

ADOPTION OF IMPROVED OIL PALM PRODUCTION TECHNOLOGY AMONG FARMERS IN ABOH MBAISE LOCAL GOVERNMENT AREA OF IMO STATE

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ABSTRACT

The work studied the adoption of improved oil palm production technologies among farmers in Aboh Mbaise local government area of Imo state in 2010. The study was prompted by the decline in the level of production of oil palm in the area. Eighty (80) farmers from four randomly selected communities were interviewed. Structured interview schedule was used to elicit information from them. Analytical tools used included simple percentages and regression analysis. Results showed that oil palm production was dominated by male farmers. Majority of them were within the ages of 41-50 years. Improved technology adoption was poor. All the farmers harvest their mature fruits with machets, while processing was commonly done locally. None of the farmers used chemical weed control. The regression results showed that gender, educational level, total farm size amongst other variables had a positive relationship to the adoption of improved technology, while age and house-hold size had negative effects. Major constraints included small farm size, lack of fund, poor extension contacts amongst others. It was recommended for governments to strengthen the informal education programmes, motivate extension personnel for increased efficiency and cause banks to increase its lending to the agricultural sub-sector.

Introduction

The importance of oil palm to the national economy of Nigeria cannot be over emphasized. It ranges from production of food for human consumption, employment, income to farmers and nation and raw materials for industries. Oil palm has been a major source of foreign exchange to Nigeria as well as source of revenue to major segment of the rural population of south east Nigeria. Palm produce (Palm oil and palm kernel) accounted for about 51.2% of the total Nigeria's domestic export between 1906 and 1913 (Soyebo *et al.*, 2005). It earned the nation about 22% of the foreign exchange up to the beginning of the civil war. Nigeria's domestic palm oil production as at 1986 was estimated to be 760000 metric tons.

(Omoti, 2003). The palm kernel, which is a major ingredient in the livestock feed manufacture is a byproduct of palm kernels. The kernel oil which is used very extensively in bakery trade and for making ice creams, detergents and pomades is also a byproduct of palm kernel oil and palm kernel cake is obtained in the process of crushing palm kernels.

The ever popular palm wine, which is of socio-economic importance is obtained from the male inflorescence. In some areas of Nigeria, the trade in palm wine competes greatly with that of palm oil. The leaflets of the oil palm are used for making thatch for roofing houses, the leaf rachises are used for fencing, reinforcing buildings and basket making. The mid ribs of the leaf-lets are used for brooms. The cabbage, soft tissue around the apical bud serves as a delicacy for eating.

The bunch refuse which is left after the fruits have been removed from the palm bunch is a rich source of potassium. Locally, it is used for making soap. The fibre residue left after the oil has been extracted from the fruit provides fuel while the shell from cracked palm nuts provides not only fuel but also serves as an aggregate for flooring houses.

The palm trunk may be sewn into timber and used in constructing fences, roofing houses and reinforcing buildings. The importance of the crops in the overall economy of the country cannot therefore be over emphasized. In Nigeria, oil palm products based industries provide employment to millions of its citizens.

During the period 1948-1963 Nigeria was a leading producer of palm produce in the world. The discovery of crude oil and the civil war adversely affected the production of the produce in Nigeria (Okolo, 2004) as other competing countries such as Malaysia and Indonesia became leading producers. A major contributory factor to the low output of oil palm produce especially during the 1960s was the low producer prices paid by the marketing boards. (Agboola 1979, Hartley 1977, Turner 1981). The low yield from the wild

groves on which the country depended among other factors contributed to the declining trend in oil palm exportation in the country (Anon 1986). Soyebola (2005) in a study of the constraints facing oil palm production in Ife local government area of Osun State, Nigeria showed that majority (81%) of the farmers were confronted with the problem of land, 34.1% had fund problem, while 53.2% complained of inadequate information and cultivation knowledge about oil palm, also 54% of the farmers indicated the problem to be that of improved planting materials and government support. They also gave the following as problems facing oil palm production in the area;

- (i) Tenure-right which is mostly tenancy-right through leasing and rent. This did not allow them to cultivate new oil palm plantation since land in the area was communally owned and shared by the community or family members. Land acquisition through inheritance was the order of the day.
- (ii) Long period of maturity of oil palm trees. Since land or wild palm grooves had been fragmented due to inheritance, it becomes very difficult to open up new land which is unavailable for oil palm plantation; and
- (iii) Regular communal crises-that always bring about wanton destruction of houses, farm for instance, setting of cocoa plantation, oil palm grooves and houses on fire did not encourage farmers to cultivate oil palm plantation.

FAO (2002) reported that in most African countries, the farm culture is basically subsistence where the family cultivates a small plot for food needs and interplant with tree crops. The farm holdings are small and scattered.

