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Economic Survey of Oil Palm Products' Processing and Marketing in Kogi State, Nigeria

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Abstract

This study was designed to ascertain the level of profitability and inherent problems derivable from oil palm products' processing and marketing in Kogi State of Nigeria. Primary data used for the study was obtained through the use of structured questionnaire and oral interviews. From the six agricultural Zones in Kogi State a total sample size of 60 was finally drawn to form the sampling frame from 3 Agricultural Zones. Descriptive statistics were used to attain objectives 1 and 3; while objective 2 was attained by the use of gross margin analysis. Majority of the farmers obtained their Fresh Fruit Bunches for processing from the village or open market (50%); oil palm processing and marketing is profitable business in the area with a gross margin of ₦603,320.00K (USD 4,695.10) and gross margin ratio of 2.72 from an average enterprise; problems identified in the enterprises included fluctuating prices, lack of basic infrastructure and inputs such as capital and processing machines. The study recommended the need for government to hasten the supply of rural infrastructure, reduce taxes and let processors/marketers be encouraged to form cooperatives so as to access credit.

Keywords: Oil palm, gross margin, oil palm processing and marketing.

1. Introduction

Oil Palm is a common name for an ornamental and economically valuable palm tree, *Elaeis guineensis*, native of the west coast of Africa and widespread throughout the tropics. The oil palm grows up to 9 m (30 ft) in height. It has a crown of feathery leaves that can be up to 5 m (15 ft) long. The flower cluster is on a short thick spike at the base of the leaves. Flowering is followed by the development of a cluster of egg-shaped, red, orange, or yellowish fruits. Each fruit is approximately 3 cm (1 in) long and contains from one to three seeds embedded in a reddish pulp. Palm oil is extracted from the fruit pulp (Encarta, 2008).

Palm oil is extracted from the mesocarp of fruits of oil palm tree (*Elaeis guineensis* Jacq). The fruit, a drupe that is prolate spheroid in shape varies between 20 to 50 mm in length and could be as large as 25 mm in diameter, is found in bunches that are attached to the crown of the tree through a stalk (Orji & Mbata, 2008). Extraction of palm oil from fruits involves field operations and factory/house

operations. The field processes include cutting ripe fruit bunches from the palm tree and carrying the fresh fruit bunches (ffbs) and fallen loose fruits to the factory/house by field workers while the factory/house processes involves sterilization, stripping, milling, pressing, clarification, and storage (Nigerian Institute of Forestry Research, NIFOR, 1975; Badmus, 1990; Opeke 1997). Palm oil is used in the manufacture of soap, liniments, and ointments, and in West African and Brazilian cooking. Its chief chemical constituent is palmitic acid. Oil is also obtained from the kernel of the palm fruit. Known as palm-kernel oil, this is lighter oil, resembling coconut oil.

FAO (2008) noted that the development of agriculture can play a direct role in rural poverty alleviation. FAO (2009) held that for many farmers in the West African region, processing forest and farm tree products provides an essential source of off-farm income. Notable products from oil palm trees in Nigeria apart from Fresh Fruits Bunches of palm fruits includes palm kernel, palm-wine, brooms, palm kernel oil, storage baskets, and climbing ropes. The stems can be cut as wood for building as well. FAO (2009) noted that activities which are common throughout the West African region include palm oil processing and other forest food processing, alcohol distilling, fish smoking, raphia and rattan basketry, woodworking, charcoal production, cloth dyeing and soap production. Cashman (1987) in FAO (2009) also found that palm oil processing was one of the most lucrative activities for women in southeastern Nigeria but the labour required in palm oil processing was great.

According to National Open University of Nigeria (NOUN) (2004) by the beginning of the 20th Century, Nigeria was the largest exporter of palm oil in the world. The relative contributions of palm produce to the country's exports continued to decline (to 36.4% in 1969 and 13.2% in 1974). Recent data by Central Bank of Nigeria (CBN, 2007), which showed the trend of oil palm production in Nigeria (from 1970 to 2006), indicated that the output of palm oil rose from 88,000 tonnes in 1970 to 949,000 tonnes in 2003, before decreasing to 187,000 tonnes in 2004; that of palm kernel rose from 315,000 tonnes in 1970 to 745,500 tonnes in 2004.

