



Urban Agriculture among Households of Makurdi Metropolis of Benue State, Nigeria: Key Challenges

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Authors' contributions

This work was carried out in collaboration among all authors. Author ENM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ENM and AJA managed the analyses of the study. Author RJ managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The survey was conducted to identify key challenges encountered by households in Makurdi metropolis of Benue state, Nigeria who are engaged in urban agriculture. A well structured questionnaire was used to collect data from a sample of 100 respondents used for the study. Data were analyzed using frequency, percentage and mean score. Results show that a greater percentage (46.0%) of the respondents engaged in cultivation of leafy vegetable, 22.0% cultivated cassava, 21.0% planted sweet potato, 18.0% cultivated tomato while 56.0% reared poultry, 23.0% kept goat, among others. Sources of agricultural information indicated by the respondents were family members/relations (85.0%), friends/neighbors (73.0%), radio (68.0%), extension agents (57.0%), etc. Major challenges encountered by the respondents in urban agriculture include inadequate size of farm land (M= 2.72), lack of access to credit facilities (M= 2.63), lack of funds (M= 2.50), high cost of labor (M= 2.49), insecurity of lands (M= 2.46), theft of crops at maturity (M= 2.38), lack of farm inputs such as improved varieties of seeds, fertilizer (M= 2.23), destruction of

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crops by stray farm animals (M= 1.96), among others. The study recommends that there is need for adequate provision of farm inputs by government at all levels at subsidized rate in order to reduce the cost of production and enhance optimum productivity.

Keywords: Urban agriculture; households; agricultural information; challenges.

1. INTRODUCTION

Agriculture was primarily a rural activity in Nigeria, but due to increasing demand for food and jobs for many urban dwellers, it became necessary for urban households to embark on farming as a means of improving household food security and additional income for economic empowerment. The rapid expansion of urban population puts direct pressure on food sources and agricultural production, thus, there exists a serious challenge in supplying enough nutrition and safe food among such rapid urbanization. Rapid urbanization has produced a large group of urban poor, proliferating wide spread issues like food insecurity and malnutrition in the developing world. The global food price crisis and the protests across the world pointed to the vulnerability of the urban poor [1].

Urban agriculture 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, since it contributes significantly to the socio-economic development of cities throughout the world. Urban agriculture serves as a veritable tool for poverty reduction among people living in urban areas mostly low income earners and unemployed. With cities in Africa growing rapidly, farming in the urban area is expected to play a greater role in feeding urban population [2].

Urban agriculture (UA) has been widely upheld as a solution to the food crisis facing increasingly metropolitan populations [3]. According to them, UA have a role to play in addressing urban food insecurity problems, which are bound to become increasingly important with the secular trend towards alleviating poverty in urban areas. Urban agriculture generates significant livelihood opportunities, not only for urban farmers, but also for trades, input suppliers and other service providers along the value chain for domestic produce [4]. However, in some African countries like Nigeria, urban planning and development approaches do not consider food production as an objective; thus, food production capacity may become severely constrained as urbanization

proceeds. In the absence of friendly land use policy and plan that encourage urban farming, city farmers are subjected to harassment and subsequent eviction from government lands. Some urban farmers gain access to land for urban farming only as customary tenants on private land, and are only allowed to cultivate annual crops [5]. Urban agriculture takes place on private, leased or rented land in peri-urban and urban backyards, vacant public lands such as industrial parks, school grounds, roadsides, prison and other institutions, ponds, lakes and rivers [6].

