

ECONOMIC ANALYSIS OF PALM OIL MARKETING IN DEKINA LOCAL GOVERNMENT AREA OF KOGI STATE, NIGERIA

Ibitoye, Stephen Jimoh

Department of Agricultural Economics and Extension
Kogi State University Anyigba, Nigeria
Email: drsorbitoye@yahoo.com

ABSTRACT

The study examined the economic analysis of palm oil marketing in Dekina Local Government Area of Kogi State, Nigeria. A total of one hundred and twenty five (125) palm oil sellers were randomly selected from a purposively selected five major markets for the study. The data for the study were collected with the aid of a questionnaire. Statistical tools such as simple descriptive statistics (table, mean, frequency, and percentages). Shepherd Futrel model, Bivariate correlation, gross margin, and a five point Likert type of scale were used for data analysis. The study indicates that female form the greater proportion of palm oil sellers in the study area (96%). From the findings the palm oil market was highly integrated. A gross margin of ₦568000.00 per 20,000 liters of palm oil was recorded. Thus, the business was profitable. Furthermore, the market showed a low marketing efficiency of 18.73 percent, this is due to high marketing cost associated with palm oil marketing. It is therefore recommended that policy that improves rural infrastructure and marketing incentives be encourage by government to reduce the costs associated with the business. It was also recommended that financial institutions should be strengthened by government to give loan to mitigate the problem of inadequate capital and price stabilization policy to bring about perfect market performance.

Keywords: Palm oil, Production, Marketing, Oil palm, Processing.

INTRODUCTION

The oil palms (*Elaeis* spp) comprise two species of the family *Arecaceae*. They are used in commercial agriculture in the production of palm oil. The African oil palm (*Elaeis guinensis*) is native to West and Southwest Africa, occurring between Angola and Gambia (Mathew, 2009). In West Africa the oil palm grows naturally throughout the rain forest belt, wherever the mean annual rainfall is over 150cm. Many plantations of oil palm have and are being established in West Africa, but most palm produce is obtained from growing wild (Mathew, 2009).

The oil palm gives rise to two distinct oils; palm oil – from the mesocarp of the fruit, and palm kernel oil—from the kernel. Palm kernel oil is distinct from palm oil in terms of its fatty acid composition. The bulk of palm oil that is produced goes into food applications; hence its nutritional properties have been extensively studied. Palm oil is currently the second largest traded edible oil and accounts for about one quarter of the world's fats and oil supply (Ibekwe, 2008).

Red palm oil can be extracted from the fibrous layers of the nuts of the fruit bunch. Palm oil is locally used in cooking and in the manufacture of candles, margarine and soap. The palm branch which bear the fruit develops into fruit bunches, each bearing up to 200 fruits is a drupe (fleshy

fruit containing one seed enclosed in a stony endocarp). It is oval in shape, but varies in size and color, depending on the variety. Fruits are red, yellow, orange and blackish-red when ripe. The fruit has a fairly thin exocarp surrounding the mesocarp. This is a fibrous oily layer. Palm oil is extracted from the mesocarp (Akangbe et al, 2011).

Mathew (2009) also identified the two varieties grown in Nigeria as Dura and Tenera. Dura is the common wild palm found all over Nigeria. The fruit has a thick shell and a large kernel. It gives a low amount of palm oil and begins to yield 6 to 7 years after planting. Tenera has a thin shell and a small kernel. It produces a high quantity of palm oil. It bears fruit 3 to 5 years after planting. This type is grown in the new plantation.

World production of palm oil had increased tremendously during the last 30 years as a result of rapid expansion of oil palm planting in South East Asian countries spearheaded by Malaysia and Indonesia. Significant amounts of palm oil continue to be produced by the traditional producer countries in West Africa but the growth was much slower. Nevertheless, toward the end of the 1980s, Cote d'Ivoire has emerged as a leading palm oil producer and exporter in Africa Nwauwa (2010). Olagunju (2008) puts the worldwide palm oil production during the 2005-2006 growing season at 39.8 million metric tons, of which 4.3 million tons was in the form of palm kernel oil. It is thus by far the most widely produced tropical oil, and constitutes thirty percent of total edible production worldwide.

