

JOURNAL OF RESEARCH IN AGRICULTURE

VOL. 5, NO. 4, 2002



INTERNATIONAL RESEARCH AND DEVELOPMENT INSTITUTE

JOURNAL OF RESEARCH IN AGRICULTURE

ISSN 1597-7994

Volume 5, Number 3, 2008

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ECONOMIC ANALYSIS OF URBAN FARMING IN UYO METROPOLIS OF AKWA IBOM STATE, NIGERIA.

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ABSTRACT

This study analyzed the economics of urban farming in Uyo Metropolis of Akwa Ibom State, Nigeria. A simple random sampling technique was adopted in the selection of 75 sampled urban farmers in the study area using the limited cost route approach. The result of the study reveals that such socio-economic variables as gender, age, marital status, education level, household size, farming experience, farm size and major occupation greatly contributes to the productivity of the urban farming. Farmers with smaller farm size were able to utilize their sources more efficiently which resulted in the highest average profit per hectare of N394, 082.92 for 0.5-2.0 ha farm size bracket. However, consolidation of small farm holding through cooperative farming, injection of production capital and provision of fertilizer input will help to alleviate the experienced production constraints and increase the profit margin of the urban farming.

Keywords: *Urban farming, economic analysis, profitability, Uyo Metropolis, Akwa Ibom State, Nigeria.*

INTRODUCTION

Agriculture constitutes a significant sector in Nigeria's economy. Among the many roles ascribed to the sector are the provision of food, contribution to gross domestic product (GDP), provision of employment, provision of raw materials for agro-allied industries, generation of household income and foreign exchange earnings. Prior to the mid early 1970s, agriculture was the source of foreign exchange earnings in Nigeria and also the sector was able to provide all the food requirement of the nation (Marshall and Abdu, 1990; Ebong, 2007). The contribution of agriculture to GDP which stood at an average of 56% in the 1960s declined more rapidly to 32% in 1996-1998 (Amaza and Olayemi, 2002). However the contribution to the GDP has increased in 2006 to 41.8% although it is yet to hit the 1960s percentage (CBN, 2006). The high population concentration in the urban centres suggest the need to augment the food and household income needs of the urban dwellers from the rural supply through urban farming activities. Urban farming has been defined as an industry that produces, processes and markets food and fuel largely in response to the daily demand of consumers within a town. It applies intensive production method using and re-using of natural resources and urban waste to yield a diversity of crops and livestock (Timothy 1994 and UNDP, 1996). Urban farming contributes significantly to the socio-economic development of towns and cities throughout the world. In several economics, particularly developing ones, it is one of the largest urban productive industries and a prime generator of jobs for low income earners and it offers opportunities for better diet and a chance to shift household spending towards other non-farm needs (Freeman, 1991; Rabinoxitich and Schemetzer 1997). According to soemarwoto (1996), urban agriculture can provide some residents with up to 40% of their recommended daily allowance of calories and 30% of their protein needs, including most of the vitamins and minerals crucial to their health. With the exorbitant prices of food items recently experienced in the market and the numerous advantages of urban farming enumerated here, it becomes necessary to examine the economics of urban farming in Uyo Metropolis of Akwa Ibom State with a view to determining the socio-economic characteristics of those involved in it and the profitability of the urban farming business in the study area.

METHODOLOGY

The study was conducted in Uyo metropolis, the capital city of Akwa Ibom State, Nigeria. Uyo is situated at about 55 kilometers inland from the coastal plains of south-Eastern Nigeria. The area is located between latitude $5^{\circ}17^1$ and $5^{\circ}27^1$ North and longitude $7^{\circ}27^1$ and $7^{\circ}58^1$ East. Uyo covers an area approximately 35 square kilometers and has estimated population of about 309,573 million people (NPC, 2006). The area lies within the humid tropical rainforest zone with two distinct seasons – the rainy and dry season. The annual precipitation ranges from 2000-3000mm per annum. This rainfall regime received in most parts of the state encourages farming throughout the years in such crops as cassava, yam, cocoyam, plantain, maize and various vegetables including pumpkin and water leaf. Such livestock as goats, sheep, pigs and poultry are also reared around their urban residence as a means of augmenting and supplementing household food supply and income. The settlement pattern in Uyo is linear and being an administrative head quarters, majority of the residents are civil servants and political office holders (Etim and Ofem, 2005). The study employed mainly primary data obtained on the urban farming activities in terms of inputs, outputs and their prices using the limited cost route approach and also on the socio-economic characteristics of the farming households. A simple random sampling technique was used in selecting a total of 75 urban farmers. Descriptive statistics such as frequency and percentage count was used in analyzing the socio-economic characteristics of the urban farmers while the gross margin approach was used in analyzing the profitability of the urban farming using the formula:

$$GM = \sum p_i q_i - \sum r_j x_j$$

$$\text{Profit} = GM - K.$$

Where:

