. Studies have indicated that despite the huge effort in mass-media advertising to influence consumer purchase, a more of purchases are to a large extent influenced by the environment of the marketplace. About 66% of all supermarket decisions to buy are taken in the store (Annan, 2018) [2].

**Problem Statement and Justification**

The primary aim of packaging continues to be for maintaining safety, wholesomeness, and quality of the product. Proper packaging can extend the useful postharvest life of agricultural products to the extent that the produce quality and condition at harvest permit. This ensures that the quality of the produce is preserved until it reaches the consumer and utilized (Olympio & Kumah, 2009) [3]. Technological development and the current global market competitiveness calls for proper design and packaging which have significant impacts the appeal to consumer. However, in Ghana, design and packaging of most agricultural products lack the quality that makes them competitive on local and international markets. The low quality and structural design resulting from inadequate skills in packaging technology and know-how in packaging design affects the packaging industry in Ghana which consequently cause local manufacturers and the country to lose revenue (Institute of Packaging Ghana (IOPG) Situational Analysis Report, 2014) [4]. Thus, although some locally made products are observed to be of high quality and exclusive to the country, they are not accepted as good packaged products to enable them to be sold successfully, especially outside the local market (IOPG, 2014) [4]. To this end, patronage of these locally made agricultural products has been low compared to similar products from other countries. Ghanaian consumers usually choose foreign products from countries such as India, China, Malaysia, Indonesia, Thailand, South Africa, USA, and Britain among others which are more advanced with regard to packaging.

Keller (2008) [5] has argued that consumers are exposed to over 20,000 products choices within a 30-minute shopping experience. Packaging has over the
year been used by companies as an instrument for promoting their marketing offer. This is because many consumers are stimulated by attraction and the way a product is packaged affects its appeal. With Ghana’s quest to enhance her position and competitiveness in global market space especially in the area of agricultural products, issues of design and packaging cannot be overemphasized. In the wake of this present market challenge, many actors especially the local ones are looking for effective marketing plan that could help gain a competitive advantage over other similar products especially imported brands. Packaging has evolved as a distinguished marketing effort, which is now popular among industry players, that is helping their business survive the competition. In the light of this, it is imperative to examine how good product design and packaging affect the market value and performance of agricultural products in the Ghanaian market. Findings of this study would help local agriculture industry players consider the appropriate and attractive packaging style for the produce, which can ultimately boost sales. Academically, this would add to the wealth of knowledge in packaging and the effect it has on consumer buying decision but in different context, which is agriculture product and in developing country situation.

**Objectives**

The objective of this study is to examine how good product design and packaging affect the market value and performance of agricultural products in the Ghanaian market. Specifically, the aims are to:

1) Investigate the percentage of agricultural products packaged for the Ghanaian market;
2) Ascertain the design and packaging materials used for agricultural products in Ghana;
3) Examine the effect of the design and packaging on the buying decision of agricultural products.

**Hypothesis**

H\(_0\): There is a positive relationship between good product design and packaging and market value and performance of agricultural products.

H\(_1\): There is no positive relationship between good product design and packaging and market value and performance of agricultural products.

Where H\(_0\) and H\(_1\) are Null and Alternate Hypothesis respectively.

