A Socio-Economic Analysis of Urban Agriculture In Nasarawa State, Nigeria

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Abstract

Urban agriculture (UA) has become a contemporary issue, gaining prominence especially in developing economies because it has been discovered to be a viable poverty intervention strategy for the urban poor. However, policy makers and government have deliberately neglected this veritable sector and have failed to acknowledge it and channel attention to it. This study was designed to assess the contribution of UA to the socio-economic development of urban farmers in Nasarawa state. One urban town was purposively selected from each of the 3 Senatorial zones in the state to give three (3) urban towns namely Keffi, Akwanga and Lafia. Thirty (30) urban farmers were randomly selected from each of the three urban centres giving a sample size of ninety (90) respondents used for the study. Primary data used for the study were collected with the aid of a well structured interview schedule which was administered to the urban farmers by the researcher and trained enumerators. Data analysis was achieved using simple descriptive statistics such as frequency count, percentage and mean scores, while objective 5 was achieved using a 3- point Likert type scale. The study revealed that the major benefits derived from urban farming by the respondents were additional income (75.56%), household feeding (55.56%) and full time employment opportunity (28.89%). Urban farming contributed about 74% of the total annual income of the respondents which implies that it was the major means of livelihood of the respondents. However, certain constraints facing the enterprise were identified which include poor extension service, lack of access to credit facilities and high cost of labour. Since current employment situations in the urban areas do not generate adequate income for the poor urban population it was recommended that urban agriculture should be integrated into urban land use planning in the state as a source of urban income, employment and food security.

Keywords: *Socio-Economic, Analysis, Urban Agriculture, Nasarawa State.*

Introduction

Urban agriculture(UA) can be defined as the production of food(for example, vegetables, fruits, meat, eggs, milk, fish and non-food items such as fuel, herbs, ornamental plants, tree seedlings, flowers) within the urban area and its periphery; for home consumption and/or for the urban market, and related small scale processing and marketing activities(Hovorka, Zeeuw and Njenga, 2009). It is the practice of producing vegetables, food and fruits within urban environment for household consumption as well as sale to the rapidly growing urban population (Dima *et al*., 2002). Urban agriculture takes place on private, leased or rented land in peri-urban areas, in backyards, on roof tops, on vacant public lands such as industrial parks, school grounds, roadsides, in prisons and other institutions as well as ponds, lakes, and rivers.

For a long time now the importance of UA was overlooked or dismissed as merely the result of traditional habits brought by rural migrants to the city, expected to fade away overtime when these people integrated into the city economy. There was opposition to UA from public health and urban planning circles, which perceived UA either as a threat to public health that should be abandoned, or as a low-rent land use that would not be able to compete with other urban land uses. Such perceptions were institutionalized in restrictive bye-laws and regulations at national and city levels, although these have remained largely ineffective (Hovorka *et al*, 2009). However in 1996 the United Nations Development Programme (UNDP) estimated that 800 million people worldwide were engaged in UA, 200 million of them were market producers employing about 150 million people full time (UNDP, 1996). Since then the numbers have increased.

Nigeria is one of the African's most urbanized countries with over 35% of the country's population living in towns and cities. Supplies of food and water are frequently inadequate and sanitation is often lacking in such urban centres (Binns and Fereday, 1996). One of the major efforts of the next 25 years must therefore be to develop urban farming system which can supply much of the food cities require without expensive transport cost. Such system can also ease urban waste disposal problems, since waste water and organic refuse are potential inputs for urban farming (Lynch and Olofin, 2000). In many countries, rapid urbanization is accompanied by increasing urban poverty, food insecurity and malnutrition. As a result, in many cities the number of people involved in UA tends to increase with ongoing urbanization rather than decreasing, as had been previously assumed. Another factor is the growing urban demand for perishable products, including vegetables, meat, milk, and eggs, coupled with the comparative advantage of producing close to the markets; and the availability

of productive resources including urban organic wastes, wastewater and vacant public lands (Hovorka *et al*, 2009).