GM = farm gross margin in naira; P_i = Unit price of output, i in naira;

q_i = quantity of output, i in kg; r_j = Unit price of the variable

input j in naira, x_j = quantity of variable input, j in kg;

$\sum p_i q_i$ = value of total revenue in naira; and $\sum r_j x_j$ = value of total variable cost of production in naira and k = value of total fixed cost in naira.

RESULTS AND DISCUSSION

Socio-economic characteristics of the urban farmers

In Table I is presented the descriptive statistics of the socio-economic characteristics of the urban farmers in Uyo Metropolis of Akwa Ibom State.

Table I: Socio-economic characteristics of Urban farmers (n = 75)

	Characteristics	Frequency	Percentage
1	Gender		
	Male	28	37.33
	Female	47	62.67
2	Age of Respondents (yrs)		
	< 20	8	10.66
	21 – 30	20	26.67
	31 – 40	21	28.00
	41 – 50	18	24.00
	51 – 60	5	6.67
	> 60	3	4.00
3	Marital Status		
	Married	45	60.00

	Single	10	13.33
	Widowed	15	20.00
	Divorced	5	6.67
4	Level of Education		
	No formal Education	5	6.67
	Primary Education	3	4.00
	Secondary Education	29	38.66
	Tertiary Education	38	50.67
5	Household size (Number)		
	1 – 4	50	66.66
	5 – 10	23	30.67
	11 – 15	2	2.67
6	Farming Experience (yrs)		
	1 – 5	38	50.67
	6 – 10	19	25.33
	11 – 20	11	14.67
	21 – 30	7	9.33
7	Farm size (ha)		
	0.5 – 2.0	38	50.67
	2.1 – 5.0	23	30.67
	5.1 – 10	14	18.66
8	Farmers' income (N'000)		
	< 20	12	16.00
	20 – 30	18	24.00
	31 – 40	20	26.67
	41 – 50	10	13.33
	51 – 60	9	12.00
	> 60	6	8.00
9	Major occupation		
	Farming	20	26.67
	Farming/trading	15	20.00
	Farming/civil service	30	40.00
	Farming/other businesses	10	13.33
10	Constraints to urban farming		
	Pests and diseases infestation	22	16.42
	Crops destruction by Government	10	7.46
	Inadequate capital	26	19.41
	Pilfering	16	11.94
	Lack of credit facilities	18	13.43
	High cost of labour	42	31.34

Source: Field survey data, 2008

The result reveals that 62.67% of the respondents were female while 37.33% were male. Age distribution of the respondents shows that 78.67% of the urban farmers were between the ages of 21 and 50 years which fall within the age of high productivity. This implies that urban farmers in the study area are virile and energetic group who will carry out the farming activities more efficiently. Majority of them (60.00%) were married while 89.33% of the respondents had secondary and above level of education attainment. This result confirmed the earlier assertion by Etim and Ofem (2005) that majority urban farmers have high level of education ranging from secondary to tertiary education. The household size distribution of the respondents indicates that majority of them (about 51%) have not more than 4 members in their households. This indicates that more than half of the farming household in the study area have met the recommended World Health Organization (WHO) household size of 4 members (Sai, 1985) and implies that household size in urban centre

tends to be smaller than those in rural centres in line with the findings of Deelstra (1999) and UNDP (1996). Table I also shows that 50.67% of the respondents have 1-5 years of family experience. It was also revealed that farming activities took place on multiple, scattered and rented small land holdings with individual farm size ranging between 0.2-2.0 ha for 88% of the respondents. Farm income was revealed to be between N20, 000 - N30, 000 for 26.67% of the respondents while 40.00% of them were known to combine farming with civil service jobs. The major constraint faced by the urban farmers includes high cost of labour (31.34%) and inadequate production capital (19.41%).

