

## **ADHERENCE TO RECOMMENDED OIL PALM HUSBANDRY PRACTICES AMONG FARMERS IN AHIAZU-MBAISE L.G.A OF IMO STATE, NIGERIA**

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### **ABSTRACT**

*Oil palm was among the major tree crops by which Nigeria was known in the late fifties. However, development in this industry of the economy has not been encourage. Nigerians premier position in the oil palm industry was lost to Indonesia and Malaysia shortly after independence. Thus this study was motivated by the negative developments in the tree crop sub-sector of the economy with focus on oil palm industry. Data used for this study were generated between 1984 – 1986 in the study area. The study among other things investigated and determined the degree of adherence to the recommendations of the Nigerian Institute for Oil Palm Research (NIFOR) for optimum oil palm production. Forty respondents were randomly selected and questionnaire administered to them from each village selected. The results show that there is significant difference between the degree of adherence to the NIFOR recommendations and the expected degree of adherence.*

**Key words: adherence, recommended oil palm husbandary**

### **INTRODUCTION**

Oil palm (*Elaeis guineensis*) was among the major tree crops by which Nigeria was known. However, development in this industry of the economy few years after independence has not been encouraging.

Nigeria's first position in the oil palm industry was established mainly during the colonial period mostly in response to the industrial raw material needs of the colonial masters. In 1901, Nigeria produced nearly all the palm oil sold in the world market and this accounted for 80% of Nigeria's export (Iloeje 1977).

From 1919 to 1939, Nigeria lost her first position as a major oil palm produce exporter to Indonesia and Malaysia (Iloeje 1977). In 1960, some efforts were made to put Nigeria back to her former position. But this effort did not yield much dividend as this position was again lost to Zaire in 1962. In 1964-5 this position was temporarily regained (Hartley 1977 Iloeje 1977), and by 1968 and 1970, Nigeria lost once more and till date her position as a major palm produce exporting country to Malaysia.

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). In addition, the effect of the Nigerian Civil war, the low yield from the wild groves on which the country depended, the shifting of emphasis from oil palm to mineral oil production and the domestic and industrial uses among other factors contributed to the declining trend in oil palm exportation in the country (Anon 1986).

However, the use of Tenera – a cross-bred between Dura and Pisifera developed by the Nigerian Institute for Oil Palm Research (NIFOR) posed to solve this problem of shortfall in the country's palm produce output by way of an increase in average yield per hectare and extractable oil from fresh fruit bunches.

Tenera oil palm plantation cover about 150,000 hectares out of which about 74,100 hectares belong to small-holders while estates

account for about 65,900 hectares, on the national level (Nweke 1984). In Imo State, the ADAPALM cultivated 4310 hectares of Tenera palm trees, the Agricultural Development Corporation (ADC) as at 1982 planted 1677 hectares of the Tenera also in Imo State (Anon 1986, Imo State Government 1982).

### **Recommended Husbandry Practices**

For the optimum yield of Tenera, the following improved husbandry practices have been developed by NIFOR.

1. **CLEARING AND FELLING OF ALL EXISTING TREES OR OIL PALM TRESS.** This practices prevents the new tree seedlings from being shaded by the existing trees and also to give adequate exposure to sunlight.
2. **CLEARING OF Siam weed (*hromolaena Odorata*)**
3. **9 METER TRIANGULAR SPACING.** This gives about 60 palms per hectare **USE OF WIRE COLLAR** to protect the young palms from the attack of rodents. These should be removed once the plants are fully established.
4. **PLANTING** of cover crops such as *Calopogonium*, *Centrosema* and *Pueraria* or inter-cropping for soil management purposes
5. **REGULAR FERTILIZER APPLICATION** to augment the fertility status of the soil.

6. **ABLATION.** This is the removal of male and female inflorescence from the developing palm trees . This increases yield. This practice last up to 3 years after transplanting.
7. **WEED CONTROL.** This is done by slashing four times annually. Alternatively herbicides can be used twice each year to control weeds.

The declining trend in Nigeria's oil palm exportation was blamed partly on the low yield from the wild groves. Thus in order to increase Nigeria's output of Oil Palm the Tenera has been recommended (Agboola 1979, Papadakis 1966, NIFOR 1980). But the optimum yield of tenera is predicated on adherence to the NIFOR (1980) recommended husbandry practices. More so the planting of tenera appears not to have brought the requisite respite in Nigeria's quest to regain her premier position in the oil palm production in the world. With this trend of event it becomes apposite to find out whether the 100% degree of adherence was achieved and if not; why?

#### **METHODOLOGY**

Ahiazu-Mbaise was chosen for this study because majority of the inhabitants engage in oil palm production both from semi-wild groves and plantations. In addition, Ahiazu-Mbaise is located in the oil palm ecological zone of Imo State (IMSG 1984).

