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**ANALYSIS OF THE TREND IN HYBRID OIL PALM CULTIVATION BY  
SMALL-HOLDER FARMERS IN AKWA IBOM STATE OF NIGERIA.**

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**Abstract**

The study was carried out to determine the trend of hybrid oil palm cultivation by small holder farmers in Akwa Ibom State between 1975 and 1996. Data was obtained from the Ministry of Agriculture and Natural Resources in both Akwa Ibom and Cross River States. The analysis of data revealed that, although there was a significant positive trend in cumulative hectareage planted over the period of study, however, there was a declining trend in the hectareage of new plantings cultivated during the period. The analysis also showed that, there was a significant difference in hectareage cultivated among the three agricultural zones in the state. Ikot Ekpene accounted for about 52.17 per cent of the hectareage cultivated with hybrid oil palm in the state and therefore remains the most important oil palm growing zone in the State in general and Ikot Ekpene zone in particular. Implication of the findings was that cost reduction policies such as subsidy on oil palm seedlings should be re-introduced to engender increased cultivation by small-holder farmers who form the bulk of the growers in the state.

**Introduction**

The importance of oil palm products (Palm oil and palm kernel) in foreign exchange earning for the country before the discovery of crude oil in Nigeria is well-documented, (Zeven, 1967; Usoro, 1974; Udom, 1986 and Orewa 1991). Millions of small-scale farmers exploited the semi-wild oil palm groves that ramify the rain forest belt of southern Nigeria and could not

rehabilitate them or develop new plantations due to inadequate capital. Hence, output from this groves were often quite low as compared to the improved varieties. Successive governments in Nigeria had to make several concerted efforts towards encouraging the planting and replanting of improved oil palm by providing seedlings and fertilizer free or at subsidised rates to farmers (Udom, 1986). Usoro (1974) and Zeven



(1967) had reported about governments efforts aimed at resuscitating ailing oil palm industry through the introduction of oil palm development schemes in 1928 and 1953 especially in the Eastern region. This involved the supply of improved oil palm seedlings and payment of cash subsidies to farmers who participated in the schemes. Udom (1989) reported a declining trend in the cultivation of the improved tenera oil palm variety during the 1975 to 1987 period under the various oil palm development projects in the country. A similar trend was also recorded in the Small-holder Schemes across the country. In the Cross River State Oil Palm Development Scheme (ODS: 1975-1985) a downward trend in hectareage planted was also observed in spite of the rising domestic and world prices of oil palm products. Governments establishment of the Nigerian Palm Produce Board (NPPB) in 1977 and the Directorate for Foods, Roads and Rural Infrastructure (DFRRI) in 1986 was also to engender the cultivation of hybrid oil palm across the oil palm growing States of Nigeria. In view of the dominating importance of oil palm in the socioeconomic lives of the people of the rainforest belt of the country, it was governments expectation that, the country would have increased the planting of improved oil palm varieties especially in Akwa Ibom State, being the most important oil palm growing State (Udom, 1986).

The study "was therefore carried out to i determine the trend in hybrid oil palm cultivation in the State from 1975 to 1996.

ii determine the contribution of each agricultural zone to the total hectareage cultivated in the State over time.

iii. compare the mean hectareage of hybrid oil palm cultivated among the zones and therefore identify the most important oil palm producing zone in the State.

### Methodology

#### Study Area:

The study area covered all the oil palm growing local government areas of Akwa Ibom State. The State that comprises thirty-one (31) local government is grouped into three agricultural zones namely - Eket, Uyo and Ikot Ekpene zones. The State is recognized as a producer of some cash crops as well as food crops such as oil palm, cocoa, coconut, rubber, yam, cassava, rice etc. It is also known to be the most important oil palm growing State in Nigeria (Udom, 1986).

#### Data Sources and Method of Collection:

Data were obtained from the records kept by the Research and Statistics unit of the Ministry of Agriculture and Natural Resources of the then Cross River State. It will be recalled that, Akwa Ibom State was created out from the present Cross River State in 1987. Hence, the need to obtain data prior to this time from the present Cross River State. The data collected include the hectareage of new plantings of hybrid oil palm recorded between 1975 and 1996 in the State. The total hectareage of hybrid oil palm cultivated in the State on a local government basis between 1975 and 1996.

#### Data Analysis:

The Ordinary Least Squares (OLS) regression technique was used to estimate a trend equation for hectareage cultivation in the State from 1975 to 1996. Percentages were used to estimate the growth rates in hectareage cultivated and contributions of each zone to the total hectareage in the zone over time.

