

## Economic Analysis of Dry Season Telfairia Production of Abia State Agricultural Development Programme (ADP)

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### ABSTRACT

*This paper determined the economic analysis of dry season Telfairia Spp production of Fadama Development programme in Abia State. Purposively, Abia state ADP was chosen for this study due to its relevance in Fadama Programme. A random sample of 120 Telfairia Fadama farmers was selected from the three agricultural zones of Abia State. The result of the net returns analysis per hectare showed that the gross revenue returned was N98,260.00 the variable cost consisted of N23630.00 while the total fixed cost was N1,594.00 thus posting a net returns of N70,916.000. Management constraints identified were diseases and pests; inadequate storage facilities, unauthorized harvesting; and poor rural infrastructure. It is therefore recommended that Fadama programmes should be enhanced to accommodate new communities.*

**KEY WORD:** Fadama; Rural Development; Agricultural Development Projects Costs and Return

### INTRODUCTION

In order to realize the dream of increased food production, the Federal government identified small scale, low cost managed irrigation pilot scheme of the Agricultural Development projects (ADPs) as the most efficient technique that can accelerate the pace of food production in the country. To enhance the involvement of more farmers in the project, the Federal Government sought and received the assistance of the World Bank loan for a National Fadama Development project (Abia ADP, 1995).

Fadama Loan Package attracted both small and large-scale farmers through registration with Fadama Users Association (FUA). The programme operated on the basis of full-cost recovery with built-in rebate, which serve as incentive for prompt repayment. Prevailing commercial bank lending rate was used.

Pre-Fadama in Abia State and by extension, Nigeria in general was a period of dearth of green leafy vegetables. Most families depended on random shoots that sprang up from dewy slumps of previous year's crops. The scarce nature of these green vegetables coupled with the interplay of the forces of demand and supply hiked its price, making it unavailable and unaffordable to the average buyer.

Fadama intervention therefore came at the right time and it led to most people adopting the technology. Within a short period after the intervention year dry season cropping had become a common feature in the low lands of the state. The markets reflected the success of the programme as fresh green leafy vegetables abound everywhere to the amazement of the buyers and joy of the farmers. This has resulted in improved health condition and a

more economically active population. In assessing the performance of this programme, this study analysed the following objectives,

- (i) Determine the net returns from *Telfairia* spp production.
- (ii) Provide the farmers and the ADPs with information on impediments, which require attention for effective output.
- (iii) Suggest options and strategies for programme sustainability

## **THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

Generally, agricultural and rural developments constitute part of an overall development strategy. Hence, the theory of agricultural and rural development is derived from a general theory of development, (Ekpo and Olaniyi, 1995). However, due to the particular characteristics of agriculture and rural areas, specific programmes and strategies are usually designed to address the problems of under-development and poverty.

The concept of agriculture and rural development embraced by most countries connotes “ a process through which rural poverty is alleviated by sustained increases in the productivity and incomes of low income rural workers and households” (World Bank, 1975; Ekpo and Olaniyi, 1995). The stress is on increasing output and incomes instead of redistributing current income and assets.

The Agricultural Project (ADP) has been identified as the most successful strategy towards agricultural development in Nigeria (World Bank, 1992). The system, which consists of several sub-programmes and its related components, is specifically designed to address the small-holder sub-sector in its agricultural development efforts, one of such sub-programme components is the Fadama Development programme (KNARDA Baseline survey, 1997).

“Fadama” is an Hausa word meaning low-lying swamp areas consisting of fluvial deposit and containing extensive exploitable aquifers. It is a seasonally flooded area used for farming during the dry season. It is also an alluvial, low land formed by erosion and depositional action of the rivers and streams. They encompass land and water resources that could easily be developed for irrigation agriculture (Gandi and Radashekara, 1989; Qureshi, 1989; World Bank 1992).

## **METHODOLOGY**

The study was carried out in Abia State Agricultural Development programme (Abia ADP) in the three agricultural zones of Aba, Ohafia and Umuahia. Abia ADP was purposively chosen for this study because the ADP was one of the foremost key participants and one of the ADPs that recorded impressive results of the small-scale irrigation in the National Fadama development programme (Abia ADP, 1995). Based on the density of Fadama farmers, one local government area each, was purposively selected from each agricultural zone. This selection was informed by the fact that these local government areas were infact those intensively involved in Fadama farming. 40 Fadama Farmers were chosen at random

from each of the communities' Fadama Users Association (FUA). This gave a total sample size of 120 Fadama Farmers. A set of questionnaire was used to elicit and collect information. This was administered on the Fadama Farmers.

The various analysis carried out include the use of mean, frequency counts, net returns and chi-squared analytical tools. The net returns from the Telfaira *spp* production was calculated according to the model set by Pomeroy and Trinidad (1995) thus:

$$Nr = pivi - (fc+vc)$$

Where;

Nr =Net returns

Pi = price per ton of Telfairia per hectare

Vi = quantity (tones) of Telfairia harvested per hectare

Fc = fixed costs

Vc = variable costs

Prevailing market prices at the time were used for the analysis.

## RESULTS AND DISCUSSION

### Socio-Economic Characteristics of the Fadama Farmers in the study area

Some of the socio- economic characteristics of fadama farmers are presented in Table 1. The mean age of the fadama farmers was 41.1 years. This implies that most of the Fadama farmers were young and therefore effectively and efficiently sustains agricultural production, which is largely human labour intensive. The mean household size was 5 persons. A household is, in this case, defined as all those people who feed from the same pot, (Njoku and Odii, 1991). This has implication for the provision of much required labour for the farm.