It is made up of thirteen autonomous communities, namely: Mpam, Oru, Ogbé, Obohia, Ihitteforukwu, Umuokirika, Ekwerazu Town, Oparanadim Aguneze/Otulu, Amuzi Ogwuama, Nnarambia/Lude, Obodo Ujichi and Obodo Ahiara.

The ideal climatic features for oil palm cultivation include a rainfall of 2000 mm or more per annum, temperature of 24-34°C daily and at least 5 hours of sunshine hours per day (Anyanwu et-al 1979, Courtenay 1965, Hartley 1977, NIFOR 1980, Onwueme 1979, Philips 1977). The oil palm growing areas in Nigeria are the acid sand types with porous sub-soils, in which coarse sand is the predominant fraction and clay content is up to 35% well drained but deficient in plant nutrients, hence the great need for fertilizer application (NIFOR 1980). Also rainfall in the areas exceeds 2000 mm (IMSG 1984 per annum

Information was secured from oil palm plantation owners by means of structured questionnaire. The questionnaire among other things sought for the extent to which oil palm planters comply with the husbandry techniques recommended by NIFOR.

Eight out of the thirteen autonomous communities (in the LGA) were randomly selected for the study. From each of these autonomous communities, five villages were randomly selected and questionnaire administered to one oil palm plantation owner from each village, thus giving a sample size of 40 oil palm plantation owners. Personal observations at the oil palm plantations were used to verify or complement the data.

In order to determine whether or not there is a significant difference between the expected 100% degree of adherence and actual degree of adherence by farmers, the z-score statistic was used. Other simple statistical techniques used include means, percentages, frequencies.

## RESULTS AND DISCUSSIONS

The cultivation of Tenera should be accompanied with the NIFOR recommended husbandry practices for it to yield optimally. The recommended practices and the degree of adherence are as shown in table 1:

**Table 1: Distribution of respondents according to the degree of adherence to husbandry practices in the study area.**

	Practice	No.	%
1.	Planting of Tenera	40	100.00
2.	Clear felling of all tree and clearing of <i>Chromolaena odorata</i>	40	67.5
3.	9m triangular spacing	40	95.0
4.	Use of wire collar	40	47.5
5.	Intercropping/cover cropping	40	100.00
6.	Fertilizer application	40	10
7.	Diseases control (where application)	40	22.7
8.	Non pruning of green leaves	40	2.5
9.	Slashing and ring weeding at Least twice	40	72.5
10.	Ablation for the 1 <sup>st</sup> 4 yrs after Planting	40	30.0
11.	Harvesting according to Recommendation	40	61.2
		Mean =	55.35

### **CLEAR FELLING OF TREES AND THE ERADICATION OF CHROMOLAENA ODORATA:**

It was the recommendation of NIFOR that the proposed site for oil palm plantation should be cleared of all existing trees and *Chromolaena odorata* eradicated. However, in the study area there was 67.5% percent adoption of this technique (see Table I). This degree of adherence could arise from the fact that in many cases, the site has to be inspected by the small holder oil palm management unity (SMU) staff before approval could be granted.

#### **Spacing:**

The recommended spacing is nine meters triangular spacing. In the study area 95 percent of the respondents adopted this practice. The high adoption could stem from the fact that the planting of the young seedlings were done by the staff of the SMU from Owerri

#### **Wire Collar:**

For the protection of the young oil palm seedlings against rodents, it was recommended that the respondents should use wire collar for this purpose. Though the oil palm planters received these wire collars alongside with the seedlings, the study showed that only 47.5 percent of them used the wire collar. Others claimed that they did not find it necessary to use them.

#### **Inter-cropping/Cover Cropping:**

The purpose of this is both to protect the site against soil erosion and for the provision of food and some cash income to the oil palm owners at the early stages of the plantation development. The study

showed that there was 100 percent adherence with 97.5 percent intercropping with annual or biennial food crops and 2.5 percent who planted calopogonium and centrosema. However, 74.4 percent of the respondents intercropped with food crops for more than four years.

### **Fertilizer Application**

An appropriate mixture of Nitrogen, potassium and magnesium fertilizer as well as phosphorus was recommended for application for four consecutive years from the first year of planting. Thereafter the quantity of fertilizer applied should be reduced progressively as the palms advances in years. Only 10 percent of the respondents adopted this technique as shown in Table 1. About 61 percent of those who did not adopt this technology contended that the appropriate fertilizers were not available while 38.9 percent claimed that the cost of purchasing the fertilizers were too high.

### **Slashing and Weeding:**

The NIFOR recommended practice of slashing and weeding round the palm trees for at least two times annually protect the oil palm trees against competition from weeds: thus in the study area there was 72.5 percent of adherence to this practice. Out of those who did not adhere to this practice, 10 percent of them complained about the high cost of labour.