**2. Literature Review**

**2.1. Definition of Design and Packaging**

The concept of design and packaging of products for the market has been investigated by various authors across the globe. For instance, Dileep (2006) \[6\] defined packaging as the methods, wrapping material and its designs that are used to contain and store, protect, handle, transport, identify, display, describe, promote, and otherwise attract attention of products on display. In the view of Kotler and Armstrong (2005) \[7\], packaging every phase that concerns the designing and manufacturing of the container for a product or also the product wrapper.
In a similar case, Appiah and Kumah (2009) [8] defined packaging as the art, science and technology of enclosing or protecting products for distribution, sale, storage and use. That is a means of making the product handy by putting the product in appropriate containers to enhance mobility, prevent contaminates such as pathogens, dirt and undesirable reaction with the environment. The Encyclopaedia Britannica (2003) define packaging as the technology and art of preparing a commodity for convenient transport, storage, and sale. Packaging is really the physical vessel that is able to suitably protect the product contents through the transportation and distribution stages, and has a well-designed label which gives all vital information about the product and most importantly looks attractive. Packaging has a long term history dating back to the ancient days. According to the Business Dictionary (2006) [9], in the past, packaging was traditionally described to involve the processes which include preservation and drying, and materials which include paper, plastic, glass, cardboard, and metal used to contain and store, protect, handle and transport a product. A study conducted by Essuman (2008) [10] noted that packaging was not a new practice in Ghana. Historically, the most important period of packaging was when man started keeping some of his wares in leaves, gourds and shells as containers, endowed by nature. The earliest form of packaging was through the use of animal skins, shells, broad leaves and hard “skin” fruits and vegetables. Liquids were kept in containers made from animal skins, hollowed out logs, gourds, coconuts and shells. The study further noted that in Ghana, it was common practice to see most corn dishes such as the “Ga kenkey” and “nkyekyera” are still wrapped in corn husk to date. Foodstuffs were and are still carried from the farm to market places or homes in woven palm fronds. Modern packaging, especially in the area of food preservation dates back to the latter part of the 16th century. That is, in 1795, there was an urgent need for food preservation for soldiers during the French War leading to the canning of food. The process of canning was invented by a confectioner, Nicholas Appert in 1809 which was further developed to the light weight cans of today (Hook & Heimlich, 2007). The 19th century saw advancements in canning and paper containers fabrications used for packaging. This birthed the packaging, branding and labeling era. Here, the packaging industry has undergone development resulting in mechanical printing processes, photoengraving and process colour printing. Many packages were adorned with the printing processes to make them more attractive, bear the names of the products and their manufacturers’ information. In the words of Essuman (2008) [10], package design involves activity of conceiving and ensuring that packages achieve two overall objectives of safe delivery and ability to communicate its sales message. Thus, package design, entails all aspects of the systematic approach to ensuring that the package achieves its two principal goals of delivering the product to the customer in perfect condition for its intended use, and providing both effective sales promotion and all necessary information throughout the distribution chain and to the user.
2.2. Importance of Design and Packaging

According to Essuman (2008) [10], packaging design is a major element in the marketing promotion as the important and critical sales tool. In dynamic sales environments, with increasing competition, rising costs and diminished effectiveness of advertising, packaging has emerged as the principal channel for delivering marketing messages. While pack shape, size, colour and convenience features can all play a part in encouraging purchase, the primary messages are normally delivered by a package’s text and illustration. It is for this reason that, so much attention and resources are now devoted to the perfecting of package appearance.

For Kuvykaite (2009) [11] elements of packaging stimulate the attraction of consumers to a brand, boost its image and affect consumers’ perceptions of a product. This position confirms the assertion made by Rundh (2005) [12] that packaging captures the attentiveness of consumers to some brand, raises its image and positively increases the perception of consumers about the product. Furthermore, Louw (2006) [13] also discovered that right packaging could result in a brand’s position in the market environment and in the consumers’ minds.

The ITO Journal (2009) opined that packaging is the interface between the product and the consumer. It expresses the brand identity of the product, its inherent qualities, and its “philosophy”. This makes packaging the voice of the product, its dress-sense and its “look”. The report describes packaging as the product’s first sales pitch, which is of key importance to its market positioning. Packaging’s physical proximity brings it closer to consumers who look at it, lift it up for a closer look, read it, handle it, take it home and use it. The form, colours and texture of packaging incite sensations in the consumer. In a word, it is the spokesperson of the product. (ITO Journal 2009).

2.3. Packaging Characteristic Elements

Packaging characteristic elements are defined as all the features, both visual and informational which are identified with a package. According to Vyas (2015) [14] some of the visual traits include colour, size, shape, graphic design, images and pictures and some of the informational attributes are information about home of origin of the product, user instruction and all other vital information that help consumers to know more about the product. In the opinion of Dodson and Yadav (2012) [15] visual characteristics element of a package is significant in product appreciation since they establish enormous attention and are captured at a faster speed. In contrast, Kuvykaite, Dovaliene and Navickiene (2009) [16] conducting a study into packaging elements’ impact on purchase decision of consumers, economics and management posited that the most crucial visual elements for influencing consumers’ purchase decision on milk product and washing powder was material. They also acknowledged that graphics forms, and colour were not so significant to packaging of milk products and washing powder. Again, their analysis of verbal elements revealed that product information
and country of origin for both milk and washing powder were the most essential elements of a package. The study concluded that the impacts of verbal elements were much valuable than visual elements when buying washing powder and milk.

