

# Analysis of the cost and return to management of small scale cassava production in the humid zone of Nigeria

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## Summary

Cassava is a major staple food in Nigeria. Available literature showed that not much work had been done on the return to management (RTM) of this crop particularly in recent times.

Crop production variables of capital, hired labour, family labour and fertilizer-use were studied.

Costs and returns of cassava production in the study area were computed. The study showed that the average cost of producing an hectare of cassava is N 10,343.99. The total return was valued at N 45,165.57 with an average RTM of N 34,821.58. The study also revealed that labour and fertilizer are crucial variables to productivity of the farm-firm in terms of output per hectare.

It was concluded that cassava production is a profitable venture and comparable to any Government Service which the unemployed and young school leavers should be encouraged to go into.

## Résumé

Le manioc est un aliment de base du Nigéria. Les textes disponibles montrent que beaucoup a été réalisé récemment à propos du rendement à la gestion de ce produit.

Les variables de production étudiées sont le capital, le travail payé, le travail familial, ainsi que l'application de l'engrais. Les coûts de production ont été calculés contre les profits. Le résultat a montré que le coût de production par hectare est évalué à N 10.343,99. Le profit global a été estimé à N 45.165,57, ce qui donne un profit net de N 34.821,58.

L'étude a également révélé que l'engrais et le travail sont des variables importantes à l'entreprise de production du manioc en regard de la production par hectare.

La conclusion a été que la production du manioc est une entreprise dépendante comparable à toute autre carrière du service public qu'il est conseillé aux chômeurs et aux diplômés de pratiquer.

## Introduction

Cassava remains the undisputed number one among root crops that provide food for millions of people in the world. It is of strategic importance because of its sheer versatility as a food crop (5). It could be converted into so many products and consumed in so many forms. Apart from being the single largest source of calories in tropical Africa and indeed Nigeria, cassava is tolerant to both weeds and drought. It can therefore survive with minimum weeding and little rainfall (4).

Cassava is more productive under poor soil conditions than most other crops and requires little labour compared with that of labour intensive crops like yam (7). The critical significance of cassava as a staple food for over 200 million Africans and the ease of its cultivation even on poor soils make cassava the quite essential food security crop.

However, recent studies of cassava marketing in Nigeria have shown a steady rise in the price of cassava and its products over the years without a corresponding increase in production (2). The study showed that the average market retail price per tonne of garri in 1986 was N 831.00 and by 1992, the unit price had increased to N 6,500 per tonne

amounting to a percentage increase of 682 percent. This escalating price has made the product unavailable to the poor people for whom it was meant.

The overall success of the cassava producing venture, that is, making the crop available to consumers and at affordable prices depends on the profitability of the production venture to the farmer. There is the need therefore to ascertain the returns to management (RTM) obtainable from cassava production.

## Research methodology

Three states in the humid zone of Nigeria whose main agricultural occupation is cassava cultivation were used for this study. They are Edo State, Delta State and Rivers State. They lie between Longitude 5°00' and 7°30' East of the Greenwich meridian and Latitude 4°45' and 7°30' North of the equator. Four local government areas were sampled from each state. The distribution of respondents was uniform throughout the sampled areas. This was done by choosing 800 farmers from each State, that is, 200 farmers from

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each local government area making a total sample size of 2,400 cassava farmers.

Data was collected from respondents by:

- i) Questionnaire survey
- ii) Verbal interview
- iii) By personal observation.

### Estimation of variables

A cost route approach was adopted whereby farmers were visited forth nightly during most part of the cassava production period. A combination of farm and residential visits were employed to enable an effective measurement of the farm inputs. Farmers' hectarage was used as a measure of land input thus ignoring variations in the quality of this input.

For the purpose of the study labour was divided into three broad categories namely family labour, communal labour and hired labour. Each category was recorded in hours by multiplying the number of workers by the number of hours spent on farming operation. Aggregation of labour input including the garri processing which depended mainly on family labour; was done by adding the labour inputs of adult males to the man hour equivalent of adult female and youths holding one youth as equivalent to 1/2 man-hour.

The result was standardized into man-days and valued at the prevailing wage rate. The wage rate was determined by the amount charged per labourer per day including the feeding cost. This amount is usually fixed, accepted and known in the various localities and depends on availability of labour and inflationary trend in the area. Interest on capital invested was taken as 15 percent of cost incurred and transportation cost was taken as 2 1/2 percent of the total returns obtainable from the sale of cassava.

### Result and discussion

#### a) Physical inputs in production

Physical inputs per hectare are presented in table 1. Labour input varied from 86,6 man-days per hectare in Edo State to 70,3 man-days per hectare in Delta State and 75,1 man-days per hectare in Rivers State. There was really no significant difference ( $P < 0,05$ ) in the use of labour among cassava producers in the three states.

