PROFITABILITY AND MARKETING EFFICIENCY OF TRADITIONAL PALM OIL PRODUCTION TECHNOLOGY IN OVIA NORTH EAST LOCAL GOVERNMENT AREA, EDO STATE, NIGERIA

Kaine, A. I. N.

**Department of Agricultural Economics and Extension\
Faculty of Agricultural Sciences
National Open University of Nigeria,Km 4, Kaduna – Zaria Express Way, Rigachikun, Kaduna
Telephone: 08038822372, E-mail: akaine@noun.edu.ng or kainatonne@gmail.com**

Abstract
This profitability analysis of palm oil production was conducted in Ovia North East Local Government Area, Edo State, Nigeria specifically to determine the socioeconomic characteristics, enterprise statistics, cost and return and the constraints to palm oil production in the study area. Information required for the study were generated using primary source of data. Structured questionnaire were used to generate the required data for the study. Data required were collected from forty (40) palm oil producers in the study area. Data collected were coded and analysed using quantitative and qualitative analysis.
The study established that palm oil production in the study area was not gender specific. The marital status analysis also established that majority of palm oil producers in the study area were married. The result also established that palm oil producers in the study area were young, literacy level was high, household size was large and were well experienced ion palm oil production. Profitability analysis determined established that palm oil production in the study area was profitable with a return on investment of 0.93. The result also established that palm oil producers were 93% efficient in the use of resources. The major constraints to palm oil production in the study area were established to lack of credit facilities, lack of capital, complexity of production, bad feeder roads, poor production equipment, seasonal availability of fresh fruit bunches and inadequate improved equipment.
Since the study established that palm oil production in the study area was profitable, it was recommended that, sensitization of the profitability of palm oil production should be carried out. It was also recommended that non-governmental organizations, government and financial institutions should assist palm oil producers in the area to provide funds in form of soft loan, credit facilities and needed capital so as to improve their financial base and increase their production capability. It was also recommended that the Edo State government and policy makers in agriculture should put into consideration measures that will facilitate opening of the feeder roads. Since the study established that poor production equipment and inadequate improved equipment were also identified as a constraint, government – private sector participation in the provision of improved production equipment was recommended.
Keywords: *Palm oil, production, marketing, efficiency, profitability and fresh fruit bunch (FFB)*

Introduction

Agriculture is an important sector of the economy. It is the only sector that provides the basic necessities to man. The role of agriculture in the economy has been documented as the largest employer of labour, absorbing about 75 percent of the teaming population, with up to 60 percent of the rural population being linked directly or indirectly in agriculture. This is the only sector that contributes about 48 percent of the nation's Gross Domestic Product (GDP) and more than 25 percent of the foreign exchange earnings (Kaine and Ume, 2017, Ume and Kaine, 2017, *Hina et al*., 2015 and CBN, 2013). The authors opined that agricultural sector is essential in ensuring food security, economic growth and development, poverty reduction and industrial transformation. Hina *et al.,* (2015) on the other hand added that there is a strong forward and backward linkage between agriculture and other sectors of the economy.

Palm oil is oil extracted from fleshy mesocarp of the palm fruits. The oil has been reported to be an important ingredient in the diet of many Nigerians (Elijah *et al.,* 2014). It has been documented that palm oil provides the largest source of edible oil in the world. This account for 38.5 million tonnes or 25% of the global edible oil and fat produced (MPOC, 2007). Akangbe *et al.,* 2011, Ekine and Onu, (2008) and Omereji, (2005) established that household and industrial demand for palm oil is on the increase and had been estimated that an average of two liters of palm oil used and consumed weekly for cooking by every Nigerian households out of five households. Palm oil is important in production of soap, margarine, candle, wax, lipstick and polish bases in a condense form, confectionary among others (Embrandiri *et al.,* 2011and Aghalino, 2000). Adeniyi et al., (2014) reported that palm wine is another important produce of oil palm that it is popular and generally accepted in some parts of Nigeria. The authors also opined that the produce is economically viable and can compete favourably with palm oil in terms of return. It is not certain that palm oil producers in the study area were able to break-even and maximize profit. It is against this background that the work was carried out specifically to determine the socioeconomic characteristics, enterprise statistics, cost and return as well as the constraints to palm oil production in the study area.