For Appiah and Kumah (2009) [8] brand labeling packages can help in publicity for the product’s manufacturer, packer and/or shippers. Consequently, shipment, transporting and marketing labels can contain some or all of the following information including common name of the product, net weight, count and/or volume, brand name, name and address of packer or shipper, country or region of origin, size and grade, recommended storage temperature, special handling instructions, names of approved and waxes and/or pesticides used on the product. This corroborates the Ghana Standards Board General Labeling Rules of 1992 which stipulates that the information on label may be only word-based or in addition bear a logo, illustrations and photographs. The label, as current local and international regulations demand, should indicate the content, nature, manufacturing and expiry dates, ownership, direction of use, and place of origin on the object it has been affixed to or inserted.

The basic principles of a good label are easy to understand, low information cost, voluntary certifications, authenticity, scientific background, abolishing unnecessary commercial barriers, an entire life cycle attitude, support for innovation, keeping administration to the minimum and open discussions looking to agree (GEN, 2004) [17].

2.4. Types of Design and Packaging Materials

Over the years, different materials have been used to package things in one form or the other. In the past, some of those obtained from natural sources are more or less ready-made or require rudimentary methods to make them. These include animal skins, gourds, shells, hollowed wood, leaves, coconut shell; bamboo and any other thing that can serve similar purposes which nature has endowed that require no scientific processes for conversion. In modern times, the basic materials for packaging include paper, paperboard, plastics, glass, wood, cellophane, steel, aluminum and textiles. These materials are processed or fabricated into the various forms of packaging we have today. Deufol (2012) [18] categorize packaging materials into primary, the secondary and the tertiary types.

The material used in packaging is an important element which prevents the product from any damage or loss. There is high probability that high quality packaging material might attract customer more than low quality material. To this end, packaging material has strong impact on buying behavior. For example, in the study by Smith and Taylor (2004) consumers link the packaging materials with certain essential values of the product. Again, consumer perceptions regarding certain materials could change the perceived quality of a product (Smith and Taylor, 2004). Different kinds of containers are used for vegetables, depending on the market and value of the produce. For export and high-value vegetables, more rigid and presentable but expensive containers are used, such as
foam box and cartons. For the local markets, bamboo baskets of different sizes and shapes are used (Adhikari, 2006) [19].

Ghana’s packaging sector is dominated by small-scale enterprises which are mostly involved in the production of plastic and paper and paper board and printing. Plastic packaging and printing are the fastest growing subsectors in the industry with a majority of small and medium scale enterprises engaged in this venture. The distribution of the various types of packaging in the domestic market are: plastic packaging 40%, paper packaging 25%, metal packaging 15%, glass packaging 10%, wooden crates and pallet packaging 5%, jute and cotton fabric 5% (IOPG, 2014) [4].

2.5. Effect of the Design and Packaging on the Buying Decision

Design and packaging can influence consumers’ buying behaviour and attraction in many different ways. The elements of packaging and its effects on consumers’ purchasing behaviour are well documented. For instance, Adelina and Morgan (2007) [20] reported that in recent times packaging could be considered as one of the most essential elements of marketing communications. They indicated that packaging has an important effect on buying behaviour of consumers, revealing that the effect of elements of packaging can influence the buying decision of consumers. In the view of Wells et al., (2007) [1], packaging serves as a differentiation tool, which enables consumers to make a choice from a variety of similar products, and also incites consumers buying behaviour.

A study conducted by Renaud (2007) [21] on the influence of eco-labelling on consumer behaviour assessed the labeling relative importance in packaging to other attributes of products such as price, brand and others for purchasing decisions of consumers. He found that desire to purchase products that were packaged with energy efficient material was high. This was supported by a study by Hysen and Mensur (2008) [22] who analyzed the purchasing behaviour of consumers with regards to dairy products in Kosovo and found that packaging has greater impact.