TABLE 1

Areas	Number of farmers	Average Hectarage	Average man-day per hectare	Average fertilizer input/hectare
Edo State	800	0.96 (0.21)	86.6 (0.02)	40.6 (1.2)
Delta State	800	1.50 (0.33)	70.3 (0.41)	120.7 (1.3)
Rivers State	800	0.99 (0.51)	75.1 (0.12)	60.5 (2.3)

Source: Field Survey, 1992.

Figures in parentheses are standard deviation of the estimates.

This was probably due to similarity in labour requirement and farmers' dependence on the same type of labour in the areas. It was also observed that the fertilizer input per hectare was 40,6 kg in Edo State, 120,7 kg in Delta State and

60,5 kg in Rivers State with an average of 112,3 kg for the whole sampled areas, an average much less than 343,5 kg per hectare recommended (1).

This may be due to the fact that majority of the farmers employ the traditional method of cassava cultivation, without any form of fertilizer application.

The average wage rate varies from N 80.00 in Edo State to N 70.00 in Delta State and N 90.00 in Rivers State. This variation may be related to the level of urbanisation and availability of land in the various areas. Rivers State being more urban and riverine with fewer land for cassava cultivation. The farmers being predominantly fishermen with cassava cultivation as side line occupation. The cost of fertilizer also varies in this order from N 150 per 50 kg in Edo State to N 100 per 50 kg in Delta State and N 180 per 50 kg in Rivers State (see table 2).

TABLE 2

Areas	Cost of Labour in N	Cost of fertilizer in N	Cost of planting materials	Depreciation	Interest on capital	Cost of transportation in N	Total in N
Edo State	6,650.9	121.8	950.2	72.4	1,757.3	1,170.1	10,722.7
Delta State	7,381.5	140.6	840.4	66.5	1,442.1	1,185.2	11,856.3
Rivers State	6,691.4	240.3	1,050.8	82.4	1,363.4	1,024.6	10,452.9 32,231.9

Source: Field Survey, 1992.

#### b) Structure of cost

The profile of production cost per hectare is also presented in table 2. Average estimated cost of production per hectare of cassava was N 10,722.7 in Edo State, N 11,056.3 in Delta State and N 10,452.9 in Rivers State. As expected of traditional labour-intensive farming, labour was the dominant element in cost amounting for about 64.3 per cent of the total cost of cassava production on the studied farms. The contribution of planting materials and fertilizer costs were 8.8 per cent and 1.66 percent respectively.

#### Return to management (RTM)

The results of the analysis showed that the average yield of cassava per hectare in the three sampled states were 8.562, 9.483 and 7.685 tonnes in Edo State, Delta State and Rivers State respectively (table 3).

TABLE 3

Areas	Average yield of cassava/ hectare in tonnes	Processed cassava (garri)/hectare in tonnes	Cost/tonne of garri	Total return	R.T.M.
Edo State	8.562 (1.42)	5.708 (0.26)	8,200	46,805.2	36,082.5
Delta State	9.483 (1.12)	6.321 (0.10)	7,500	47,407.5	36,351.2
Rivers State	7.685	5.123	8,000	40,984	30,531.1
Total				135,195.7	102,964.7

Source: Field Survey, 1992.

Figures in parentheses are standard deviation of the estimates

This is in agreement with the findings of Obinbe (6) who stated that the average yield of cassava in Nigeria is 7-10 tonnes per hectare. It was also observed that the average yield of processed cassava (garri) per hectare was 5.708, 6.321 and 5.123 tonnes in the respective States of Edo,

Delta and Rivers. This also agrees with the unpublished work of Idemudia (3) who found that the yield of processed (garri) per hectare of land in the humid areas of Nigeria in a monocropping system is 4 - 8 tonnes.

The average returns was valued at N 45,065.5 with a net return of N 34,321.6 to management.

It is observed that the RTM is higher in the state where the cost of labour was lower and that where the use of fertilizer was adopted on a large scale. It therefore means that labour and fertilizer application are crucial variables to profitability of the farm-firm in terms of output per hectare. The inflationary trend in the country and so high price of product in relation to prices of input may be the possible reasons for the high profitability.

When the mean seasonal RTM was compared with the prevailing government salary scale in the country, it was found to be equivalent to GL. 15. The highest salary grade level in the government service is GL. 17

In conclusion, the above results reveal that cassava farming in recent times in the humid zone of the country is a very viable enterprise. The RTM enjoyed by individual cassava farmer compares favourably with the salary of senior members of staff in the Government service or the private sector.

This means that cassava cultivation can provide a viable alternative employment opportunity for the teeming unemployed in the country.

### Literature

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