In Nigeria 80% of production comes from dispersed small holders who harvest semi wild plants and use manual processing techniques. Several million smallholders are spread over an estimated area of 1.65 million hectares in the southern part of Nigeria. In addition to the agro climatic and structural factors (size and scale of production and processing sectors) there are other constraints like little use of modern inputs and extension service; low provisions of market information, standards and quality control (Carere, 2010). The estimate for oil palm plantations in Nigeria ranges from 169,000 hectares to 360,000 hectares of plantations. (Carere, 2010).

Olagunju (2008) reported that because of the increased demand for palm oil resulting from an increase in population and income growth, relative to the low productivity of the oil palm sector, Nigeria has become a net importer of palm oil. At the same time, the rapid devaluation of the Naira combined with high transportation costs from ports to internal markets put imported oil in a competitively disadvantaged position. Thus Nigeria's first goal is to meet the domestic demand and then if possible seek to become competitive in export markets. Nigeria palm oil production is potentially competitive in the domestic market if oil palm industry would enhance the overall economic development through the income and employment effects in the rural and urban economies.

The oil palm sub-sector of the agricultural sector of the economy presented itself as a potential productive sector that could be used to diversify the economy after years of neglect. Historically, this subsector has been a source of growth in a stagnant economy because of the numerous economic potentials of the oil palm (Oluwatayo et al, 2002). Ahmed (2001) highlighted the importance of oil palm in providing direct employment to about 4 million Nigerian people in about 20 oil palm growing states in Nigeria and indirectly to other numerous people involved in processing and marketing of palm oil. Omoti (2001) stated that Nigeria has enormous potential

to increase her production of palm oil and kernel primarily through application of improved processing techniques. Nwawwe and Edokpay, (2003) opined that improved technologies that meet both growth and sustainability goals can be effectively used by oil palm processors. However, most technologies are designed for developed rather than developing countries.

From 1964 to 2010, there has been rising production (supply) and consumption (demand) of palm oil in Nigeria. However, in the last 10 years, demand had growth faster than the supply, leading to an increasingly widening gap. It is difficult to assess the specific gap because of incomplete information and lack of statistical data, but according to CBN (2011), in their analysis based on estimated production and import figures, the shortfall in supply (the supply gap) is about 150,000 MT of palm oil per annum. Omoti (2001) reported that until the private sector of the economy engages in mass production of palm oil, Nigeria would continue to remain a net importer of the produce despite the existence of Nigerian Institute for Oil palm Research NIFOR, founded in 1939 by the colonial masters, to carry out research on palm oil.

RESEARCH METHODOLOGY

This research was carried out in Dekina local government area of Kogi State, Nigeria. Dekina Local Government Area is one of the earliest Local Governments created under Kwara State as Dekina Division in 1968. It comprises of three (3) districts: Dekina, Biraidu and Okura, constituting twelve (12) electoral wards, namely; Dekina, Abocho, Anyigba, Odu 1, Odu 2, Egume, Okura, Iyale, Oganenigu, Emewe, Ojikpadala and Ogbabede. It is bounded by Bassa LGA to the north-west, Omala and Ankpa LGAs to the East and Ofu Local Government to the South (ALGON, 2010). Dekina Local Government is the largest Local Government in Nigeria in terms of the Land area, with a total of 7,691km². Dekina Local Government have a population of 260,312 people which represents 9.61 % of the total population of Kogi State` (NPC, 2006). The local government is located on latitude 6.30⁰ N and 7.30⁰ N and longitude 7.00⁰ E and 8.00⁰ E

According to ALGON (2010), the Local Government Area has vast expanse woodland Savannah which is a mixture of several vegetation; wooded savannah, rain and mangrove forest found particularly in south of Dekina, Agriculture is the significant economic activity in Dekina Local Government Area. About 80% of the people are farmers, engaging mostly in Subsistence farming. The Local Government has a large acreage of cultivable land but less than 1/4 is presently under cultivation. About 73.5% of the cultivable land can be cultivated during the rainy season while the remaining 26.5% is suitable for dry season farming. The climate and soil conditions favor agriculture and livestock production. Cash crops and food crops are produced in commercial quantities in the Local Government such crop include: yam, maize, sorghum, cassava, mangoes, cashew nuts and oil palm.