An analysis of variance (ANOVA) test was used to compare the means of hectareage cultivated among the three agricultural zones in the State.

### Results and Discussion

#### Trend in hectareage of hybrid oil palm cultivated in the State from 1975 to 1996.

The study revealed that about 560,836.65 hectares (old and new plantings) of hybrid oil palm were cultivated in the State between 1975 and 1996 (Table 2). The mean annual hectareage cultivated was 25,492.575 hectares and a standard deviation of 602.0355 hectares. The mean growth rate of the total hectareage recorded over the period was 2.98 per cent. However, the hectareage of new plantings recorded over the same period was about 17,351.84 hectares while the mean annual hectareage was 788.73 hectares.

$$Y = 17590.2787 + 687.1562T^* \dots\dots\dots(1)$$

(160.885)

$$R^2 = 0.91; \text{ Adj. } R^2 = 0.90; \text{ F-ratio} = 202.22;$$

$$\text{D. W.} = 1.58$$

$$Y = 1723.4105 - 81.2781 T^* \dots\dots\dots(2)$$

(9.94)

$$R^2 = 0.77; \text{ Adj. } R^2 = 0.75; \text{ F-ratio} = 66.99;$$

$$\text{D. W.} = 1.94$$

#### Note:

( ) Standard errors in parentheses.

\* Significant at the 1 percent level

The trend equation (equation 1) of hectareage (old and new plantings) revealed that there was a significant positive trend in hectareage cultivated over the period of study. The coefficient of determination is quite high ( $R^2 = 0.90$ ). The F-ratio shows the overall significance of the equation. The Durbin-Watson statistic (1.58) indicated no problem of autocorrelation. However, in the trend equation for hectareage of new plantings (equation 2), the coefficient of the trend variable carries a negative sign and it's significant at the 1 per cent level. This indicates that there was a significant decline in hectareage of new plantings of hybrid of oil palm in the State over time. This result confirms similar report by Udom (1986). This decline had been attributed to the increasing cost of oil palm seedlings and other inputs as a consequence of the removal of subsidies on them (Idiong *et al*, 2000).

#### Difference in hectareage cultivated with hybrid oil palm among the three agricultural zones in the State (1975-1996).

The study also revealed that Uyo zone accounted for an average of 26.51 percent of new plantings over the period of study. Eket zone accounted for about 52.17percent making it the most important oil palm growing zone (Table 3).



**Table 1:** Analysis of Variance Results

Sources of Variation	Sum of Squares	DF	Mean Squares	F-cal	F-tab
Treatment	33174074	2	165870357		
Error	568026193	63	9016288.78	18.4*	4.98
Total	399766907	65	12842567.8		

\* P < 0.01; LSD = 1390.83; a = 12704.49; b = 6679.96, 6108.17

**Table 2:** Total Annual Hecterage (Old and New Plantings) of Hybrid Oil Palm Planted According to Zones in Akwa Ibom state: 1975-1996.

Year	Uyo	Eket	Ikot Ekpene	Total
1975	4,099.5	3,988.5	7,506.2	15,594.2
1976	4,405	4,137.9	8,125.4	16,668.3
1977	5,038.2	4,513.7	8,838.3	18,390.2
1978	5,438.4	4,984.9	9,675.1	20,098.4
1979	5,621.3	5,299.9	10,348.7	21,269.9
1980	5,808.8	5,517.9	10,837.5	22,164.2
1981	6,029.6	5,811.9	11,380.1	23,221.6
1982	6,177	6,009.4	11,843.1	24,029.5
1983	6,444	6,179.5	12,455.6	25,079.1
1984	6,657.3	6,262.4	12,784.8	25,794.5
1985	6,938.1	6,427.5	13,299.2	26,664.8
1986	7,269	6,664	13,791.7	27,724.8
1987	7,427.1	6,701.9	13,995.1	28,124.1
1988	7,512.5	6,745.3	14,198.6	28,456.4
1989	7,580.3	6,784.5	14,406.9	28,771.8
1990	7,612.1	6,820.8	14,648.9	29,081.1
1991	7,666.7	6,857.1	14,876.9	29,400.7
1992	7,741.9	6,880.3	15,016.5	29,638.7
1993	7,782.0	6,910.7	15,171.2	29,863.9
1994	7,845.8	6,934.6	15,303.7	30,084.2
1995	7,894.54	6,957.9	15,450.1	30,302.6
1996	7,969.7	6,988.9	15,545.2	30,502.9

Source: Tree Crop Unit, Ministry of Agriculture and Natural Resources, Cross Rivers State Statistics and Records Unit, Ministry of Agriculture and Natural Resources, Akwa Ibom.

