

1 Urban Agriculture among Households of Makurdi Metropolis of Benue State, Nigeria: Key 2 Challenges

3 4 Abstract

5 The survey was conducted to identify key challenges encountered by households in Makurdi
6 metropolis of Benue state, Nigeria who are engaged in urban agriculture. A well structured
7 questionnaire was used to collect data from a sample of 100 respondents used for the study. Data
8 were analyzed using frequency, percentage and mean score. Results show that a greater
9 percentage (46.0%) of the respondents engaged in cultivation of leafy vegetable, 22.0%
10 cultivated cassava, 21.0% planted sweet potato, 18.0% cultivated tomato while 56.0% reared
11 poultry, 23.0% kept goat, among others. Sources of agricultural information indicated by the
12 respondents were family members/relations (85.0%), friends/neighbors (73.0%), radio (68.0%),
13 extension agents (57.0%), etc. Major challenges encountered by the respondents in urban
14 agriculture include inadequate size of farm land (M= 2.72), lack of access to credit facilities (M=
15 2.63), lack of funds (M= 2.50), high cost of labor (M= 2.49), insecurity of lands (M= 2.46), theft
16 of crops at maturity (M= 2.38), lack of farm inputs such as improved varieties of seeds, fertilizer
17 and fertilizer (M= 2.23), destruction of crops by stray farm animals (M= 1.96), among others.
18 The study recommends that there is need for adequate provision of farm inputs by government at
19 all levels at subsidized rate in order to reduce the cost of production and enhance optimum
20 productivity.

21 **Keywords:** Urban agriculture, households, agricultural information, challenges

22 Introduction

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

32 Urban agriculture has become a contemporary issue, gaining prominence especially in
33 developing economies because it has been discovered to be a viable poverty intervention strategy
34 for the urban poor, since it contributes significantly to the socio-economic development of cities
35 throughout the world. Urban agriculture serves as a veritable tool for poverty reduction among
36 people living in urban areas mostly low income earners and unemployed. With cities in Africa
37 growing rapidly, farming in the urban area is expected to play a greater role in feeding urban
38 population [2]

39 Urban agriculture (UA) has been widely upheld as a solution to the food crisis facing
40 increasingly metropolitan populations [3]. According to them, UA have a role to play in
41 addressing urban food insecurity problems, which are bound to become increasingly important
42 with the secular trend towards alleviating poverty in urban areas. Urban agriculture generates
43 significant livelihood opportunities, not only for urban farmers, but also for trades, input
44 suppliers and other service providers along the value chain for domestic produce [4]. However,
45 in some African countries like Nigeria, urban planning and development approaches do not
46 consider food production as an objective; thus, food production capacity may become severely
47 constrained as urbanization proceeds. In the absence of friendly land use policy and plan that
48 encourage urban farming, city farmers are subjected to harassment and subsequent eviction from
49 government lands. Some urban farmers gain access to land for urban farming only as customary
50 tenants on private land, and are only allowed to cultivate annual crops [5]. Urban agriculture
51 takes place on private, leased or rented land in peri urban and urban backyards, vacant public
52 lands such as industrial parks, school grounds, roadsides, prison and other institutions, ponds,
53 lakes and rivers [6].

54 The factors responsible for the steady increase in UA (especially in Nigeria) include the
55 rise in food prices, unemployment and inflation brought about by structural adjustment, and the
56 decline in the real incomes of both rural and urban households [7]. The rapid movement of
57 people from the rural areas into the towns and cities (urbanization) is the main driver of urban
58 agriculture, because in many countries rapid urbanization is usually followed by increasing urban
59 poverty, food insecurity and malnutrition, and has given birth to a large class of urban poor in
60 many developing countries including Nigeria [8,19]. Some of the challenges associated with the
61 practice of urban agriculture include urban farmers are poorly organized, are more dispersed and
62 have a strong variation in social background; increasing demand for land by estate developers for
63 housing and commercial facilities which thus reduces access to lands for farming activities;
64 farming within the cities is also associated with health hazards through the use of untreated waste
65 water for crop irrigation; financial assistance (from banks and other institutions) is difficult to
66 obtain due to insufficient collateral and the long term nature of agriculture [9] .

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

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

75 The specific objectives of the study were to:

76 i. **Identify** types of crops grown/livestock kept by the respondents;

- 77 ii. **Ascertain** sources of agricultural information used by the respondents; and
- 78 iii. **Identify** challenges encountered by the respondents in urban agriculture.

79 **Methodology**

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

99

100 **Results and Discussion**

101

102 **Types of crops grown/livestock kept**

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

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

114

115 **Table 1: Percentage distribution of respondents according to types of crops grown/livestock**
 116 **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

117 *Multiple responses

118 **Sources of agricultural information used by the respondents**

119 Majority (85.0%) of the respondents obtained agricultural information from family
 120 members/relations, 73.0% received from friends/neighbors, 68.0% obtained from radio, 57.0%
 121 sourced from extension agents, among others (Table 2). This indicates that the respondents
 122 obtained agricultural information mostly from informal sources. The findings agree with a study
 123 carried out by [14] which reported that farmers receive their farm information from non-
 124 professional inter-personal sources such as fellow farmers, family members and friends more
 125 often than professional sources.

126 **Table 2: Distribution of respondents according to sources of agricultural information**
 127 **(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

128 *Multiple responses

129 **Challenges encountered by the respondents in urban agriculture**

130 Table 3 shows challenges encountered by the respondents in urban agriculture which
 131 include inadequate size of farm land (M= 2.72), lack of access to credit facilities (M= 2.63), lack
 132 of funds (M= 2.50), high cost of labor (M= 2.49), insecurity of lands (M= 2.46), theft of crops at
 133 maturity (M= 2.38), lack of farm inputs such as improved varieties of seeds, fertilizer and
 134 fertilizer (M= 2.23), destruction of crops by stray farm animals (M= 1.96), among others.
 135 According to [15], availability and access to land have been the crucial elements for engagement
 136 in urban agriculture. This finding is consistent with that of [16] who reported that land access
 137 and tenure security including harassment by environmental authorities are major problems faced
 138 by urban farmers in Abuja, Nigeria. This finding is also in line with most studies that had earlier
 139 indicated that theft of crops is a major constraint to urban agriculture [17, 18].

140 **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

141

142 **Conclusion and Recommendations**

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

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

158 **ETHICAL ISSUES**

159 Authors have declared that no ethical issues exist.

160 **References**

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