One of the major problems of Nigerian palm oil in the local and international market is the issue of poor quality product. According to NOUN (2004), poor harvesting methods and poor processing methods were largely responsible for this. Nevertheless, NOUN (2004) reported that the introduction of pioneer oil mills was gradually raising the quality of palm oil among some producers. To what extent this has helped reduce the market quality of palm oil at the macro level in Nigeria is a subject of further research. Besides the issue of poor quality outputs, lack of capital or inadequate finance is one of the major problems facing the oil palm products marketers and processors in Nigeria. Orji (2006) corroborated this assertion in his report where he noted that "mechanized palm oil mills is capital intensive and this may be one of the reasons why very few mechanized palm oil mills exist in Nigeria".

It is noteworthy that most of the palm oil in Nigeria was obtained from self-owned plants in Imo, Anambra, Enugu, Abia, Cross River, Akwa Ibom, Delta, and Edo States. Some parts of Kogi State also fall within the oil palm belt. NOUN (2004) observed that establishment of plantations growing improved high-yielding oil palms bred at NIFOR in Benin had some positive impacts on the output of oil palm in Nigeria. Despite the potentials of NIFOR extolled by NOUN above, reports of NIFOR's performance in Kogi State is demoralizing. Egwu (2008) observed that at

the breeding center, Acharu-Egume, Dekina local government area of Kogi State, the experimental station of National Institute for Oil Research, (NIFOR), the plantation which was there since 1961 failed to drive the trend of palm oil production in the area. NIFOR operation secured an estimated 385 hectares of land in the area, but only 90 hectares has so far been put to use by the institute. He further observed that within this arrangement, there have been 10 trials, but 5 units have been completed and put on observation while the remaining five are still on trials. Experts assured that the result of the experiment was something that should gladden the minds of the people. The aim of NIFOR in intensifying the experiment on palm oil produce, according to Mr Samuel Omoreghe, the representative in Acharu-Egume, site of the palm plantation, was to evolve a "robust, practical and sustainable palm oil production for the country". Unfortunately, the Acharu Oil Mill in Egume, Kogi State today is a shadow of its old self. It was last talked about in 1996 when the then governor of Kogi state, Col Paul Umeruo, reactivated it. Since then, this gigantic engine had been abandoned by successive governments in the state. This scenario is not restricted to Kogi State alone. A Voice of America (VOA) English-to-Africa Service reporter Ntaryike (2008) noted that oil palms were grown throughout West and Central Africa, but the development of the palm oil industry has been slow, despite a thriving market. The report raised the hope that a project sponsored by the United Nations Industrial Development Organization was about to change the palm oil industry in Cameroon and Nigeria. The reported reasons for the low output included obsolete production equipment, aging plantations, and little access to technology and financing.

The above scenario is prevailing at a time when local demand for palm oil and palm kernel oil are increasing in Nigeria, owing partly to its importance as food for the teeming population and as industrial raw materials for the manufacture of margarine and soap. As a result of these, Nigeria is now a net importer of palm oil. Incidentally, the imports are from Malaysia, a country which obtained its first oil palm seeds from Nigeria (NOUN, 2004). This scenario, which poses a serious concern, informed this study.

1.1 Purposes of the Study

This paper was designed to, among other things, ascertain the level of profitability and inherent income/problems derivable from oil palm products' processing and marketing in Kogi State of Nigeria, especially the parts of Kogi State which fall within the oil palm belt. The study specifically, objects at:

- (1) identifying the sources of Fresh Fruit Bunches (FFBs) and other economic palm products in the study area.
- (2) determining the costs and returns of oil palm products among processors in the study area; and
- (3) describing the problems encountered by the processors and marketers in the Zones being studied.

The results from this study will expectedly provide evidence for policy making in sustainable development of oil palm marketing and value addition in a major oil palm producing zone of Nigeria. Lessons will also be learnt by other countries producing oil palm in other parts of the world.