The factors responsible for the steady increase in UA (especially in Nigeria) include the rise in food prices, unemployment and inflation brought about by structural adjustment, and the decline in the real incomes of both rural and urban households [7]. The rapid movement of people from the rural areas into the towns and cities (urbanization) is the main driver of urban agriculture, because in many countries rapid urbanization is usually followed by increasing urban poverty, food insecurity and malnutrition, and has given birth to a large class of urban poor in many developing countries including Nigeria [8]. Some of the challenges associated with the practice of urban agriculture include urban farmers are poorly organized, are more dispersed and have a strong variation in social background; increasing demand for land by estate developers for housing and commercial facilities which thus reduces access to lands for farming activities; farming within the cities is also associated with health hazards through the use of untreated waste water for crop irrigation; financial assistance (from banks and other institutions) is difficult to obtain due to insufficient collateral and the long term nature of agriculture [9].

Current scientific literature regarding UA has its shortcoming as most studies are single-city studies. Reliable data are therefore necessary to put forward urban farming practices and its potential benefits to city planners. This will help the municipal authorities and urban planners in integrating urban farming into the urban system in a more viable and sustainable way [10].

This study sought to answer the following questions in order to fill the research gap emanating from studies carried out by other authors. What are types of crops grown by the respondents? What are sources of agricultural information used by the respondents? And what major challenges encountered by the respondents in urban agriculture?

The specific objectives of the study were to:

- i. Identify types of crops grown/livestock kept by the respondents;
- ii. Ascertain sources of agricultural information used by the respondents; and
- iii. Identify challenges encountered by the respondents in urban agriculture.

2. METHODOLOGY

The study was carried out in Benue state, Nigeria. Benue state is one of the 36 states of Nigeria located in North Central Nigeria. The state is made up of three geo-political zones, namely; Zone A (Eastern zone), Zone B (Northern zone) and Zone C (Central zone). It has twenty-three (23) local government areas. Benue state has an area of 2,882 km² with a population of 4,253,641 people [11]. It shares boundaries with five other States namely; Nasarawa to the north, Taraba to the east, Cross River to the south, Enugu to the south-west and Kogi State to the west. The state also shares a common boundary with the Republic of Cameroon on the south-east. Major occupation of the people living in rural areas of the state is farming. The inhabitants of the state living in cities engage in non-farm occupations such as civil service, teaching, petty trading, commercial driving, etc. and are also involved in urban agriculture for household food security. The urban farmers grow crops which include yam, cassava, maize, sweet potato, tomato and leafy vegetables. They also keep livestock such as goat, poultry, pig, etc. The population of the study comprised all the urban farmers in Benue State, Nigeria. Two zones, namely; Zone A and Zone B were selected for the study using a simple random sampling technique. A major urban town was selected from one local government area from each of the geo-political zones. In each of the towns selected, 50 urban farmers were selected using simple random sampling technique. This gave rise to a sample size of 100 respondents used for the study. Questionnaire was used to collect data from the respondents. Data were analyzed using frequency, percentage and mean score.

3. RESULTS AND DISCUSSION

3.1 Types of Crops Grown/Livestock Kept

Results in Table 1 show that a greater percentage (46.0%) of the respondents engaged in cultivation of leafy vegetable, 22.0% cultivated cassava, 21.0% planted sweet potato, 18.0% cultivated tomato, among others (Table 1). This implies that the respondents engaged in mixed cropping in order to guard against crop failure and ensure household food security. The finding is agrees with [12] who stated that mixed cropping is practiced by urban farmers in Imo state, Nigeria which is not surprising since land is often scarce in urban areas. They make use of any available space by planting different varieties of crops in a particular farm land.

A greater percentage (56.0%) of the respondents kept poultry, 23.0% kept goat, among others (Table 1). It implies that the respondents engaged in mixed farming which helps them to be economically stronger to take care of their families. The findings agree with a study carried out by [13] which stated that urban farmers in Nasarawa state were involved in mixed farming.