Urban farming is also a common feature in Sub-Saharan Africa. It is estimated that over 50% of the urban population in Africa is involved in urban agriculture (Obudho and Foeken, 1999). In Zimbabwe, the figure doubled between 1990 and 1994 (Addison, 2000). In Kenya farming is a very common activity among urban households. Almost two-thirds grow part of their food and half of the urban area is cultivated (Song and Lea, 1984). Evidence presented from the city of Kano in northern Nigeria suggests that urban agriculture is providing farmers with food and employment (Lynch et al., 2002). Urban agriculture has a high potential for improving the urban environment by using organic waste-solid wastes and waste water as inputs by improving the micro-climate and by preventing erosion and flooding through replanting bare lands. It also conserves energy and food, because there are fewer foods looses during transport and handling and greater energy savings due to the smaller need for storage, processing and packaging.

Urban agriculture has also developed as a means of reducing seasonal gaps in fresh foods for urban dwellers. Food availability is particularly important for fresh foods (horticulture, fruits, eggs, milk and poultry) which can be in the street, in markets or in local stores but also produced for home consumption for example, green leaves. Also staple foods such as maize, cocoyam and sweet potato are produced in many towns for home consumption (Foeken, 2006). However, the main constraints to the development of urban agriculture in Nigeria according to Egbuna (2008) include the following:

- Land both in terms of access and tenure security;
- Prohibitive urban policies and regulations;
- Limited access to productive resources and agricultural inputs;
- Lack of support services;
- Harassment by local/state government tax and environmental authorities;
- Theft of crops grown far from the farmer's households and high cost of providing security on the farms;
- Marketing, both physical space for the activity and the organizational arrangements necessary to permit and promote direct farmer-consumer selling;
- High production costs coupled with lack of credit facilities because most agricultural based credit are targeted towards rural farmers without paying adequate attention to farmers in the urban areas.
- Lack of organization among urban farmers. Though they have an 'official' association, they have not been able to organize themselves in such a way as to attract

official recognition in order to benefit from some government and corporate incentives such as credit and other financial assistance as well as input subsidies.

Problem statement

Urban agriculture (UA) has become a contemporary issue, gaining prominence especially in developing economies because it has been discovered to be a viable poverty intervention strategy for the urban poor. The presence and potentials of UA in Nigeria especially in the big cities is not in doubt. However, policy makers and government have deliberately neglected this veritable sector and have failed to acknowledge it and channel attention to it. Until recently, poverty was synonymous with rural areas but the rapid urbanization of many developing countries has given birth to a large class of urban poor. Access to adequate food constitutes the most serious problem for urban dwellers in Nigeria. High inflation rate, food price instability and relatively low wages of income earners have made the average Nigerian urban dweller liable to food insecurity (Okolo, 2006).

Observation shows that urban agriculture is being carried out in most urban areas of Nasarawa State, but it is not known why such urban dwellers chose to engage in such a venture and what constraints they face. Consequently, this study was designed to address the following research questions: What are the socio-economic characteristics of participants of urban agriculture in Nasarawa state? What are the types of agricultural enterprises being carried out in urban areas in the state? What are the socio-economic benefits of urban farming to the participants? What is the contribution of urban agriculture to household income of the respondents, and what are the constraints facing urban farmers in the study area?

The broad objective of the study was to assess the contribution of UA to the socio-economic development of urban dwellers in Nasarawa state. The specific objectives were to:

- describe the socio-economic characteristics of urban farmers in Nasarawa state;
- identify the types of agricultural activities being carried out in urban areas in the state;
- ascertain the benefits derived from urban agriculture by the respondents;
- determine the percentage contribution of urban agriculture to household income of the respondents, and;
- identify the constraints facing urban farmers in the study area.

The study is significant in the sense that it will bring to limelight the contributions of urban agriculture to food security, job creation and poverty alleviation. Data generated from this study will help the policy makers, researchers and extension workers in policy

recommendations and development of improved technologies to enhance urban agriculture. It will also enable town planners to integrate urban agriculture in urban and regional planning in a more sustainable basis to guarantee food security for city dwellers.

Methodology

This study was conducted in Nasarawa State north central Nigeria. Nasarawa state is located between latitudes 7^{o} and 9^{o}N and longitudes 7^{o} and 10^{o}E. It shares boundaries with Benue state to the south, Kogi state to the west, the Federal Capital Territory (FCT) to the north-west; Kaduna and Plateau states to the north-east, and Taraba state in the south-east. Nasarawa state has a land area of 12,000 square kilometers and is divided into thirteen (13) Local Government Areas (LGAs). The 2006 population census pegs the state's population at 1,863,275. Agriculture is the dominant occupation of the inhabitants of Nasarawa state. Some of the major agricultural products in the state include maize, sorghum, millet, rice groundnut cowpea, soya beans, sesame, melon, yam, cassava, sweet potato, mango, cashew, sugar-cane, oil palm, cattle, sheep, goats, poultry, pigs and fisheries. Nasarawa state (the home of solid minerals) is blessed with numerous solid minerals such as Beryl, Tourmaline, quartz, columbite, granite, limestone, barytes, glass sand, marble and salt (Nasarawa state Government, 2008).

