

CASE STUDY FROM A SMALLHOLDING WITH OIL PALM  
IN EASTERN NIGERIA

Most of the palm oil in Eastern Nigeria is still produced by wild Oil Palms which are growing either in Palm groves around the compound areas (with a high density) and -- with increasing population density -- also on outer fields (with lower densities) to allow interculture with sun loving crops like maize and cassava.

Higher yielding varieties grown as monocultures were made available several decades ago first to large estates but later also to commercialised smallholdings. The data gathered from a farmer with a small plantation of 3.6 ha - which are presented in Table 1 - indicates, that successful cultivation of improved oil palms in a smallholding is profitable. The gross return from the plantation is ₦565.90<sup>1</sup> consisting Palm Oil (83%) and Kernels (17%). The farmer is using the traditional method of processing (by hand) which is very inefficient since only about 45% of the oil is extracted from the fruits (Oyenuga, 1967, page 83). Using a mechanical hand press (price: about ₦200)

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<sup>1</sup>  
extraction rates used in the analysis:

Oil	Extraction rate	Extraction efficiency
improved	8.1%	45% ) hand processing 45% )
wild	5.3%	
Kernel		
improved	4.5% of the bunch weight	
wild	7.0% of the bunch weight	

Table 1: FARM MANAGEMENT DATA FROM A SMALLHOLDING WITH OIL PALMS  
IN EASTERN NIGERIA

Location	Okwe / Umudike
Rainfall (mm)	2200
Year	1974
Method	Case Study
Number of holdings	1
Persons per household	11
Labour force (ME)	4.1
Size of holding (ha) <sup>1</sup>	4.1
Oil Palm Plantation (540 trees) (ha) <sup>2</sup>	3.6
"Near" field (Cassava, Yam, Cocoyam, Vegetables) (ha)	0.17
"Distant" fields	
a) Cassava, Melon (ha)	0.14
b) Cassava, Maize (ha)	0.13
c) Yam, Cassava, Melon (ha)	0.06
Total land with arable crops (ha)	0.5
Number of wild Oil Palms	32
Number of other useful trees	99
Cropping Index	21%
Livestock (No)	
Goats	4
Chicken	15

<sup>1</sup> land under arable and tree crops, land under bush fallow owned by the farmer is not included

<sup>2</sup> improved variety planted in 1964

## Yields

## Oil Palms

Oil Palm Plantation (t. of bunches ha)	6.4
(kg. of bunches tree)	42.3
Wild Oil Palms (kg. of bunches tree)	36.9
<sup>n</sup> Near <sup>a</sup> fields (t. of produce ha)	8.5
(₹ ha)	584.82
<sup>a</sup> Distant <sup>a</sup> fields (t. of produce ha)	8.9
(₹ ha)	610.50

## Economic Return (₹ per holding)

Gross return (total)	960.11
Oil Palm Plantation/per tree (1.05)	565.90
Wild Oil Palm per/tree (0.75)	23.86
Other tree crops	42.00
Root Crops	224.18
Other food crops	32.45
Livestock	53.12
Other	18.60

Purchased Inputs	8.04
Income	952.07
Wages for hired labour	106.20
Taxes and rents	n. a.
Farm family income	845.87
Sales as % of gross return	70%

## Productivity

Gross return (₦ ha Oil Palm Plantation)	157.2
Gross return (₦ ha cropped land)	597.3
Gross return (₦ ME)	234.2
Income (₦ ha cropped land)	232.2
Income (₦ ME)	232.2

## Notes to the farm management data:

Prices were collected bimonthly in the local market. The following average prices were used in the study:

Prices:	Palm Oil	250 ₦ per t
	Palm Kernel	100 ₦ per t
	Yam	180 ₦ per t
	Cassava	40 ₦ per t
	Cocoyam	120 ₦ per t
	Maize	57 ₦ per t

the smallholder could increase his yield of Palm Oil by about 20%.

Even with his low extraction efficiency the gross return per Palm tree is ₦1.05 in comparison to ₦0.75 for wild oil palms. The difference in net return is ₦0.10 - ₦0.15 higher since the costs for 'harvesting' the wild variety is high (0.20 ₦ / tree).

Beside the Oil palms the farmer owns 99 other fruit - and nonfruit trees, most of them growing near his house in the homestead area. Under the shade of Raffia Palm, Coco and Kola nuts, Breadfruit, Citrus, Banana etc. are some vegetables and cocoyam growing even when the plot is not cultivated.

The near - and distant fields, which are scattered over a large area, provide the farm family not only the subsistence need for starchy foods but enable them to sell a large quantity of cassava either as roots or processed as Gari. The relatively high yield of 8.7 tons of produce per ha in comparison to other areas<sup>1</sup> is mainly due to the fallow period which lasts up to 6 years in the village studied<sup>2</sup>. Cassava is the most important crop, intercropped with yam, cocoyam, melon or maize.

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<sup>1</sup>preliminary data indicates serious soil fertility problems when the fallow period is reduced: Cassava yields 7 tons after six fallow years, 3 tons after 4 years and 1.5 tons after 2 years of bush fallow.

<sup>2</sup>The length of the fallow period is dictated by the land scarcity and hence to the population density. According to the 1973 census the population density in that area was between 111 - 230 persons/Km<sup>2</sup>.

From his total cash income of 857.76₦ the farmer was able to save 23%.

The rest was spent as follows:

Agr. Expenses	School fees	Housing	Other non-farm expenses	Food (mainly protein in form of fish and meat)
10%	24%	17%	7%	19%

The results indicate that the economic situation of the smallholder has benefitted very much from improved Oil palms. With his surplus of cash income the farmer is in a position to finance farm- or nonfarm investments.

There are several possible avenues for the improvement of the farmers situation:

- processing of Oil Palm by mechanical hand-press
- increase of the Oil Palm Plantation
- planting of improved varieties of cassava and maize
- application of fertilizer and insecticides
- planting of swamp rice in valley bottoms<sup>1</sup>

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<sup>1</sup>Experiments with swamp rice in Okwe showed the following net returns per annum (2 seasons)

- 100% hired labour	570 ₦/ha
- 50% " "	1081 ₦/ha
- 0% " "	1592 ₦/ha