Profitability of urban farming in the stud Area

The profitability of the urban farming in the study area is determined in this section using the costs and revenue implication and based on the various farm sizes.

Table 2: Fixed Cost (Rental value of land) of urban farming based on Farm size.

Farm size (ha)	Total Fixed cost (TFC) ₦	Average fixed costs (AFC) ₦	% of TFC	% of AC
0.5 – 2.0	8,600	198.94	2.01	4.37
2.1 – 5.0	278,000	2,489.92	65.01	54.65
5.1 – 10	141,000	1,867.06	32.98	40.98
Total	427,600	4,555.92	100.00	100.00

Source: Field survey data, 2008

Table 3: Variable Cost and Returns for the urban farming based on Farm size.

Farm size (ha)	Total variable cost (₦)	Gross Revenue (₦)	Gross margin (₦)	Total profit (₦)
0.5 – 2.0	1,499,795	18,544,600	17,044,805	17,036,205
2.1 – 5.0	1,351,250	10,236,950	8,885,700	8,607,700
5.1 – 10	1,436,150	10,870,950	9,434,800	9,293,800
Total	4,287,295	39,652,500	35,365,305	34,937,705

Source: Field survey data, 2008

Table 4: Average Cost and Returns per hectare for the urban farming based on Farm size.

Farm size (ha)	Average farm size (ha)	Average Variable Cost	Gross Revenue (₦)	Gross margin (₦)	Average profit (₦)
0.5 – 2.0	1.24	428,975.25	34,693.39	394,281.86	394,082.92
2.1 – 5.0	3.60	91,689.86	12,102.56	79,585.30	77,095.38
5.1 – 10	8.39	143,947.96	19,016.82	124,931.14	123,064.08
Total	13.23	664,613.07	65,812.77	598,798.30	594,242.38

Source: Field survey data, 2008

For this study, the rental value of land meant for urban farming was used to constitute the fixed cost and it varied with farm size. Table 2 shows that the highest fixed cost of N278, 000 was obtained in a 2.1 – 5.0 hectares farm size bracket, constituting 65.01% of the total fixed cost and 54.65% on the average with N2, 489.92. The least cost of N9, 600 (2.01%) and N198.94 (4.37%) for the total and average fixed cost respectively came from the farm size range of between 0.5 – 2 ha. A total sum of N427, 600 was obtained as the total rental values of land for the urban farming in Uyo Metropolis of Akwa Ibom State. In table 3 is presented the variable cost and returns for the urban farming enterprise based on farm size. The variable cost included the cost of labour, fertilizer, seed/seedlings, implements and agro-chemicals. The result reveals that the variable cost of the urban farming in the study area increases with the increase in farm size except in the 0.5 – 2 ha

where there are large number of small holder farmers. A total of sum of N4, 287,295 was obtained as the variable cost of production. The variable cost was found to be consistent with the previous studies by Adesimi (1991); Ebong and Udongwo (2005) who reported that farm size has a significant influence and is positively related to the variable cost of production in agricultural production enterprises. The same observations were made of the revenue, gross margin and profit accruing from the urban farming enterprise with a total profit of N34, 937,705. Table 4 shows the analysis of the average variable cost and return for the urban farming as a measure of the farm profitability per hectare within the specified farm size ranges. Measured by the difference between gross margin and the fixed cost of production, the highest profit per hectare of N394,082.92 was obtained from the farm size range of between 0.5 – 2 ha. This was followed by N123, 064.08 per hectare from the 5.0 – 10 ha farm size range. The high demand for these agricultural products coupled with the recent exorbitant increase in food prices nationwide, result in the general increase in the total revenue and hence the profit of the urban farming in the study area.

CONCLUSION

The results from this study show that urban farming in the study area is dominated by women while majority of them were of virile and energetic age to carry out the farming activities more efficiently with high level of education attainment. The farmers were engaged in multiple, scattered and rented small land holdings with individual farm size ranging between 0.5-2.0 ha for most of them and also faced with the problem of high cost of labour and inadequate production capital. Farm size employed by the farmers was shown to be an important variable determining the profit margin of the enterprise. Consolidation of the farmers holdings through formation of farmers' cooperatives, promotion of extension services in urban farming, provision of land augmenting inputs like fertilizer and creating effective marketing outlets for the farm output are needed to increase farmers' efficiency and income, and the overall profit margin of the urban farming enterprise in the study area.

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