The Local Government is inhabited mainly by the Igala speaking tribes and minor tribes such as Igbos, Yoruba, Ebiras, Bassa, Hausas. the Local Government have eight functional markets located at Anyigba, Dekina, Egume, Abocho, Iyale, Okura, Elubi and Ewune. However, there are no standard lockup stores. Apart from Anyigba market that has daily transactions, others are periodic in nature. The Local Government Area has two main seasons; the dry season and rainy season. The rainy season is between April and October, while the dry season is between November and March. It is within the guinea savanna ecological zone of Nigeria. A purposive

random sampling technique was used in this study. Five markets were purposively selected out of the eight (8) available markets in the area. These markets were selected based on their sizes and volume of trade in palm oil. Lastly, twenty five oil sellers were randomly selected from each of the market, making a total of one hundred and twenty-five (125) respondents. Primary data that was used for the study was collected by the use of questionnaire. The primary data was directly collected from palm oil marketers using the structured questionnaire. The questionnaires were administered personally, followed by personal interview of respondents. The secondary data was collected from relevant published materials such as journals, textbooks and internet.

The tools of analysis that was used in this study are; Simple descriptive statistics such as the mean, standard deviation, frequency distribution and percentages. The Gross Margin was used to determine the profitability of palm oil marketing. The Shepherd-futrel model was used to analyze the efficiency and performance of palm oil marketers in the study area. The Bivariate Correlation was used to determine the level of market integration. The Likert-scale which gives the average mean score from a five point scale was used to analyze the constraints faced by palm oil marketers.

MODEL SPECIFICATION

Gross Margin: According to Arene (2003) gross margin is the excess of sales revenue over purchase. The purpose of gross margin is to determine the value of incremental sales, and to guide pricing and promotion decision. Gross margin is specified as follows;

$$GM = TR - TVC$$

Where GM = Gross Margin

TR = Total Revenue

TVC = Total Variable Cost

Shepherd-Futrel; The model expresses the total cost incurred in the marketing process to the total revenue generated as percentage (Arene, 2003).

$$S.F \text{ model} = TC/TR \times 100$$

Where TC = Total cost (Naira). TR = Total Revenue (Naira). The lower the coefficient, the higher the level of market efficiency and vice versa.

Bivariate Correlation: This is the relationship between two variables when variables in the value of one are systematically associated with variations in the values of the other.

Bivariate correlation is specified as follows;

$$I = \frac{COVXY}{S_X.S_Y}$$

Where I=correlation coefficient

COVXY= Co variability between X and Y

SX.SY=Product of standard deviation of X and Y

A high correlation shows high level of integration and vice versa

Likert-scale: This was developed by Rensis Likert in 1930s. A five point Likert type of scale is specified as follows; Strongly Agreed (SA) 5 points. Agree (A) 4 points. Undecided (U) 3 points. Disagree (D) 2 points and Strongly Disagreed (SD) 1 point. The average mean constraint score is computed using the following formula.

$$Y = \frac{\sum FX}{N}$$

Where; Y = means response summation, F = number of respondents choosing a particular scale point, X= numerical value of the scale point and N = total number of the respondents. Single percentage value from the opinion information derived from the Likert 5-point scale is calculated using the 'pooled' percentage. The pooled percentage is computed as follows.

$$PP = \frac{TS-N}{N(5-1)} \times 100\%$$

Where: PP = Pooled Percentage, TS = Total Score, obtained by multiplying scale by its corresponding score and then adding these together, N= Number of respondents.