Table 1. Percentage distribution of respondents according to types of crops grown/livestock kept (n= 100)

Variables	Frequency*	Percentage
Crops grown		
Yam	3	3.0
Cassava	22	22.0
Maize	14	14.0
Sweet potato	21	21.0
Tomato	18	18.0
Leafy vegetable	46	46.0
Livestock kept		
Goat	23	23.0
Poultry	56	56.0
Pig	15	15.0
Rabbit	12	12.0

*Multiple responses

3.2 Sources of Agricultural Information Used by the Respondents

Majority (85.0%) of the respondents obtained agricultural information from family members/relations, 73.0% received from friends/neighbors, 68.0% obtained from radio, 57.0% sourced from extension agents, among others (Table 2). This indicates that the respondents obtained agricultural information

mostly from informal sources. The findings agree with a study carried out by [14] which reported that farmers receive their farm information from non-professional inter-personal sources such as fellow farmers, family members and friends more often than professional sources.

3.3 Challenges Encountered by the Respondents in Urban Agriculture

Table 3 shows challenges encountered by the respondents in urban agriculture which include inadequate size of farm land (M= 2.72), lack of access to credit facilities (M= 2.63), lack of funds (M= 2.50), high cost of labor (M= 2.49), insecurity

of lands (M= 2.46), theft of crops at maturity (M= 2.38), lack of farm inputs such as improved varieties of seeds, fertilizer and fertilizer (M= 2.23), destruction of crops by stray farm animals (M= 1.96), among others. According to [15], availability and access to land have been the crucial elements for engagement in urban agriculture. This finding is consistent with that of [16] who reported that land access and tenure security including harassment by environmental authorities are major problems faced by urban farmers in Abuja, Nigeria. This finding is also in line with most studies that had earlier indicated that theft of crops is a major constraint to urban agriculture [17,18].

Table 2. Distribution of respondents according to sources of agricultural information (n=100)

Source of agricultural information	Frequency	Percentage
Radio	68	68.0
Newspaper	3	3.0
Magazine	1	1.0
Television	1	1.0
Extension agent	57	57.0
Internet	2	2.0
Farmers' association or group	24	24.0
Market or trade union organization	10	10.0
Family members/relations	85	85.0
Friends/neighbors	73	73.0

**Multiple responses*

Table 3. Mean score of challenges encountered by the respondents (n=100)

Challenges	Mean score
Lack of funds	2.50
Lack of access to credit facilities	2.63
Destruction of crops by stray farm animals	1.96
High cost of labor	2.49
Small size of farm land	2.72
Lack of irrigation facilities	2.29
Pests and diseases infestation	1.72
Inadequate provision of farm inputs such as improved varieties of seeds and fertilizer	2.23
Lack of access to high breeds of livestock	2.18
Climate variation resulting in drought	1.82
Lack of storage facilities	2.23
Insecurity of lands	2.46
Poor transport facilities	1.81
Lack of labor-saving technologies	1.62
Poor access to sufficient farm land	2.63
High cost of farm inputs	2.29
Poor soil fertility	2.11
Theft of crops at maturity	2.38
Instability of government policy	1.90
Time constraint as a result of work load	2.10

4. CONCLUSION AND RECOMMENDATIONS

Findings indicate that the urban farmers were engaged in mixed cropping as well as mixed farming. This is to ensure household food security and enable them to be economically stronger to take care of their financial needs. The respondents sourced information mostly from interpersonal sources such as family members and friends. Inadequate size of farm land was a major challenge. This is not surprising because land is a scarce resource in urban areas. Many farm lands are too small for the farmers to cultivate crops. Theft of crops at maturity was also a serious challenge to urban farmers. Crops are stolen by thieves if they are not properly guarded which forces people to harvest them before they are fully matured. Also, a major challenge was destruction of crops by farm animals. This may be attributed to the fact that some farmers allow their animals to roam about in search of food and water.

The study recommends that there is need for adequate provision of farm inputs by government at all levels at subsidized rate in order to reduce the cost of production and enhance optimum productivity. Efforts are also needed by extension agencies in ensuring that urban farmers obtain adequate agricultural information which is paramount for increase in production as well as ensuring household food security.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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