



Advancing Palm Kernel Business in Nigeria through Effective Marketing

Bossey, Felix Ozimede^{1*}, Udo, Joseph Sunday² and C. L. Ihekoronye³

¹*Department of Registry, School of Engineering Technology, Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.*

²*Department of Business Administration and Management, Federal College of Agriculture, Ishiagu (FCAI), IVO L.G.A, Ebonyi State, Nigeria.*

³*Department of Agricultural Technology, Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.*

Authors' contributions

This work was carried out in collaboration among all authors. Author BFO did the literature search, and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Many Entrepreneurs just delve into business in the name of starting a business without first finding out the best production methodology for increase output and the various ways that the product and its bye products can be disposed for more profit. Palm kernel is a money spinning venture. The process involve in palm oil extraction from the palm fruit is still crude. Marketing starts with product idea generation. The research therefore is aimed at finding out the best palm kernel separation method that will give the highest production volume. This will eventually help the organization meet market demand that will lead to the desired sales volume/profit. Three palm kernel separation methods were carried out using 25 kg of palm kernel for each. Time taken for these operations was taken. Thorough put was calculated. The result obtained was that mechanical cracking machine with pneumatic separation has a faster operation time and higher output than two other separation methods. This study discovered about fourteen (14) potential business areas for investors and entrepreneurs in palm kernel ventures. A graph of annual palm kernel availability and price

*Corresponding author: E-mail: felixbosseyozimede@gmail.com;

fluctuation was developed. The recommendations emanating from the analysis are: (1) Investors, entrepreneurs and processors are advised to go for mechanical cracking and pneumatic separation machine for efficiency and effectiveness (2) Buy palm kernel nut by April, May and June then sell off their stored palm kernel nut to make profit by September to October, and (3) Should reevaluate their investment on palm kernel business against the coming year by December.

Keywords: Marketing; advancing; business; entrepreneur; products; production.

1. INTRODUCTION

Palm kernel is a neglected rich crop with about fourteen potential uses yet to be fully tapped. Palm kernel is the hard core of the palm fruit. It is made up of a hard shell enclosing the kernel in which the oil is contained.

Oil is extracted from the seed kernel; it contains about 50% oil. Palm kernel oil is used in edible fats in making ice-cream, baked goods and confectionaries. Palm kernel searing is used as chocolate fat [1].

Palm kernel oil is used for soap making, glycerin margarine, candle, pomade, oil paints, polish and medicine. Also kernel cake serve as fibre ingredient of live stock feeds [2].

In Mbaise, Imo state, Nigeria, primary and secondary school graduates patronize bushes and palm farms searching for palm kernel which they crack manually, sort manually and sold at the village markets, earn income until they gain admission into higher institutions or go for vocational training.

Entrepreneurs among them goes beyond local scavenging to government palm plantation and buy large volume of palm kernel which is cracked mechanically, and separated manually. There has been increase in mechanical cracking machineries in the villages but high volume separation skill pose a problem to the business.

Some local entrepreneur uses hydro system to separate kernel from shell either with red mud or



Fig. 1. A palm fruit showing the pulp, shell and kernel nut



Fig. 2. Typical Kernel oil processing factory, Mbaise, Nigeria



Fig. 3. Typical mechanical kernel cracking machine

saline solution. This technology increase the moisture content of the kernel requiring increase in labour, drudgery and cost to dry. Others use mechanical separation machineries which increases the cost of investment, high power and energy requirement, large space demand. The relationship between manual cracking and manual separation of palm kernel, mechanical cracking and manual separation of palm kernel and mechanical cracking and pneumatic separation of palm kernel was studied.

Before now only few palm kernel processing industries existed, either government owned or commercially and privately owned. In fact, not until recently individual palm industries were not

in existence. Recently because of the unemployment situation in the nation and availability of information technology, there has been rapid increase in privately owned palm kernel processing firms and demand for raw material (palm kernel) is overriding the supply.

This study became interested in a mechanical cracking with a pneumatic separation technology developed by Deofingers industrial construction company, Enyioogu, Aboh Mbaise local government area of Imo State. This machinery has the advantage of portability, timeliness value, low cost, high efficiency, multiple operation advantage and low power and energy requirement.