The mean response to each item is interpreted using the concept of real limits of numbers. The numerical value of the scale points and their respective real limits are as follows:

Strongly Disagree (SD) = 1 point with real limits of 0.5-1.49

Disagree (D) = 2 points
with real limits of 1.50-2.49

Undecided (U)= 3 points
with real limits of 2.50-3.49

Agree (A) = 4 points
with real limits of 3.50-4.49

Strongly Agree (SA) = 5 points
with real limits of 4.50-4.99

Any constraint with a mean score of 3 and above is a major constraint.

Table I: Distribution of Respondents According to Socio-economic Variables

Socio-economic Characteristics	Frequency	Percentage (%)
Sex		
Male	5	4.0
Female	120	96.0
Total	125	100.00
Age (in years)		
20-30	18	14.4
31-40	48	38.4
41-50	53	42.4
Above 50	6	4.8
Total	125	100.00
Marital Status		
Single	10	8.0
Married	111	88.8
Divorced	4	3.2
Others	0	0
Total	125	100.00
Education status		
No formal Education	14	11.2
Primary Education	73	58.4
Secondary Education	38	30.4
Tertiary	0	0

Total	125	100.00
Marketing Experience		
1-10	31	24.8
11-20	61	48.8
21-30	25	20.0
Above 30	8	6.4
Total	125	100.00
Channel of marketing		
Retailer	85	68
Wholesaler	30	24
Wholesaler	10	8
Total	125	100.00
Storage		
Tanks	0	0
Jerry can (25 liters)	119	95.2
Drums	6	4.8
Others	0	0
Total	125	100.00

Source; Field survey, 2012

RESULTS AND DISCUSSION

Table I showed the socio-economic characteristics of respondents.

The socio-economic characteristics analyzed here include: sex, age, marital status, level of education, marketing experience, categories of middlemen and place of sale in the Market. The table shows that 96 percent of palm oil marketers were females while male constitute only 4 percent. This implies that the majority of palm oil sellers in the study area were females. A similar study in Southwest of Nigeria found about 90 percent women participation in fish marketing (Oluwatayo et al, 2002). This is in line with Nwauwa (2011) who says women feature prominently in marketing especially in rural markets where Men constitutes less than 5 percent of the traders.

The table further shows that 42.4 percent of the palm oil sellers fall between the ages of 41-50 years. This age group falls into the active and productive group of the population of any society. This means that at this age, the respondents are energetic enough to carry out most of the marketing activities. This finding agreed with the work of Oluwatayo et al (2002) in a study carried out in Southwest of Nigeria, revealed that the respondents in the study area were between the mean ages of 41 and 50 years.

Investigation into the marital status of the respondents shows that majority of palm oil sellers are married constituting 88.8 percent. This is an indication of support from their spouse and children in carrying out palm oil business activities. And this may also implies sufficient influence of the family unit in the marketing of palm oil. Thus marriage limits migration and enhances labor. The divorced forms the minority constituting 3.2 percent of the palm oil sellers.

The educational status of the respondents shows that the majority of the palm oil sellers constituting 88.9 percent had a formal education. This will help them to carry out various

activities in the marketing system smoothly, this is line with Dogondaji and Baba (2010) who observed that high literacy level could have positive impact on the adoption of technologies. The minority constituting 11.2 percent had no formal education. Table I also shows that some of the palm oil seller's (48.8%) had a marketing experience of between 11-20 years with a mean of 15 years. The minority constituting 6.4 percent had a marketing experience of above 30 years. Marketing experience is very important as it provides the seller with efficient market information. Palm oil seller needs information about the business cycle, where and when to buy the product, when to store the product and an appropriate time to sell.

This is substantiated by the findings of Ali et al., (2008) who observed that marketing experience is important in determining the profit levels of marketers, the more the experience, the more the markets understand the marketing system, condition, trends, and prices. Table I shows that majority of the palm oil sellers constituting 68 percent are retailers. This is because the retailers require little capital to start the business, they enjoy certain kind of credit from the wholesalers, and have flexible marketing function. It is also an indication of consumer's level of low income in the area. Wholesaler-retailer constitutes the minority (8%), this may be as a result of the fact that they require substantial amount of capital to start the business. Wholesalers also face complex marketing functions as they buy from producers before distributing to other retailers and consumers.