Oil palm production itself is a technology. The activities carried out from the sprout level in the nursery to the harvesting of crops in the field constitute oil palm production technologies (Okolo, 2004). These constitute nursery practice, land preparation, field transplanting, fertilizer application, pest control and maintenance of the plantation etc. All are messages in the oil palm production technology meant to be transferred to farmers.(Soyebola *et al.*,) and (Omoti 2003) have shown that non adherence to recommended practices such as pest and disease management ,improved processing techniques ,storage and

marketing outlet of palm produce are some of the militating factors affecting the production and processing of the oil palm in Nigeria. Global climate change and food crises have led to renewed calls for appropriate and sustainable agricultural practices with environmental concerns.

Adoption of new ideas or practice by individuals or groups of people is not very easy. It is not a snap shot decision but a mental process over a period of time. Rogers and shoemakers (1997) defined adoption as new ideas, methods, practices or techniques which provide the means of achieving sustained increase in farm productivity and income.

Therefore this study seeks to determine the rate of adoption of improved oil palm production technologies amongst farmers of Aboh Mbaise Local Government Area of Imo State

Nigeria.

Specific objectives of the study include to;

- * identify the socio-economic characteristics of the farmers
- * determine the rate of adoption of improved technologies,
- * identify constraints to adoption of improved technologies and
- * ascertain factors affecting the adoption of improved technologies

Materials and methods

The study was conducted in four randomly selected communities of Aboh Mbaise local government area (LGA). Aboh Mbaise was purposely chosen for this study because of its popularity in oil palm production. The communities selected include Amuzu, Uvuru, Mbutu and Lorji. Two villages were selected from each community to give a total of eight villages. The villages include Umuebi ,Nri-Ukwu ,Amaishi , Ndigbo . Amowo ,ihitteoha ,Ezuala- Nta and Umugama. The people are known as Okeovoro clan of Mbaise Ten farmers were selected from each village to give a total of eighty (80) farmers for the study. Interview schedule was used to elicit information from the farmers. Simple percentage and regression analysis were used for the analysis of data.

Results and Discussion

Personal Characteristics of Respondents

The personal characteristics of the farmers such as gender, household size, educational level, age, farm size, land acquisition were considered important because of their impact on agricultural productivity.

Gender: Table 1 shows that male farmers in the study area were 48 (60.0%) while female farmers were 36 (40.0%) of the population. This result is consistent with gender role pattern of people where fathers play dual roles of household and farm family heads. This disagrees with the findings of Aniedu *et al.*, (2007) that observed women as major stakeholders in the provision of food.

Household size: The mean household size was 6 persons per household, thus that the households were dominated by relatively large sizes. The implication of this therefore is that in most cases, labour may be relatively cheap to come by where there are many people in a household to help in farm activities.

Educational level: Majority of the farmers only completed their primary school education. Okoye (1991) stated that technological changes are achieved through formal education. Asiabaka (2002) and Rogers (2003) viewed formal education as means of facilitating farmers use of written information sources and increasing their knowledge and comprehension of new farm practices

Table 1. Socio- economic characteristics of farmers

Gender	Frequency	Percentage
Male	48	60
Female	32	40
Total	80	100
Household size (mean = 6 persons)		
1-4	6	7.5
5-8	32	40.0
9- 12	42	52.2
Total	80	100
Educational level		
No formal education	2	2.5
Primary	39	48.75
Secondary	34	42.50
HND/University Degree	5	6.25
Total	80	100
Age (mean= 45.87 years)		
21-30	8	10.00
31-40	17	1.25
41-50	31	38.75
51-70	24	30.00

Age : The mean age of the farmers was 45.87 years. This may be attributed to the fact that oil palm production is land intensive and only older farmers may have acquired the size of land needed for oil palm production. Majority of the farmers were between the ages of 41-50 years (31 percent) which are fairly agile and active. The age distribution among farmers in the study tends to agree with Ekong (2003) and Solomon (1994) which confirmed that Nigerian farmers are within the age bracket of 40-60 years .Although, experience in farming is very important and it depends on years of farming experience yet averagely young farmers are needed on farms because agricultural production is energy demanding especially oil palm production.

Farm Size: The mean farm size in the study area was 4.66ha. It therefore shows that the area was dominated by small farm holdings. It is a common knowledge that oil palm production requires large expanse of land for a profitable production.

Land Acquisition: Majority of the farmers (73.75 percent) acquired their farm land through inheritance. The high percentage of the farmers acquiring their farmland through inheritance would have a positive effect on the production of oil palm since land ownership is permanent and the negative effects of landlords/tenants problems would not be experienced.

Total	80	100
Total Farm Size (mean 4.66 ha)		
Less than 1ha	4	5
1-3	24	30.0
4-6	32	40.0
7-9	18	22.8
10-12	2	2.5
Total	80	100
Land Acquisition		
Inheritance	59	73.79
Rented	2	2.50
Purchased	19	23.75
Total	80	100

Source: Field Survey 2010

Table 2 indicates that majority (43.75%) of the respondents received information on oil palm from friends and neighbours and 37.5% from extension agents. Only 12.5% and 6.25% of them got their information from radio and television respectively and none from newspaper. This means that the farmers were exposed to different information sources .However, TV and Radio not being a

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popular information source in the area leaves much
to be desired as they have fast and large coverage.