The target population for this study was all urban farmers in Nasarawa state. A two-stage sampling technique was used for the study. The first stage involved the purposive selection of one urban centre from each of the three senatorial zones in the state. These were Keffi, Akwanga and Lafia. In the second stage thirty (30) urban farmers were selected from each of the three urban centres - Keffi, Akwanga and Lafia using a simple random sampling (through balloting) technique to form the respondents. Therefore, a sample size of ninety (90) respondents was used for the study.

Primary data were collected with the aid of a well structured interview schedule which was administered to the urban farmers by the researcher and trained enumerators. The data were collected over a period of three (3) weeks in June, 2010. Data were collected on the socio-economic characteristics of the respondents such as farm size, household size, educational status, household income, years of farming experience among other. Types of urban agricultural activities, benefits derived from urban farming and its contribution to household income.

Data analysis was done using the Statistical Package for Social Sciences (SPSS). Objectives 1 – 4 were achieved using descriptive statistics such as frequency count, percentage and mean scores, while objective 5 was achieved using a 3-point Likert type scale with response options as very serious constraints (VS) = 3, serious constraint (S) = 2 and not serious (NS) =1. The mean value of the responses was calculated thus:

Mean value (x) = $\frac{3+2+1}{3} = \frac{6}{3} = 2$.

Therefore any variable with mean score ≥2 was considered a serious constraint while those with mean scores less than 2 were regarded as not serious constraints.

Results and Discussion

Socioeconomic characteristics of respondents

Table 1 shows the percentage distribution of respondents according to their socioeconomic characteristics.

*Age***:** Most (35.56%) of the respondents were within the age of 41–50 years followed by those within the range of 51–60 years (24.44%), and those above 60 years (20%). The mean age of the respondents was 50 years. This implies that urban farmers in Nasarawa state were mostly elderly people.

*Gender***:** The results in Table1 show that majority (55.56%) of the respondents were females while 44.44% were males. This shows that urban agriculture in the state was dominated by women. This finding agrees with that of Hovorka *et al* (2009) who reported that women were the majority among the urban farmers worldwide. They added that women constituted about 80% of urban farmers in Uganda and 56% in Kenya.

*Marital status***:** Majority (90%) of the respondents were married, 7.78% were single while 2.22% were widowed. This implies that most of the urban farmers in the area were married. Their participation in urban farming will ensure food security for their families.

*Educational level***:** Similarly the results reveal that most (33.33%) of the respondents had primary education, 22.22% had secondary education while 17.78% had tertiary education. This implies that a bulk of the respondents had very low level of education. Formal education has always been known to positively influence the adoption of improved technologies among farmers (Agbamu, 2006).

Major occupation: The results show that majority (63.33%) of the respondents were civil servants, 22.22% had trading as their major occupation while 14.45% were full time farmers. This finding agrees with that of Foeken and Mwangi (2000) that most of the farming activities in the urban areas were carried out on part time basis by people engaged in other occupations. Their involvement in urban agriculture was to augment household food/income.

Years of farming experience: Table 1 also shows that majority (55.56%) of the respondents had urban farming experience of between 11-20 years, 22.28% had 1 -10 years experience while 15.56% had between 21-30 years of experience. This implies

that most of the respondents were well experienced in urban farming and are expected to have acquired relevant skills for effective operations.

Farm size: Majority (77.78%) of the respondents operated less than one hectare (1ha.) of farm land while 22.22% had between 1-5ha. This implies that most of the farmers were operating on subsistence level. This might not be unconnected with the difficulty in acquiring land for farming purposes in the city. Studies have shown that most urban farmers in Nigeria operated on small scale (Aniedu, 2006 and Emodi, 2009).

Membership of farmers' organization: Majority (81.11%) of the respondents did not belong to any cooperative group while 18.89% had membership of cooperative. The low participation of the respondents in social groups poses a serious disadvantage to them because they would not enjoy any of the benefits of cooperative. Agbamu (2006) argued that the greater the participation of a farmer in social organization, the more interaction with other farmers and hence the earlier his adoption of innovations.