Investigation into the method storage reveals that the majority of palm oil sellers constituting 95.2 percent store their product in jerry cans. This may be because consumer's preferred jerry which are of easy carriage and packaging. Only 4.8 percent store their product in drums due to its high cost. This is in contrast with the work of Akangbe et al. (2011) in their study carried out in Oyo state revealed that more than half of the respondents (53.1%) stored their palm oil in drums while other stored their palm oil in rubber container (Jerry cans).

Table II: Bivariate Correlation of prices between five Markets in Dekkina Local Government Area

MARKET	ANYIGBA	DEKINA	ABOCHO	IYALE	EGUME
ANYIGBA	1.000				
DEKINA	0.406	1.000			
t - value	(0.044)				
ABOCHO	0.315	0.380	1.000		
t- value	(0.125)	(0.061)			
IYALE	0.324	0.133	0.570	1.000	
t- value	(0.114)	(0.527)	(0.786)		
EGUME	0.680	0.910	0.364	0.238	1.000

t- value (0.748) (0.667) (0.073) (0.252)

Source: Field Survey, 2012.

The bivariate correlation of palm oil prices in the selected markets is presented in table II. The table revealed a high price correlation of 0.680, 0.910 and 0.570 between Anyigba and Egume, Dekina and Egume, and Abocho and Iyale respectively. This shows a great flow of information and price communication between these markets. This is in line with the work of Ibekwe (2008) in a study carried out in Imo state of Nigeria shows a high price correlation between the markets in the area. There is a fair price correlation between Anyigba and other three markets. The coefficients are of 0.406, 0.315 and 0.324, for Dekina, Abocho and Iyale, similarly there are fair correlations between Abocho market and those of Dekina and Egume with coefficients of 0.380 and 0.364 respectively.

Table III: Revenue, Cost and Gross Margin

S/N	ITEMMS	TOTAL VALUE (₦)
A	Revenue Palm oil (₦3,000x1,000 Jerry cans) Total Revenue (20,000 liters)	₦ 3,000,000 ₦ 3,000,000
B	Variable Costs Transportation Cost of market space Cost of storage facilities Purchasing Cost (1,000 Jerry can x ₦1,400) Total Variable Cost	₦ 3394,000 ₦ 33,390 ₦ 640,350 ₦ 1,400,000 ₦ 2,432,000
C	Gross Margin (A-B)	₦568,000
D	Marketing Efficiency (100-81.07%)	18.93%

Source:FieldSurvey,2012

The gross margin analysis of palm oil marketing is presented in Table III. The total cost of transportation was ₦394,600.00, total cost of market space amounted to ₦33,390.00, total cost of storage facilities was ₦640,350.00, the total capital that was put into the actual purchase of the palm oil was ₦1,400,000.00. The total cost incurred in palm oil marketing was obtained from the addition of the total variable costs. This was found to be ₦2,432,000.00. The gross Margin is equal to ₦568,000.00. This implies that palm oil marketing in the study area was profitable, since it is believed that if a business can recover its variable cost, then it is capable of continuing in the short run. This corroborates with the work of Adewumi and Omotesho (2002) who found that greater gross margin leads to profit maximization which is central objective of producers. The result of the shepherd-Futrel model for palm oil sellers shows that 81.07 percent of the revenue was taken up by cost. This implies a low marketing efficiency of 18.93 percent (100 – 81.07). While 0.133 and 0.238 shows a low correlation between Dekina and Iyale, and Iyale and Egume respectively.