Kuvykaite (2009) [11] reported that there were six key elements which needed to be prioritized by designers of package to establish efficient since they had significant influence on consumers’ selection of a product. These include material, flavour, colour, form, graphics and size. This finding confirmed that of Kotler (2003) [23] who distinguishes six elements that must be considered when making packaging decisions. These include colour, size, form, material, text and brand.

2.6. Research Methodology

The study was a survey. This was chosen as the most appropriate design to apply because it enhances data collection from large groups of respondents, is inclusive in the number of variables that can be studied, requires minimum investment to develop and administer and is relatively easy for making broad view conclusions (Zikmund, Babin, Carr & Griffin, 2009) [24].
A total of two hundred and fifty (250) agro product processors, marketers and consumers were sampled from 25 municipal and district assemblies from the Bono, Bono East and Ahafo Regions of Ghana. Purposive and simple random sampling techniques were used to select respondents for the study.

Both qualitative and quantitative research methods using interviews and questionnaires were employed as the main data collection instruments. Data was analyzed with the aid of Microsoft Excel Spreadsheet and SPSS statistical software. The sampling technique to be used is the convenience sampling. This method of sampling selects out of the population, the most convenient for the researcher to work with, considering the period within which the research is to be completed.

3. Results and Discussion

3.1. Demographic Characteristics

From the results of the study (Table 1), males dominated the respondents for the study accounting for 69.2% with the remaining 30.8% being females. The most dominant age group was 26 - 35 years being 30.4% and the least of 8.4% being those who were 60 years and above. With respect to education level, majority (32.4%) had had formal education to the second cycle level with the least of 16.8% being tertiary graduates. Married couples dominated representing 45.6% and divorced were the minority representing 5.2%. An analysis of the occupation of the respondents revealed that majority (27.6%) were traders and private sector workers. This was followed by farmers who represented 21.2% of the respondents, with 3.6% being unemployed.

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>173</td>
<td>69.2</td>
</tr>
<tr>
<td>Female</td>
<td>77</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 - 25</td>
<td>51</td>
<td>20.4</td>
</tr>
<tr>
<td>26 - 35</td>
<td>76</td>
<td>30.4</td>
</tr>
<tr>
<td>36 - 50</td>
<td>64</td>
<td>25.6</td>
</tr>
<tr>
<td>51 - 60</td>
<td>38</td>
<td>15.2</td>
</tr>
<tr>
<td>Above 60</td>
<td>21</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>42</td>
<td>16.8</td>
</tr>
<tr>
<td>Secondary</td>
<td>81</td>
<td>32.4</td>
</tr>
<tr>
<td>MSLC/JHS</td>
<td>70</td>
<td>28</td>
</tr>
<tr>
<td>None</td>
<td>57</td>
<td>22.8</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>58</td>
<td>23.2</td>
</tr>
<tr>
<td>Married</td>
<td>114</td>
<td>45.6</td>
</tr>
</tbody>
</table>
### 3.2. Investigate the Percentage of Agricultural Products Packaged for the Ghanaian Market

The results of the study revealed that most agricultural products were sold fresh to consumers at local markets and street traders with the least being packaged for shops, supermarkets and for transportation or export to other jurisdictions. The local market dominated the responses on where consumers normally purchased their agricultural product. As shown in Figure 1, about 24.9% of products were packaged for the market with the remaining 75.1% being sold fresh or processed but unpackaged. These were normally packaged for supermarkets, shops and malls which were perceived to be the destination for middle to high class consumers of such products.

Invariably, as shown in Figure 2, majority of respondents would purchase their agricultural products from local markets (33.5%), street vendors (27.6%), any sales point where products are available for sale (17.3%), supermarket/shops (11.6%), farm gates/farmers’ market (4.2%) shopping mall (4.0%) and the remaining 1.8% representing other sales points.

### 3.3. Design and Packaging Materials Used for Agricultural Products in Ghana

The study revealed that the most predominantly used material for packaging agricultural products on the Ghanaian market was plastic and polythene materials. As shown in Figure 3, polythene and plastic material accounted for 38.9% of packaging material used by farmers, processors and vendors of agricultural products. This was followed by paper material (20.5%), sack/jute bags (18.5%), crate/pallets (11.2%), glass (3.3%), bottles (2.5%), others (2.9%) and the least being leaf/fronds (2.2%).