*Use of farm credit***:** Majority (70.00%) of the respondents had never used farm credit while 30% used farm credit. This implies that most urban farmers in the area did not use utilize farm credit. This finding is in line with that of Hovorka *et al* (2009) who reported that urban farmers in Ghana did not have access to formal credit schemes due to their limited land space for cultivation.

Extension contact: Majority (76.67%) of the respondents had no extension contact throughout the year while 23.33% had at least one extension visit in a year. This implies a very poor extension service for urban farmers in the state. Agbamu (2006) argued that though extension contact had a significant effect on technology adoption, it had a negative regression coefficient in the case of adoption of soil management practices. It is generally believed that the presence of able and efficient extension workers at the local level has a direct effect on the innovativeness of farmers.

Annual income level of respondents: Table 1 shows that most (44.44%) of the respondents had annual income of between ₦101,000 – 150,000, followed by those with annual income above ₦150,000 (25.56%) while 22.22% had between ₦51,000 – 100,000 per annum. The mean annual income of the respondents was ₦ 100,000.70. This shows that urban farmers in the state were small income earners. This low income status might reduce their ability to procure capital intensive technologies as income level has a positive relationship level of technology adoption (Agbamu, 2006).

Table 1: Percentage distribution of respondents based on socio-economic characteristics.

Age (years) (X)	**Frequency**	**Percentage**	**Mean**
21 – 30	05	05.56	
31 – 40	13	14.45	
41 – 50	32	35.56	49.9years
51 – 60	22	24.44	
Above 60	18	20 .00	
Gender			
Male	40	44.44	
Female	50	55.56	
Marital status			
Married	81	90.00	
Single	07	7.78	
Widow	02	2.22	
Education			
No formal education	24	26.67	
Primary school	30	33.33	
Secondary school	20	22.22	
Tertiary institution	16	17.78	
Major occupation			
Civil servant	57	63.33	
Trading	20	22.22	
Farming	13	14.45	
Urban farming experience (years)			
1 – 10	26	28.89	42.7years
11 –20	50	55.56	
21 – 30	14	15.56	
Farm size (ha)			
< 1ha.	*70*	*77.78*	
1- 5	20	22.22	
Membership of cooperative			
Yes	17	18.89	
No	73	81.11	
Use of farm credit			
Yes	27	30.00	
No	63	70.00	
Extension contact			
Once a year	21	23.33	
No contact at all	69	76.67	
Annual income (₦)			
1,000 – 50,000	07	07.78	₦ 100.70
51,000 – 100,000	20	22.22	
101,000 – 150,000	40	44.44	
Above 150,000	23	25.56	

Source: Field survey, 2010

Types of urban agricultural system of the respondents

Table 2 reveals that majority (58.89%) of the respondents practiced mixed farming, 27.78% were into crop production while 13.33% were into animal husbandry. Table 3 also shows that majority (77.78%) of the respondents was into production of vegetables, followed by maize (66.67%), cowpea (65.56%) and ornamental crops (61.11%). Others were melon, sesame, sweet potato, yam, and tree crops. In the case of livestock kept majority (83.33%) were into poultry production followed by piggery (44.44%) and goat production (38.89%). Others were cattle, sheep and rabbits. This implies that urban farming provided a variety of products for the respondents and other consumers. According to Van Veenhuizen and Danso (2007), urban farmers undertake the production of profitable products that are in high demand and have a comparative advantage over rural production such as green leafy vegetables, eggs, milk, mushrooms, medicinal herbs, flowers and ornamental plants.

Table 2: Percentage distribution of respondents according to types of agricultural practices

Types of Agriculture	Frequency	Percentage
Mixed farming	53	58.89
Crop production only	25	27.78
Animal husbandry	12	13.33
Total	**90**	**100**

Source: Field Survey, 2010.

Benefits derived from urban agriculture by the respondents

Table 4 shows the distribution of respondents according to the benefits derived from urban farming. Majority (75.56) of the respondents indicated additional household income as their benefit from urban farming followed by provision of household feeding (55.56%) and full time employment (28.89%). This implies that urban farming provided household food, additional income and full time employment to the participants. Therefore the development of urban agriculture would lead increased employment opportunities, national food security and income generation. This finding is in line with that of Hovorka et al (2009) who reported that urban agriculture has important positive effects on poverty alleviation, local economic development, food security, nutrition and health of the urban poor.