Fig. 4. Deofingers manufactured palm kernel cracking and Pneumatics separating machine

This simple machinery is made up of the Hopper, cracking chamber, Rotor Assembly with hammers discharge battle, Blower Assembly, support frame of Angle Iron, Prime mover and sitting pulleys, bearings and belts (see Fig. 4).

This research equally studied palm kernel marketing system to advice entrepreneurs as shown graphically, several investment opportunities in which palm kernel business were discovered. This study intends to encourage investors into palm kernel business which is a silent money making business, by projecting this pneumatic technology, providing data and investment avenues which they can get through market research.

1.1 Marketing

According to Nwabuko [3], marketing activities involves:

- (a) Finding out what products or services people needed and providing the products and services to meet their needs.
- (b) Selling the products and services in places or location where people can get them to buy.

- (c) Setting price that people are willing to pay.
- (d) Informing and attracting customers through promotional activities to buy the products or services. According to her, these are collectively called four P's of marketing product, price, promotion and place (distribution).

Principles and theories of marketing should be taken seriously in any organization because it is an engine that propels them to growth development and success.

Onah [4], stated that marketing plays so many roles in an organization which are as follows:

- (1) The act of getting customers to purchase the products or services of an organization is the function of marketing.
- (2) Customer need satisfaction which enables an organization to make profit is the function of marketing.
- (3) Marketing enables the organization to identify the goods and services the customer needs before he goes into production.

- (4) Marketing help the organization either consciously or unconsciously respond to their respective environment.
- (5) Marketing provides the organization with the information about the market opportunities as well as related problems in the market.
- (6) Marketing also help the organization determines the size of the market and classify them into segments and then choose the segments to satisfy, and adopt strategies to satisfy the segments chosen.

According to Onah [5], marketing has had a lot of impact on the private sector. Most Nigerian entrepreneurs according to him grew from marketing.

1.2 Entrepreneurship

Entrepreneurship is the cornerstone and at the heart of the free enterprise economy [6]. Benin's in Nigeria traded with Europeans in the 16th and 17th centuries in palm oil, ivory, pepper and textiles. Dutch traders to Benin City in the 17th century remarked about the astute entrepreneurs they met in Benin Kingdom [7].

An entrepreneur through his innovative activity seeks to create new profit opportunities. These opportunities can result from productivity increases [8]. Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations, to: perceive and create new economic opportunities (new products, new production methods, new organizational schemes and new product market combinations) and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions [9]. Entrepreneurship is what occurs when an individual develops a new venture or a new approach to an old business or idea [10].

2. MATERIALS AND METHODS

2.1 Materials

1. Palm kernel
2. Weighing scales
3. Mechanical cracking and pneumatic separation machinery
4. 4kw prime mover (1400rpm speed)
5. Stop watch
6. Containers (used cement bags)
7. Two big stones

2.2 Methods

This research studied the cracking and separation of palm kernel to determine the timeliness value, to calculate the thorough put, manually, mechanically and pneumatic separation.

$$\text{Thorough put} = \frac{\text{Quantity of kernel cracked}}{\text{Time Taken}} = \text{kg/hr}$$

2.3 Research Design

2.3.1 Manual Cracking and Separation (MCS)

25 kg of palm kernel nut was manually cracked and separated. Time taken for this operation was taken, thorough put was calculated. The result is presented in Tables 1 and 2.

2.3.2 Mechanical Cracking and Manual Separation (MCMS)

25 kg of palm kernel was cracked mechanically and separated manually (hand picking). Time taken for this operation was taken, thorough put was calculated. The result is presented in Tables 1 and 2.

2.3.3 Mechanical Cracking and Pneumatic Separation (MCPS)

25 kg of palm kernel nut was cracked mechanically and separated pneumatically simultaneously. Time taken for this operation was taken. Thorough put was calculated. The result is presented in Tables 1 and 2.

3. RESULTS

The result from Table 1 shows that mechanical cracking machine with pneumatic separation has a faster operation time of 0.1hr while mechanical cracking and manual separation has 2.4hr and manual cracking and separation has 3hr. This shows that there is no much difference between mechanical cracking and manual separation, with manual cracking and manual separation.