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trader/private sector workers</td>
<td>69</td>
<td>27.6</td>
</tr>
<tr>
<td>Artisan</td>
<td>32</td>
<td>12.8</td>
</tr>
<tr>
<td>Agro processor</td>
<td>29</td>
<td>11.6</td>
</tr>
<tr>
<td>Public/Civil servant</td>
<td>22</td>
<td>8.8</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2.4</td>
</tr>
</tbody>
</table>

This result confirms the finding of IOPG (2014) [4] which indicated that Ghana’s packaging sector is dominated by small-scale enterprises which are...
mostly involved in the production of plastic and paper and paper board and printing. The distribution of the various types of packaging in the domestic market are: plastic packaging 40%, paper packaging 25%, metal packaging 15%, glass packaging 10%, wooden crates and pallet packaging 5%, jute and cotton fabric 5%. The study found that polythene and plastic materials were widely used due to their affordability and convenience of use since most of the products are for the local market used as fresh or semi processed. This assertion is in line with the observation made by Adhikari, (2006) [19], that for export and high-value vegetables, more rigid and presentable but expensive containers are used, such as foam box and cartons.

3.4. Effect of the Design and Packaging on the Buying Decision of Agricultural Products

The study identified that the major factors that influenced the purchase agricultural products was the need for the product. As shown in Table 2, this accounted for 36.7% of the responses by respondents as to what would make them buy a particular agricultural product on the market. This was followed by content of the product (23.3%), beautiful structural packaging (20.5%), packaging providing the needed information (15.7%) and others such as recommendation or referral of brand by a third part accounting for the least of 3.8%.

The attractiveness of packaging material(s) somewhat influenced the purchasing decision of consumers of agricultural products; however, it was not the major driving force for consumers purchase in the case of this study. This was revealed through the response to the question of whether purchasing decision on agricultural products was influenced by the attractiveness of the package. About 63.7% of the respondents responded in the negative to this question (Figure 4).

Packaging of most agricultural products especially those made in Ghana was observed to be poor. Defects were generally noted to be with respect to the ability of the material to protect the product for long, provide the needed information on the product, the design, shape and colour of the package. This result confirms the report by Vyas (2015) [14] that indicated that visual characters

<table>
<thead>
<tr>
<th>Effect of the design and packaging on the buying decision of agricultural products</th>
<th>Frequency (n)</th>
<th>Percentage frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content of the product</td>
<td>58</td>
<td>23.3</td>
</tr>
<tr>
<td>Need for the product</td>
<td>92</td>
<td>36.7</td>
</tr>
<tr>
<td>Beautiful structural design</td>
<td>51</td>
<td>20.5</td>
</tr>
<tr>
<td>packaging providing the needed information</td>
<td>39</td>
<td>15.7</td>
</tr>
<tr>
<td>others</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>100</td>
</tr>
</tbody>
</table>

Source (Field Survey, 2019).
Attractiveness of packaging material(s) influence purchasing decision on agricultural products

Figure 4. Attractiveness of packaging material(s) influence purchasing decision on agriculture products.

such as colour, size, shape, graphic design, images and pictures and some informational attributes help consumers to know more about the product. In the same regard, Dodson and Yadav (2012) [15] consented to this fact that the visual characteristics element of a package is significant in product appreciation since they establish enormous attention and are captured at a faster speed.

Majority (73.6%) of respondents preferred foreign brands to local brands of same products irrespective of the price. The reason for this decision was that they did not find the local package very attractive enough, were poorly finished, provided inadequate information and did not reflect Ghanaian culture. This poor impression of locally packaged agricultural products was reported to be as a result of inadequate or lack of packaging skills on the part of agricultural producers, low exposure and inadequate awareness on the packaging effect, inadequate resources or investment into packaging as a marketing tool. An assessment of the extent to which packaging helped in promoting agricultural products in Ghana indicated a poor result accounting for 66.9% of the answers by respondents.

4. Conclusion

Taking a critical and technical look at the findings, it can be realized that most consumers are more interested in purchasing agricultural products produced and or packaged outside Ghana because they find them to be more attractively designed as compared to the ones produced in Ghana. This simply suggests that until the market relevance of good product package design is captured and inculcated into the Ghanaian agricultural systems, local products will keep losing to foreign products with one major reason being poor agricultural product design.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.
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