**Table 3:** Annual Hecterage of New Planting of Hybrid Oil Palm and Percentage Contribution According to Zones in Akwa Ibom state: 1975-1996.

Year	Uyo		Eket		Ikot Ekpene	
	Ha	% Contri- bution	Ha	% Contri- bution	Ha	% Contri- bution
1975	730.9	29.9	699	28.6	1,012.5	41.5
1976	305.5	28.4	149.4	13.9	619.2	57.7
1977	633.2	36.8	375.8	21.8	712.9	41.4
1978	400.2	23.4	471.2	25.6	836.8	49.0
1979	182.9	15.6	315	26.9	673.6	57.5
1980	187.5	21.0	218	24.4	488.8	54.7
1981	220.8	20.9	294	27.8	542.6	51.3
1982	147.4	18.2	197.5	24.45	463	57.3
1983	267	25.4	170.1	16.2	612.5	58.4
1984	213.3	34.1	82.9	13.3	329.2	52.6
1985	280.8	29.2	165.1	17.19	514.4	53.6
1986	331	31.3	236.5	22.4	492.5	46.4
1987	158	38.7	46.9	11.5	203.4	49.8
1988	85.4	26.4	34.4	10.6	203.5	62.9
1989	67.8	21.5	39.2	12.4	208.3	66.1
1990	31.8	10.3	36.3	11.7	242.1	78.1
1991	54.6	17.13	36.3	11.4	227.9	71.5
1992	75.2	31.6	23.2	9.8	139.6	58.7
1993	40.1	17.8	30.4	13.5	154.7	68.7
1994	63.8	29.0	23.9	10.9	132.5	60.2
1995	48.7	22.3	23.3	10.66	146	67.0
1996	74.2	37.0	31.0	15.5	95.1	47.5
Total	4,600		3,699.5		9,052.0	
Average	209.1	26.5	168.2	21.3	411.5	52.2

Source: Tree Crop Unit, Ministry of Agriculture and Natural Resources, Cross Rivers State Statistics and Records Unit, Ministry of Agriculture and Natural Resources, Akwa Ibom.

The total hectareage of new plantings of hybrid oil palm recorded were 4600.14 hectares, 3699.46 hectares and 9051.97 hectares for Uyo, Eket and Ikot Ekpene zones respectively. The mean hectareage recorded for Uyo, Eket and Ikot Ekpene zones were, 209.097 hectares, 168.157 hectares and 411.458 hectares respectively.

The mean annual hectareage of hybrid oil palm (old and new plantings) were 6679.9591 hectares, 6108.1736 hectares and 12704.4868 hectares for Uyo, Eket and Ikot Ekpene zones respectively.

The analysis of variance (ANOVA) results ( $F_{\text{cal.}}: 18.40 > F_{\text{tab.}}: 4.98$ ) at 0.01 level of significance. (See table 1) indicates that there is a significant difference in hectareage of hybrid oil palm cultivated among the three zones in the state. The least significant difference estimate (LSD = 1390.83) shows that, the mean hectareage of hybrid oil palm cultivated in Ikot Ekpene zone was the most significantly different among the three zones, thus confirming Ikot Ekpene zone as the most important oil palm growing zone in the State.

#### Implications of Major Findings

The study has shown that, in spite of government's resolve to turn around the dwindling fortunes of the oil palm industry by encouraging the cultivation of hybrid oil palm, the subsequent decline in hectareage of new plantings is a pointer to the fact that government shift in policy from a subsidy scheme to a no-subsidy situation is detrimental to that laudable objective. Hence,

the need to reconsider the introduction of subsidy especially on oil palm seedlings will remain the best option.

Since there is a close association between population density and oil palm production according to Udom (1986), it is therefore imperative that the continuous decline in hectareage cultivated with hybrid oil palm within Ikot Ekpene zone (being a high population density area) might in the long run lead to continuous increase in the number of unemployed persons within the zone. This will further heighten the rural-urban migration (preponderant in the zone) and its accompanying urban crises in addition to the depletion of the country's foreign exchange earnings as a result of importation of palm oil from Malaysia and Indonesia. Therefore, the reduction of cost through input subsidization will engender the use of available land for increased cultivation of hybrid oil palm in the zone vis-a-vis the State.

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