Methodology

This study was carried out in Ovia North East Local Government Area (LGA), Edo State, Nigeria. Ovia North East LGA has a total population of one hundred and fifty-five thousand, three hundred and forty-four (155,344) people comprising of eighty thousand four hundred and (80,433) male and seventy-four thousand, nine hundred eleven (74,911) female (NPC, 2006). The projected population figure in the study area at a growth rate of 3.2% in the year 2017 was recorded as two hundred and twenty-two thousand and eighteen (222,018) people with one hundred and fourteen thousand, nine hundred and fifty-five (114,955) males while the female projected population was recorded as one hundred and seven thousand and sixty-three (107,063). Farming is the major economic activity of the inhabitants of the LGA. Small and medium scale enterprise existed in the area too. The climatic and edaphic factors of the area favoured the production of crops and livestock. Multi stage random sampling procedure was used to select forty (40) palm oil producers that were used for the study. The first stage involved the selection of communities. Five (5) communities were selected and used for the study. The second stage involved the selection of palm oil producers. Eight (8) palm oil producers were randomly selected giving a total sample size of forty (40) palm oil producers that were used for the study. Primary data was used to collect the information required for the study using structured questionnaire and interview schedule. Data collected were coded and analyzed using qualitative and quantitative techniques. Descriptive statistics was used to analyze the socioeconomic characteristic and constraints to palm oil production while gross margin analysis was used to determine the profitability of palm oil production in the study area.

Gross Margin (GM) is the difference between total revenue (TR) and Total Variable Cost (TVC). Net revenue (profit) margin is the difference between Gross Margin and depreciation. Gross Margin and net profit is expressed:

GM = TR - TVC

TC = TVC + TFC

NPM = GM – Depreciation

Where

GM = Gross Margin

TR = Total Revenue (₦)
VC = Variable Cost (₦)
NPM = Net Profit Margin

Marketing efficiency (ME) was used in this study to know how palm oil producers in the study area were efficient in the use scarce resources. This was obtained by dividing the value of output with the value of input and expressed as ratio. A higher efficiency ratio indicated that the producers were more efficient. Marketing efficiency was expressed as:

$$ME = \frac{\text{Output of processed fish}}{\text{Input used in processing}} x \frac{100}{1}$$

$$ME = \frac{\text{Value of output}}{\text{Value of input}} x \frac{100}{1}$$

$$ME = \frac{\text{Value added by marketin}}{\text{Cost of marketing services}} x \frac{100}{1}$$

Result and Discussions

The socio-economic characteristics of palm oil producers in the study area was determined and presented in Table 1. The analysis indicated that both male and female were involved in palm oil production in the study area. The result showed that majority – twenty-one (50.50%) of the traditional palm oil producers in the study area were female. The analysis of the marital status indicated that nineteen (47.50%) of palm oil producers were married, twelve (12) (20.00%) were single while six (6) (15.00%) and three (3) (7.50%) were divorced and widow(er) respectively. The result of the age determined indicated that twenty-two (55.00%) were within the economic active age range of 40 – 49. This implied that palm oil producers in the study area were relatively young. Household size analysis determined indicated a large household size with a range of 9 – 11 persons (27) (67.50%). Number of years of schooling determined showed that literacy level of the producers was high. A further analysis of the oil palm production experience indicated that the oil palm producers in the study area were well experienced with majority nineteen (19) (47.50%) having a production experience range of 9 -13 years.

Table 1: Socio-economic characteristics of palm oil producers (n=40)

Variables	Frequencies	Percentage (%)
Gender		
Female	21	50.50
Male	19	47.50
Marital Status		
Single	12	30.00
Married	19	47.50
Divorced	06	15.00
Widow(er)	03	7.50
Age		
30 – 39	12	30.00
40 – 49	22	55.00
50 – 59	06	15.00
60 and above	01	2.50
Household size		
6 – 8	13	32.50
9 – 11	27	67.50
Years of Schooling		
11 – 15	16	40.00
16 – 21	15	37.50
22 – 26	09	22.50
Production Experience		
< 4	02	5.00
4 – 8	16	40.00
9 – 13	19	47.50
14 – 18	03	7.50

Source: Computed from Field Survey, 2018

Enterprises statistics of palm oil producers

The enterprise statistics of palm oil producers in the study area was determined

and presented in Table 2. The result indicated that majority, twenty-nine (29) (72.50%) of the palm oil producers in the study financed their palm oil business enterprise through personal savings. A detailed analysis of the source of finance determined showed that eight (8) (20.00%) and three (3) (7.50%) obtained their finance through loan and assistance from friends and relatives respectively. A further analysis of the enterprise statistics of the palm oil producer in the study area revealed that twenty-four (24) (60%) sourced their fresh fruit bunch (FFB) at the farm gate, nine (9) (22.50%) travelled to other communities within the Local Government Area (LGA) to source for FFB while seven (7) (17.50%) travelled outside the LGA to obtain the FFB used for production of oil palm. The result also indicated that majority, eighteen (45.00%)of the palm oil producers were low income earners with an average income range of ₦201,000.00 – ₦300,000.00 ($574.29 - $857.14) per annual.