Table 1. Design table

Operation	Quantity (kg)	Time/hr
MCS	25kg	3hrs
MCMS	25kg	2.4hr
MCPS	25kg	0.1hr

The result in Table 2 shows that the mechanical cracking and pneumatic separation machinery developed by Deofingers Industrial Construction Company has a better thorough put of 250 kg/hr against 10.4 kg/hr for mechanical cracking with

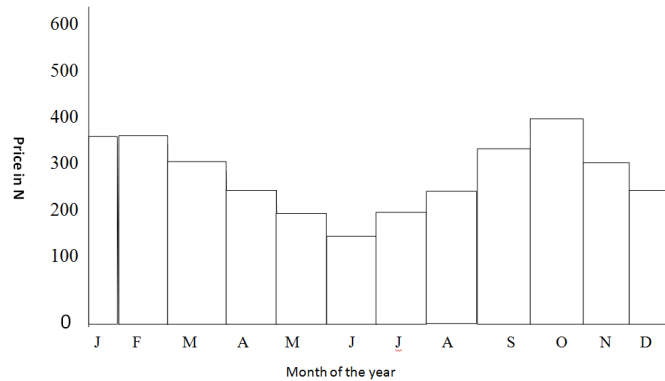


Fig. 5. Annual cracked palm kernel nut price fluctuation graph

manual separation and 8.3 kg/hr for manual cracking and manual separation.

Further computations shows that if it takes 4 hours to crack and separate 1 ton (1000 kg) of palm kernel with the mechanical cracking and pneumatic separation machine, it will take 5 days for manual cracking and separation and 4 days for mechanical cracking and manual separation.

So if manual cracking and separation is producing 1 ton in 5 days, Deofingers machinery will produce 30 tons in 5 days. If mechanical cracking and manual separation is producing 1 ton in 4 days Deofingers machinery will produce 24 tons in 4 days. With a cracking efficiency of 94.12%, this indicates that the mechanical cracking and pneumatic separation (Deofingers machinery) is the solution for palm kernel entrepreneur, investor, processors and farmers.

Table 2. Thorough put values table

Operation	Kg/hr
MCS	8.3
MCMS	10.4
MCPS	250

Table 3 shows Annual Cracked Palm Kernel Nut Price Fluctuation, while Fig. 5 shows the graph of annual palm kernel price fluctuation. Both illustrations (Table 3 and Fig. 5) paint a good picture for farmers, entrepreneurs and investors. The kernel price comes lowest (₦200.00) by May because there is much available palm kernel due to palm production season that peak by April. Between September and October the palm kernel price shoots to highest (₦450.00) because the palm production season is completely over. By November to December the price drops sharply because of much availability of palm kernel in the market due to Christmas

season and early beginning of palm production season.

Table 3. Annual cracked palm kernel nut price fluctuation

Month	Price (₦)
January	350
February	350
March	300
April	250
May	200
June	250
July	300
August	350
September	400
October	450
November	350
December	300

4. CONCLUSION AND RECOMMENDATIONS

Business owners should adopt principles of marketing because it will help them to understand business in terms of target market offerings and product development and better opportunities for environmental survival. They should not fail to exploit the gains of mass production (reduced cost).

Based on the result, the following recommendations are proffered.

- i. Investors, entrepreneurs and processors are advised to go for mechanical cracking and pneumatic separation machine like the one developed by Deofingers Industrial Construction company.
- ii. With reference to annual cracked palm kernel nut price fluctuation graph the study recommended that investors and entrepreneurs to buy palm kernel nut by

- April, May and June. They should sell off their stored palm kernel nut to make profit by September to October.
- iii. It is suggested that December, investors, processors and entrepreneurs should re-evaluate their investment on palm kernel business against the coming year.

Through interviews with customers in palm kernel business, these (14) fourteen potential business areas on palm kernel business for investors and entrepreneurs were discovered:

1. Kernel nut buying and selling
2. Kernel nut buying, cracking and selling
3. Kernel nut processing company agent
4. Palm kernel processing
5. Palm kernel oil processing
6. Palm kernel cracking
7. Palm kernel by product marketing
8. Palm kernel by product processing
9. Palm kernel machineries production
10. Palm kernel machineries marketing
11. Shells marketing
12. Shells briquetting
13. Fibre processing
14. Fibre marketing

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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