**Diseases:**

The study showed that 55 percent of the respondents observed diseases in their palm plantations. However, only 22.7 percent applied suitable chemicals, Among those who did not apply treatment chemicals, four of them claimed that the appropriate chemicals were not available while fourteen contended that the chemicals were too costly,

**Pruning and harvesting:**

It was the recommendation of NIFOR that pruning should be limited to the removal of dead leaves in order to prevent accidental burning in case of bush fires. For the extraction of mature fruit bunches, this practice has been modified so that chisel can be used for harvesting or extraction without necessarily pruning. This practice appears not to have been adopted as there was only 2.5 percent adoption of this technique. The study showed that 82.5 percent of this pruning and harvesting were done with machetes. This non-adherence could be traced to the non-availability of the recommended chisel or hooks mounted in tall poles to be used for the harvesting of oil palm fruit bunches in the study area.

**Ablation:** This is the removal of the first fruiting bodies. This practice was recommended to be carried out for four 3 years after transplanting. It helps to protect the palms against rodents which are often attracted to the palms by them. It also encourages healthy vegetative growth of the palms. But the study showed that only 40 percent of the respondents adopted this technique.

**Time of harvest:** The NIFOR recommendation was that harvesting should be done as soon as the fruit bunches show the first sign of ripe fruits but not later than when ten fruits have detached from the bunch. The study showed that 62.5 percent of the oil palm plantation owners in Ahiazu-Mbaise adhered to this husbandry technique. Harvesting, according to the recommendation, ensures maximum recovery of the fruits.

### **Planting of Tenera**

The study showed that all the oil palm plantation owners planted Tenera – a high yielding oil palm crossbred of Dura and pisifera.

This 100% adoption rate stem from the fact that the site has to be inspected by the small holder oil palm Management Unity (SMU) staff from Owerri and more so they planted the palm seedlings. The SMU are charged with the responsibility of ensuring compliance to the recommended husbandry practices for optimum yield of oil palm. Being an extension arm of the ministry of Agriculture and natural resources they also procure or receive input such as fertilizer for onward distribution to farmers.

## Comparative Analysis of The Actual Degree of Adherence With That Recommended by NIFOR

**Table 2: Z test table showing differences in degree of adherence to recommended practices**

### Summary of results

Mean	55.35
Observations	40
Z-critical (two tail)	1.96
Calculated Z-value	-23.16

The mean percentage degree of adherence to the NIFOR recommended husbandry practices for optimum oil palm production in the study area was found to be 55.35. The Z-score statistical analysis used showed that the Z-cal (23.16) was greater than the Z-value of 1.96 implying that there is a significant difference between the NIFOR recommendation and the degree of adherence to it in the study area at 5% level of significance (see appendix 1).

From the foregoing it is probable that the degree of adherence which is significantly different from the NIFOR recommendation might have adversely affected the optimum output of palm produce in the study area.

### CONCLUSION

The study area possesses great potential geographically for oil palm production. The oil palm plantation owners were also enthusiastic in the production of oil palm.

However the degree of adherence so far observed stemmed partly from their ignorance of the deleterious effects of non adherence to those recommendation while the aspect of non availability of the appropriate fertilizer or requisite input could be blamed on the government. The degree of adherence so far observed appears to have negatively impacted on the optimum production of oil palm in the study area.

## REFERENCES

- Agboola, S. A. (1979) *An Agricultural atlas of Nigeria*. London: Oxford University Press.
- Anon. (1986) The oil palm industry. *Sunday Stateman*, pp7-9
- Anyanwu, A. C., Anyanwu, B. O. and Anyanwu, V. A. (1979) *A textbook of Agriculture for school certificate*. Rev. ed. Onitsha: African Education Pub.
- Courtenay, P. P. (1965) *Plantation Agriculture*. London: G. Bell & Sons. Ltd
- Hartley, C. W. S. (1977) *The oil palm*. London: Longman
- Iloeje, N. P. (1977) *A New Geography of Nigeria*. Metricated ed. Great Britain
- Imo State Government (1982) Fourth National Development Plan (1981-85), Ministry of Economic Development and Planning, Owerri

NIFOR (1980) A manual of oil palm production. Benin: Nigerian Institute for Oil Palm Research

Nweke, F. I. (1984) Essentials of management for small holder credit administration. A text of lecture presented at a 2-week in-service training course on credit administration. Center for rural Development and Cooperatives, Department of Agricultural Economics, University of Nigeria, Nsukka

Onwueme, I. C. (1979) *Crop science*. London: Cassel Ltd

Papadakis, J. (1966) *Crop ecological survey in West Africa, Nigeria*. Rome: FAO

Philips, T. A (1977) *An Agricultural Notebook. New ed. London: Longman.*

Turner, P. D. (1981) *Oil palm diseases and disorders*. New York: Oxford University Press