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Neighbours

Total	80	100
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Source = Field survey 2010.

Table 2. Distribution of oil palm farmers according to sources of information.

Information Source	Frequency	percentage
Radio	10	12.5
Television	5	6.25
Extension Agents	30	37.5
News Papers	0.00	0.00
Friends/	35	43.75

Table 3 shows that majority (37.50%) of the farmers sourced their seedlings from the Agricultural Development Programme (ADP), 25% from the local government department of agriculture, while only 6.25% sourced from the Nigerian Institute for Oil palm Research (NIFOR). Twelve and half percent of them sourced their seedlings from friends/neighbours and 18.75% sourced from the open local markets in the area. The result showed that the farmers were aware of the importance of improved seedlings since they sourced right.

Table 3. Distribution of farmers according to source of seeding supply.

Major sources of seedling Supply	Frequency	Percentage
ADP	30	37.50
LGA Dept of Agriculture	20	25.00
NIFOR	5	6.25
Local Market	15	18.75
Friends/neighbours	10	12.50
Total	80	100

Source: Field survey 2010

Table 4: Distribution of farmers according to oil palm technologies adopted.

Adopted Technologies	Frequency	Percentage
Poly bag nursery practice	5	6.25
Hybrid oil palm seedling	4	5.00
9 metres triangular planting	11	13.75
Weed control by cover crop	5	6.25
Chemical weed control	0	0
Biological pest control	16	20
Chemical pest control	3	3.75
Organic fertilizer	14	17.5
Inorganic fertilizer	1	2.5
Use of harvesting chisel	72	90
Harvesting with machet	80	100
Local processing	73	91.23
Use of modern processing machine	3	3.75

Source = Field survey 2010

* Multiple responses.

Table 4 shows that over ninety one percent of the farmers and another 90% process their produce locally and use harvesting chisel respectively. Only 5% use hybrid oil palm seedling and non use chemical weed control. The use of inorganic and organic fertilizer was still poor in the area, 2.5% and 17.5% respectively. Only 3.75% of the respondents use modern processing machine and all the farmers use machet for harvesting. The result shows that improved technology adoption was poor.

Table 5 shows that the major constraints to adoption of improved oil palm production was lack of fund (75%), closely following that was poor extension contact (50%). Other constraints include poor access to land (37%), scarcity of farm inputs

(29%) and unawareness of farm improved technology (15%).

These constraints pose very serious problem to the adoption of improved technologies.

Some others may discontinue the technology after initial adoption if farm input was scarce and extension staff not within their reach.

Table 5 Constraints militating against the adoption of improved oil palm production technologies

Constraints	Frequency	Percentage (%)
Not aware of technologies	12	15
Lack of funds	60	75.00
Poor extension contact	40	50.00
Poor access to land	28	35.00
Scarcity of farm input	23	28.8

Source: Field survey 2010. Multiple responses

Table 6 shows the estimate of multiple regression results on determinants of adoption on socio-economic characteristics of farmers. From the table, the double log form of the regression results produced the lead equation. Accordingly further analyses were based on the lead equation form. From the double log form in table 6, sex(x₁), educational level (x₆) and farm size (x₈) had positive relationship to adoption of improved technologies. Their increase will increase adoption, while age (x₂) and house hold size (x₄) had negative relationships to adoption .That implied that increase in age and house hold size would decrease adoption.

Table 6 Relationship between farmers' level of adoption of improved oil palm production technology packages and their socio-economic characteristics.

Explanatory Variables	Linear function	Semi-log function	Double-log function (*)	Exponential function
Constraints	337.0428	266.1529	239.0526	281.4902
Sex (x ₁)	14.3317	1.4029	0.0576	0.0087
Age (x ₂)	-12.1104	-2.0911	-0.038	0.0062
Marital status(x ₃)	14.1022	2.0097	0.0526	0.0039
Household size(x ₄)	-10.4922	-1.3368	-0.0471	-0.0099
Education[x ₅]	8.4429	1.2279	0.0337	0.0073
Occupation [x ₆]	10.0215	1.2033	0.1036	0.0042
Farming status(x ₇)	14.2913	1.5891	0.0429	0.0089
Family Size (x ₈)	14.3317	3.1084	0.0713	0.0047
R ²	0.4923	0.4038	0.7528	0.5829
F-value	8.5469	6.0089	26.8857	12.3496
N	80	80	80	80

Field survey 2010

N/B figures in parenthesis are t- ratios

* Significant at 5%** Significant at 1%

Conclusion

The study analyzed the adoption of improved oil palm production technologies in Aboh Mbaise Local Government Area of Imo State. Oil palm production was male dominated and most farmers

were not educated. Awareness of improved production was low and same with its adoption. Lack of fund, poor extension contact and poor access to land were the major constraints faced by the farmers in the area. Motivating extension

personnel for effective performance should be encouraged. Farmers should organize themselves into cooperatives in order to have access to fund from lending institution

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