Table 2: Enterprises statistics of palm oil producers (n=40)

Variable	Frequency	Percentage
Source of finance		
Personal savings	29	72.50
Loan	08	20.00
Assistance from friends and relative	03	7.50
Status of palm oil producers		
Full time	27	67.50
Part time	13	32.50
Cosmopolitans		
Farm gate	24	60.00
Travelled to other communities Within the L.G.A	09	22.50
Travelled to other communities Outside the L.G.A	07	17.50
Income level (Naira)		
Below N100,000	07	17.50
N101,000-200,000	09	22.50
N201,000-300,000	18	45.00
Above N300,000	06	15.00

Source: Computed from Field Survey, 2018

Cost and Return Analysis

Profitability of palm oil production was determined and presented in Table 3. The result revealed that total cost of production was ₦2, 523,985.00 while the total variable cost was ₦2, 519,400.00. A further analysis of the total cost of production revealed that the variable cost item formed the major cost component. This result is in line with that observed by Ibekwe (2008) who revealed that variable cost formed the larger cost components of total cost of processing palm oil The result of the net profit was positive with a net value of ₦2, 343,215.00. This indicated that palm oil production is profitable. Alufohu and Ahamadu (2012) asserted that palm oil processing was a profitable venture in their studies on economics of fresh fruit bunches (FFB). The authors recorded a return on investment of 66%. This was however lower than that 0.93 or 93% observed in this study. Adejei – Nsiah *et al* (2012) also confirmed that palm oil processing is profitable obtaining a positive benefit – cost ratio (BCR) of 1.26. A similar result was also obtained by Olagunju (2008) with a BCR of 1.29. The authors opined that palm oil processing was profitable. These results were inconsonance with that obtained in this study that revealed palm oil processing was profitable. Further analysis revealed that return on investment was 0.93. This implied that for every one naira (₦1.00) invested in palm oil production, there is a return of 0.93 naira. This also implied that palm oil production in the study area was profitable.

Table 3: Profitability analysis of Palm Oil processing technologies

Variable	Value (₦)
Revenue	4,867,200.00
Production (labour cost)	340,600.00
FFB cost	2,056,600.00

Cost of Water	122,200.00
Total Variable Cost (TVC)	2,519,400.00
Depreciated Cost	4,585.00
Total Cost (TC)	2,523,985.00
Gross Margin (GM)	2,347,800.00
Net Profit (NP)	2,343,215.00
Return on Investment	0.93

Source: Computed from Field Survey, 2018
*FFB = Fresh Fruit Bunch

Marketing Efficiency of palm oil producers
The Marketing Efficiency of palm oil producers in the study area was determined and the result presented and the result showed a marketing efficiency of 93%. This implied that the palm oil producers in the study area were 93% in the use of resources and were7% inefficient. The 7% inefficiency observed in this study could be attributed to some factors that are beyond the control of the palm oil producers.

$$ME = \frac{\text{Output of processed fish}}{\text{Input used in processing}}$$

$$ME = \frac{2343215.00}{2519400} x \frac{100}{1}$$

$$= 93\%$$

Palm oil production Constraints
Palm oil producers in the study area were confronted with a number of problems that tended to reduce ability to improve their production activities, reduce their level of participation and consequently retard expansion in investment in palm oil production business. The major constraints as indicated by the respondents were presented in Table 4. The result revealed that majority – thirty six (90%) and thirty-five (87%) of the palm oil processors identified bad feeder road and poor production equipment respectively as one of the major challenges to palm oil production. A detailed analysis of the constraints to palm oil production showed that about twenty-four (60.00%) of the palm oil producers reported lack credit facilities as a challenge to palm oil production in the study area. Complexity of production (18) (45.00%), lack of capital (12) (30%), seasonal availability of FFB (24) (60.00%) and inadequate improved equipment (18) (45.00%) were also reported to be among the constraints to palm oil production in the study area.

Table 4: Production Constraints

Variables	Frequency	Percentage (%)
Lack of credit facilities	24	60.00
Complexity of production	18	45.00
Lack of capital	12	30.00
Bad feeder roads	36	90.00
Poor production equipment	35	87.50
Seasonal availability of FFB	24	60.00
Inadequate improved equipment	18	45.00

Source: Computed from Field Survey, 2018
*Multiple responses by respondents.

Conclusion and Recommendation
Though the study established that palm oil production in the study area was not gender specific, majority of palm oil producers in the study area were females. The marital status analysis also established that majority of them were married. The result also established that palm oil producers in the study area were in their economic active age. Literacy level was established to be high, household size was large and the result of the production experience established that palm oil producers in the area were well experienced. Profitability

analysis determined established that palm oil production in the study area was profitable with a return on investment of 0.93. The major constraints to palm oil production in the study area were established to lack of credit facilities, lack of capital, complexity of production, bad feeder roads, poor production equipment, seasonal availability of fresh fruit bunches and inadequate improved equipment.

Since the study established that palm oil production in the study area was profitable, it was recommended that, sensitization of the profitability of palm oil production should be carried out. It was also recommended that non-governmental organizations, government and financial institutions should assist palm oil producers in the area to provide funds in form of soft loan, credit facilities and needed capital so as to improve their financial base and increase their production capability. It was also recommended that the Edo State government and policy makers in agriculture should put into consideration measures that will facilitate opening of the feeder roads. Since the study established that poor production equipment and inadequate improved equipment were also identified as a constraint, government – private sector participation in the provision of improved production equipment was recommended.

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