The sellers have low marketing efficiency due to low capital invested, low income among sellers and were also not exploitative in terms of cost and returns. This observation shows that, there was low distribution of income among the marketer of palm oil as only 18.93 percent of the

business yielded profit. This is similar to the finding of Ikeekwe and Chukwuji (2005) in their study carried out in Enugu State revealed that cashew nut marketing in the study area though profitable is however grossly inefficient from the view point of market structure and profit function measurement.

The result of the investigation into the Constraints affecting the marketing of palm oil in the study area is presented in Table Iv. The table showed the opinions of respondents to the indices of constraints militating against Palm Oil marketing in Dekina Local Government Area of Kogi State. The table also showed the pooled percentage and means scores of respondents that the major constraints militating against palm oil marketers are price fluctuation (with the mean score of 4.18), inadequate capital (with the mean score of 4.32) and too many retailers (with the mean score of 3.5). Mean scores of 2.75, 2.41, 2.33 and 1.33 revealed that low quantity produced, high cost of transportation, poor communication, poor storage facilities and poor market information respectively, have no significant effect on palm oil marketing.

Table iv; Constraints militating against marketing of palm oil in the study area

S/ N	Constraints	(SA) 5	(A) 4	(U) 3	(D) 2	(SD) 1	Total Number of Respond ents (N)	Total sum of attitude score	Mean Score	Proportion of respondent s in percentage
1.	High Transportation cost	2	5	38	77	3	125	301	2.41	48.2
2.	Price Fluctuation	23	10	1	0	0	125	522	4.18	83.6
3.	Inadequate Capital	46	75	0	5	0	125	546	4.32	86.4
4.	Low quantity produced	0	15	66	42	2	125	344	2.75	55
5.	Inadequate Storage facilities	0	7	9	10 6	3	125	270	2.16	43.2
6.	Many Retailers	20	49	30	26	0	125	438	3.5	70
7.	Poor Communication facilities	0	2	37	86	0	125	291	2.33	46.6
8.	Poor market information	0	0	0	42	83	125	167	1.33	26.8

Source: Field Survey, 2012.

These constraints adversely affect palm oil marketers in the study area with its corresponding effect on the profitability of the venture in the study area. These major constraints in palm oil marketing can be broadly classified as the problem of to the scales. The result on table IV revealed that the major constraints militating against palm oil marketers are price fluctuation (with the mean score of 4.18), inadequate capital (with the mean score of 4.32) and too many retailers (with the mean score of 3.5). Mean scores of 2.75, 2.41, 2.33 and 1.33 revealed that low quantity produced, high cost of transportation, poor communication, poor storage facilities and poor market information respectively, have no significant effect on palm oil marketing.

These constraints adversely affect palm oil marketers in the study area with its corresponding effect on the profitability of the venture in the study area. These major constraints in palm oil marketing can be broadly classified as the problem of production and marketing. This is a characteristic of small scale holding and consistent with the findings of Aduku and Dafwang (2002).

CONCLUSIONS

Marketing has been widely recognized as one of the most effective ways of increasing the productivity of agriculture. The study made a valuable addition to the knowledge required for efficient marketing of palm oil in the study area; the results have revealed that palm oil marketing in the study area is a viable and employs people in the active economic age group. The study showed that palm oil marketing in the Dekina local government area was highly integrated, profitable and viable, thus it is worth sustaining.

RECOMMENDATIONS

Based on the findings of this study and to forestall the problems associated with Palm Oil Marketing in Dekina Local Government Area, the following recommendations are proffered:

- i. Government should promote rural development involving agricultural marketing activities through the provision of physical infrastructures such as reduction in transportation cost and provision of processing, storage and communication facilities to reduce cost associated with the business.
- ii. Financial institutions especially Nigerian Bank for Agriculture should be set up and strengthened to provide soft agricultural credit and rural finance to palm oil marketers at very low interest rates.
- iii. The government should enforce rules and regulations for the protection of the interest of retailers. This may include restriction on activities of traders, licensing and market regulation.
- iv. The administration of prices at different levels of marketing by the government guaranteeing minimum prices to producers, providing commodities at fair prices to consumers, and fixing the rates of commission charged by commission agents should be discouraged to allow marketers to sell at competitive market.