The average farm size cropped was 1.2 ha. The total farm size for each of the Fadama farm was the sum of the sizes of all plots of farm cultivated by the Fadama farmers (Nwagbo, 1986). This plot size reinforces the fact that these Fadama farmers were smallholder farmers who would not ordinarily meet the expectations of the institutional lenders. The mean Fadama farming experience was 2.2 years while the mean annual fadama Telfaira income per ha was N73,316.00.

**Table 1: Socio – Economic characteristics of fadama farmers in the study area**

Socio-economic characteristics	Means values
Age (years)	41.1
Household size	5.0
Farm size (ha)	1.2
Fadama farming experience	2.2
Fadama farm income	N71,200.00

Source: Field survey, 2003

**Net Returns Analysis:** The computed cash flow giving details of the elemental costs and returns involved in one hectare Fadama Telfairia crop production in Abia State, Nigeria is shown in Table 2. the average selling price for a kilogramme of Telfairia harvested was N125.00. The gross return was N98,260.00. Total (TVC) variables cost was N25,690 while the total fixed cost was N1,594.00.

**Table 2: the costs and returns of one hectare fadamaTelfairia spp production in the study area**

Item	Quantity (kg)	Unit Price/N	Total (N'000)
<b>Revenue:</b>			
(a) Total sales of fresh leaves	600	125.00/kg	75.00
(b) Domestic consumption	25	125.00/kg	3.113
© Gift to visitors/relations	85	125.00/kg	10.63
(d) Sale of Fruits			9.5
Gross returns/ha			98.26
<b>b. Variable costs:</b>			
Activities	Manday	Wage rate requirement/ha	Total (N'000)
Land preparation (Clearing & cultivation)	10	400.00	5.1
Planting	4	400.00	1.6
Weeding	5	500.00	2.5
Cost of fertilizer (50kg)			6.0
Fertilizer Application	3	400.00	1.2
Chemical cost (i/2 litre)			3.0
Chemical Application	1	400.00	0.4
Harvesting	4	400.00	1.6
Miscellaneous expenses (10% of TVC (contingency)			2.05 2.34
Total variable cost			25.65 =)25.69
<b>C. Fixed Costs:</b>			
Depreciation on:			
Matchets and Hoes		0.258	
Wheel barrows		0.484	
Sprayers		0.852	
Total Fixed costs		0.852	
Net Returns/ha a – (b +c)		73.316	

**Source:** Field survey data, 2003

The result yielded positive net returns of N70,976 Per Hectare of Fadama telfaira production. The implication is that the income of the households investing in dry season

Telfairia production was definitely increased. The programme had nonetheless turned periods of general laxity to a period of vigorous farming activities with the attendant poverty reduction through increased income.

### **Problems Associated with Fadama Telfairia Production in the study area**

A number of problems were identified to be significant in dry season. Telfairia production in Abia State, Nigeria. Table 3 reveals the associated problems to include diseases and pests (83.33%) inadequate storage facilities (100%), unauthorized vegetable harvests by poachers (50%), poor rural infrastructure (84.17%) and inadequate operating capital (69.17%). The responses revealed that inadequate storage facilities had modal rating.

One disadvantage of the dearth of modern storage system is the consistent and constant glut experienced at the peak of production, which result in fall of profit reduction income and morale of the farmers. Karikari (1989) noted demotivation as characteristic of lack of efficient storage system, which was evidence in the study.

Furthermore, the cost of other farming requirements and activities like tillage and the acquisition of inputs such as fertilizer, tractors, tubewells and wash bores are substantially very high under intensified irrigated fadama vegetable production.

Water logging is another problem of irrigation development. This occurs as a result of constant pumping of water on to the Fadama farm where geological condition prevents percolation of water into the ground surface. Water accumulation results in reduction in production capacity of fadama land.

**Table 3: Distribution of the responses on constraints to Dry season Telfairia spp production in the study area**

Category of constraints	*Frequency (n =120)	Percentage
Diseases and pests	100	83.33
Inadequate storage facilities	120	100.00
Unauthorized vegetable harvesting	60	50.00
Water logging	78	65.00
High cost of farm inputs	95	79.17
Poor rural infrastructure	101	84.17
Inadequate operating capital	83	69.17

**Sources:** Field survey data, 2003

\* multiple responses recorded

### **CONCLUSION AND RECOMMENDATION**

The fadama development programme has brought awareness in the minds of the farmers of the possibility of all-year round cropping and its associated financial benefits. Hitherto,

most farmers had limited cropping activities on rainfed crops with little or no knowledge of such small irrigation schemes provided by the programme. Farming calendars now cover both dry and rainy seasons, which is a good step in attaining food sufficiency and alleviation of poverty in the study area. In order to boost the agricultural production of these farmers, the following recommendations were made:

1. The government should subsidize pesticides and other agro-chemicals to enable the farmers afford them. This will also help the farmers in checkmating the rampaging effects of diseases and pests. Subsidy is also required on agro-inputs such as fertilizers, tractors, tube wells and wash bores to make them easily affordable.
2. The Governments at all levels should improve upon rural infrastructure such as roads, electricity, water and telecommunication. This is due to the favourable multiplier effects of these facilities on the producers and consumers.
3. Government should make a deliberate policy of stabilizing them towards increased production.
4. More commodities should be reached with fadama production to enhance and stabilize food production

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