Table 3: Distribution of respondents by types of crops and livestock produced

Crops/Livestock produced	Frequency*	Percentage
Vegetables	70	77.78
Maize	60	66.67
Cowpea	59	65.56
Sweet potato	26	28.89
Yam	21	23.33
Melon	28	31.11
Sesame	22	24.44
Tree crops	13	14.44
Ornamental crops	55	61.11
Livestock kept		
Cattle	5	5.56
Sheep	10	11.11
Goat	35	38.89
Pigs	40	44.44
Poultry	75	83.33
Rabbits	23	25.56

* Multiple responses allowed Source: Field Survey, 2010**.**

Table 4: Distribution of respondents according benefits from urban farming

Benefits from urban farming	Frequency	Percentage
Household feeding	50	55.56
Source of additional income	68	75.56
Full time employment	26	28.89

*Multiple responses allowed **Source: Field Survey, 2010.**

Percentage contribution of urban agriculture to household income of respondents

Table 5 shows the mean annual income of the respondents from urban farming and nonfarm sources. The mean annual income from urban farming was ₦ 100,724.33 accounting for73.87% of the total annual income of the respondents while mean annual nonfarm income was ₦ 30,793 representing 26.13% of the total annual income. This implies that the respondents derived a greater proportion of their household income from urban farming. This might be as a result of the high unemployment rate in the formal sector in the state which has forced several people to take up urban farming as an alternative.

Table 5: Percentage contribution of urban farming to household income of respondents

Urban farm household income	Total annual income ₦	Mean income ₦	Percentage of the grand total (%)
Urban farming	10,724,333	100,724.33	73.87
Nonfarm sources	3,793,000	30,793.00	26.13
Grand Total	**14,517,333**	**131,517.33**	**100.00**

Source**:** Field Survey, 2010

Constraints facing participants of urban agriculture in the state

Table 6 shows the mean scores of the Likert rating of the factors considered as constraints to urban farming by the respondents. Three factors out of seven were rated as the most serious constraints. These were poor extension services ($\bar{X}$ =2.07), inadequate capital ($\bar{X}$ =2.02) and high cost of labour ($\bar{X}$ =2.00) in that order. This implies that most of the respondents could not access credit for investment in urban farming. They also lacked access to extension services. The absence of these critical institutional services coupled with the high cost of labour is capable of lowering farm productivity, household income and food security. This finding agrees with that of Egbuna (2008) who identified some of the constraints to the development of urban agriculture in Nigeria to include poor access to land, lack of support services (credit, extension and inputs supply), theft of crops on the farm and high cost of labour among others.

Table 6: Mean scores of Likert rating of factors affecting urban agriculture

Constraints	Mean scores	Ranking
Low capital	2.02*	2nd
Inadequate land	1.93	4th
Poor extension service	2.07*	1st
Encroachment of farms	1.78	7th
Theft of products	1.91	6th
High cost of labour	2.00*1	3rd
Inadequate inputs supply	1.93	4th

*= Serious constraints. *Source: Field Survey, 2010*

Conclusion

The contribution of urban agriculture to the socio-economic development of urban dwellers cannot be underestimated as it goes a long way in improving their livelihood.

This study has revealed that the major benefits derived from urban farming by the respondents were household food supply, income and full time employment opportunity. Urban farming contributed about 74% of the total annual income of the respondents. This shows it was the major means of livelihood of the respondents. Current employment situations in the urban areas do not generate adequate income for the poor urban population. Thus, urban agriculture should be regarded as an integral component in urban income, employment and food systems. However, certain constraints were facing the enterprise which includes poor extension service, lack of access to credit facilities and high cost of labour.

Recommendations

Based on the findings of this study the following policy recommendations are imperative:

1. Urban agriculture should be integrated into land use planning of all urban centers in Nigeria. This can be achieved by establishing a greenbelt zone in all major cities to halt urban development
2. Extension agents should design programmes to cover urban farmers.
3. Urban farmers should be mobilized to form associations/cooperatives so as to help in inputs supply and mobilization of credit.
4. Urban farming should be integrated into our national agricultural research agenda so as to evolve:
    - Environment friendly technologies for commercial production;
    - Small-plot agronomic requirements, and;
    - Intensified sustainable cropping system.

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