REFERENCES

1. Adewumi, M. O., and Omotesho, O. A. (2002). An analysis of production objectives of small- scale rural farming households in Kwara state, *Indian journal of Rural Development*. 25 (winter). 201-211.

2. Aduku A. O., and Dafwang I. I. (2002). Poultry Processing and Marketing in Nigeria. In: a Training Manual on Poultry Production in Nigeria. NAPRI, ABU, Zaria, pg 187.
3. Ahmed, S. A. (2001). Agriculture and Food Security in Nigerai. Paper presented for a forum with Mr. President on agricultural and Food Security Council Chambers Presidential Villa, Abuja.
4. Akangbe, J. A., Adesiji G. B., Fakayode S. B. and Aderibigbe Y. O. (2011). Towards palm oil Self-sufficiency in Nigeria: Constraints and Training Needs Nexus of Palm Oil Extractors. *Journal of Human Ecology*, 33(2): 139-145.
5. Ali, E. A., H. M., Gaya and T. N. Jampada (2008): Economic Analysis of Fresh Fish marketing in Maiduguri Gamboru Market and Kachallari Alau Dam landing Site of Northeastern Nigeria. *Journal of Agricultural Science*. 4:23-6.
6. Arene, C. J. (2003). An introduction to Agricultural marketing Analysis and Policy. Enugu: Fulladu Publishing Company. 15-23.
7. Association of Local Government of Nigeria (ALGON), (2010). Kogi State Chapter Buletting of AIGON.
8. Carrere, R. (2010). Oil palm in Africa: past, present and future scenarios. World Rainforest Movement. Bulletin 14.
9. CBN (2011). Central Bank of Nigeria Statistical Buletting and Annual Report, Abuja, 44:65-66.
10. Dongondaji, S. D. and K. M Baba (2010). Incomes distribution in large scale irrigation projects: A case study of dry season rice farmers at the Bakolori irrigation project, Zamfara state, Nigeria.proceeding of the 24th Annual National Conference of the Farm Management of Nigeria held at the Adamawa State University, Mubi 11th – 14th October, 2010.
11. Ibekwe, U.C. (2008). Role of Women in Oil Palm Fruit Processing and Marketing in Imo State. Federal University of Technology, Owerri, Nigeria. Medwell journals. 4(2): 101-109.
12. Ikeekwe, P.C. and Chukwuji, C.O. (2005). Efficiency Measrement of Cashew Nut Marketing in Enugu State, Nigeria. *Journal of Agriculture, Food, Environment and Extension* 4(1), pp 46-49.
13. Mathew O. (2009). Edible Oil Today Section of Manufacturer Association of Nigeria; Nigeria Palm Oil Today and Future Outlook. Paper presented at Nigerian Institute for Oil Palm Research Workshop, January 2009.
14. NPC (2006). National population Commission, Report of National Census of 2006.
15. Nwauwa L.O., (2010). Economic of Palm Oil Storage and marketing in Imo state, Nigeria. *African Journal of marketing management*. 3(10), pp. 253-260.
16. Nwawwe, C.N. and Edokpayi, A.A.(2005). “Determinations of adoption of Improved Oil Palm production Technologies in Delta State, Nigeria”. *Journal of Agricultural, Forestry and Social Sciences*. (3)2:10-16.
17. Olagunju, F.I. (2008). Economics of Palm Oil processing in Southwest Nigeria. *International Journal of Agricultural Economics & Rural Development*. 1(2): 69-77.
18. Oluwatayo, I.B., Awoyemi T.T. and Sekumade A.B. (2002). Economics of Palm Oil Marketing in Ibadan North L.G.A of Oyo State, Nigeria. <http://Ajol.info/index.php/joten/index>.
19. Omoti U. (2001). The future of the oil palm industry in Africa and strategies for development. The Nigerian situation. Paper prepared for the Africa Development Bank (ADB) workshop on the future of oil palm industry in Africa and strategies for development, Cote D’Voire.