2. Methodology of Research

Kogi State lies between longitudes 5°40'E and 7°49'E; and latitudes 6° 33'N and 8°44'N. It is bounded to the South by Anambra and Edo States; and to the North by Niger, Nassarawa and Federal Capital Territory; to the East by Benue and Enugu States. On the Western flank it shares a common border with Ondo, Ekiti and Kwara States (Kogi A.D. P, 1993). The state which is structured into 21 LGA's is comprised of three major ethnic groups: Igala, Ebira and Okun (Yoruba); other minor groups include: Bassa Komo, Bassa Nge, Kakanda, Kupa, Ogori-Magongo, Nupe, Oworo, Gwari, etc. (Kogi State Government, 2008). Going by the 2006 population census, the state pooled a population of 3,278,487, representing 2.34% of the Nigerian population.

The population of farmers in the three agricultural zones selected (based on the list obtained from Kogi Agricultural Development Project) is 159,671. A purposive random sampling was used to select the respondent for this survey. Out of the six agricultural zones delineated by Kogi Agricultural Development Project in the state, only three were selected. The selection was based on the presence of oil palm tree belt in the zone. The two zones selected are Zones A, B and D, which are called Aiyetoro Gbede, Anyigba, and Alloma Zones, respectively. Three Local Government Areas named Aiyetoro Gbede, Dekina and Olamaboro LGAs were selected with twenty (20) oil palm processors and marketers sampled randomly from each local government of the respective zones above, giving a total sample size of 60 to form the sampling frame.

Primary data used for the study was obtained through the use of structured questionnaire and oral interviews. The secondary sources of data used came from published texts, journals, periodicals and offline computer resources as Digital Video Discs.

Descriptive analysis such as mean and percentages were used to attain objectives 1 and 2; while objective 2 was attained by the use of *gross margin analysis*.

Gross Margin(GM) is the difference between the gross farm income (GFI) and the Total Variable Costs (TVC). Thus the model is given by:

$$GM = GFI - TVC$$

3. Results and Discussion

Table 1: Frequency Distribution of Sources of FFBs in the Study Area

S/No.	Sources	Frequency by Agricultural Zones			Total Percentage(%)	
		<u>Ankpa Zone</u>	<u>Dekina Zone</u>	<u>Idah Zone</u>		
1.	Personal farm	10	9	6	25	42
2.	Gifts from friends	2	1	2	5	8
3.	Bought from market	8	10	12	30	50

Source: Field Survey, 2006

(a) *Sources of Fresh Fruits Bunches (FFBs):* Table 1 above shows the frequency distribution of the sources of FFBs in the study area. The table indicated that majority of the farmers obtained their FFBs for processing from the village or open market (50%). This source is closely followed by farmers' own farms, which pooled a 42% response. The source which may be the least reliable of the FFBs as indicated in the table is in the form of gifts and royalties from farms operated by other farmers in the area to relations and land lords (8%).

Table 2: Gross Margin Analysis of Oil Palm Production in the Zones A, B, and C Agricultural Zones of Kogi State

		Amount in Nigerian	*Amount in US
A.	Operations of Palm Oil Marketers	Naira	dollars
	Harvesting	59,600.00	463.81
	Transportation	61,400.00	477.82
	Sterilization	7,670.00	59.69
	Stripping/milling	26,500.00	206.23
	Pressing/clarification	16,300.00	126.85
	Water used for processing	35,330.00	274.94
	Fuel wood used up (as energy source)	26,730.00	208.02
	Tax on revenue/rates	6,620.00	51.52
	Packaging cost	85,250.00	663.42
	Handling cost (loading/offloading)	25,040.00	194.86
	TOTAL VARIABLE COST	350,440.00	2727.16
B	Oil Palm Products Sold	Income (N)	
	Palm oil	533,780.00	4153.93
	Palm Kernel	279,420.00	2174.47
	Palm Wine	279,420.00	2174.47
	Brooms	29,860.00	232.37
	Storage baskets	16,850.00	131.13
	Climbing ropes	10,500.00	81.71
	GROSS FARM INCOME	= 953,760.00	7422.26
	GROSS MARGIN = B – A	603,320.00	4695.10

Source: Field Survey, 2006. *The researchers used the 2005 USD/NGN rate of \$1: ₦128.5

(b) *Costs and Returns of oil palm processing enterprises in the selected agricultural zones: A gross Margin Approach*

Table 2 itemized the costs and returns of oil palm products' processing enterprises in the selected agricultural zones of the state. From the table it can be observed that the Gross Farm Income was ₦953,760 (USD\$7,422.26) while the Total Variable Cost was ₦350,440.00 (USD\$2,727.16). This difference gave a Gross Margin of ₦603,320.00 (USD\$ 4,695.10). This value represents the profit made from the oil palm processing enterprise for an average farm in the three agricultural zones. The figure

showed that oil palm products' processing and marketing is a very profitable business.

Table 3: Frequency Distribution of Response to Problems Constraining Effective Processing and Marketing of Oil Palm Products in the Agricultural Zones Studied

S/ NO.	ITEM	Frequency "YES"	% "YES"	Frequency "NO"	% "NO"	Total Frequency	Total %
1	Low level of education	23	38	37	62	60	100
2	Lack of capital to start up the business	52	87	95	13	60	100
3	Lack of inputs	38	63	22	37	60	100
4	Govt. taxes/rates are too overbearing or high	44	73	16	27	60	100
5	Unstable exchange rate discourages export	13	22	47	78	60	100
6	High risk in processing and marketing	28	47	32	53	60	100
7	Poor knowledge of farm accounting	19	32	41	68	60	100
8	Family & friends take products as gifts	23	38	37	62	60	100
9	Unstable prices of oil palm products	35	58	25	42	60	100
10	High cost of processing machines	56	93	4	7	60	100
11.	Lack of storage facilities	13	22	47	78	60	100
12.	High cost of transport due to poor transport facilities in the area	48	80	12	20	60	100
13.	Lack of electricity to reduce dependency on fuel wood	47	78	13	22	60	100

Source: Field Survey, 2006

This point is buttressed by the gross margin ratio of the enterprise, which gave a figure of 2.72, a value greater than 1. This implies that returns from oil palm products processing, and marketing in Kogi State could pay off the cost of processing and marketing and even leave some extra income which can improve the household's welfare. Hence, we can infer from the gross margin ratio found here that for every ₦1 (USD\$ 0.01 cents) spent on processing and marketing of oil palm products in this agricultural zone, two naira seventy two kobo (₦2.72K) i.e. USD\$ 0.02 cents profit, is made.

(c) Problems constraining effective processing and marketing of oil palm products in the Agricultural Zones studied

Table 3 showed that lack of capital (87%), lack of inputs (63%), overbearing or high taxes and rates (73%), lack of electricity supply to reduce dependency on fuel-wood (78%), and fluctuating prices of oil palm products (58%), with their respective percentage acceptances (in parenthesis), were identified as the major problems constraining the effective and profitable processing as well as marketing of oil palm products in the study area. Other major problems identified included the high cost of processing machines (93%) and the high cost of transport arising from bad roads (80%) in the area. Regular dependence on processors of oil palm on fuel wood as a major energy source portend serious environmental hazards such as desertification. The problem of high cost of processing machines received a wider acceptance by the respondents followed by the problem of high cost of transport. Most vehicles charge the farmers very high amounts since they ply bad roads in the area as they haul the palm products from the processing centres to the markets. In fact, the dominant form of transport as a result of these bad roads is motorcycles, popularly called "Okada". These cannot carry enough palm products at a time.

4. Conclusion

This study has been able to describe some aspects of the sustainable marketing of oil palm production looking at the potentials or viability of the business as well as the challenges hindering it in a Nigerian state. It was found that the business is viable but still faced some challenges with sustainability. The major findings of the study are that oil palm processing and marketing portend a very useful and reliable means of making profits and raising household incomes in the study area. This implies that encouraging farmers who are in these business to solve their problems will go a long way in solving the problem of poverty and looming food crises in Nigeria. The study revealed some of these major problems being faced by oil palm processors and marketers in the area. An attempt at solving these problems at the national and state levels will actually be a way forward in the drive for food security and poverty alleviation. Hence, the need to follow the recommendations above is hereby reiterated.

Based on the findings of this research, it is recommended that the state and federal government gear up efforts to provide basic infrastructure such as electricity

and good, motorable roads in the oil palm belts so that the efficiency of production or processing and marketing of oil palm products can be guaranteed. The issue of electricity supply will reduce dependency on fuel wood, thus stemming environmental degradation in the area. The state and federal government should use their agencies and parastatals to subsidize inputs, especially processing machines in the oil palm processing zone of the state. This will boost their output and reduce the cost of production or processing and marketing. Farmers should be encouraged by banks and agricultural extension agents in the state to form oil palm processing and marketing cooperatives so that they may benefit from the banks' loan facilities or government agencies' loans. This can solve the problem of lack of capital. The state and federal governments should reform the tax policies with a view of making the taxes and rates paid by farmers more realistic and friendly.

Bibliography

- Badmus GA (1990). Factors affecting the design of a fruit bunch harvesting system of tall oil palm trees in plantations. *Nigerian Journal of Palms and Seeds* 11:1: 102-1114.
- Central Bank of Nigeria (2007). *Statistical bulletin*. CBN: Abuja.
- Egwu, Sam (2008). Nigeria: Agriculture - Palm Oil - The Country's Untapped Potential. In *The Daily Trust*. 28th April.
- Food and Agricultural Organization, FAO (2008). *World Agriculture: Towards 2010: An FAO Study*. Alexandratos, N (Ed). Retrieved on 22/07/08 from <http://www.fao.org/docrep/V4200E/V4200E00.HTM>
- FAO (2009). The major significance of 'minor forest products'. Retrieved on 23rd March, 2009 from <http://www.fao.org/docrep/T9450E/t9450e00.HTM>
- Kogi A. D. P. (1993). *Village listing survey*. Occasional Report. Kogi State Agricultural Development Project: Lokoja.
- Kogi State Government (2008). Kogi State. Retrieved 21/07/08 from www.kogistateofnigeria.org/kogistate_history.html
- Microsoft (2008). Encarta Map. In Microsoft Student DVD, 2008. Microsoft Corporation, USA.
- Nigerian Institute of Forestry Research, NIFOR (1975). *A manual on oil palm production*. Nigeria Institute for Oil Palm Research (NIFOR) 3rd (ed). pp. 39-41.
- Nigerian Institute of Forestry Research, (NIFOR) (1989). History, activities and achievement. NIFOR Bulletin; 2nd Edition, Benin City. pp.26-27.
- National Open University of Nigeria (NOUN) (2004). Export Crop Agriculture. In *Geography of Nigeria*. Heinemann Educational Books: Lagos.
- Ntaryike, Divine (2008). New project to increase palm oil production in Cameroun and Nigeria. A news report on Voice of America (VOA) English-to-Africa service. 23rd August. Retrieved on 23rd march, 2009 from http://www.voanews.com/mediaassets/english/2008_08/Audio/Mp3/Copy%20of%20DIVINE%20NTARYIKE%20%20Cameroon%20Palm%20Oil%20%20FOR%208-21-08.Mp3
- Opeke, R.C. (1986). The role of adult education in rural development: a conceptual model for Nigeria. *Nigerian Journal of Agricultural Extension*. 2:182

- Orji, M. U. (2006). Microbiological and Chemical Studies on Nigerian palm oil with particular reference to the effect of extraction methods on oil quality. PhD dissertation, Nnamdi Azikiwe University, Awka, Nigeria.
- Orji, M. U. and Mbata, T. I. (2008). Effect of extraction methods on the quality and spoilage of Nigerian palm oil . *African Journal of Biochemistry Research*. 2:9: 192-196. Retrieved on 23rd March, 2008 from <http://www.academicjournals.org/AJBR>.
- Purseglove J.W. (1955). *Tropical Crops Monocotyledons*: 1: 2, Longman Group Ltd. : 479-509.