

COMPARATIVE ANALYSIS OF STATUS OF URBAN AGRICULTURE IN EDO AND OYO STATES, NIGERIA

***MICHAEL, C.O. AND ALUFOHAI, G.O.**

Department of Agricultural Economics and Extension Services, University of Benin, Edo State, Nigeria

*Corresponding author: clara.edeoghon@uniben.edu

Abstract

Growing population and increasing urbanisation is one of the biggest challenges of the next decade in terms of food production and consumption. The study assessed the status of urban agriculture in six cities by examining the farm characteristics and motivating factors associated with farmers' involvement in urban agriculture. Multistage sampling technique was used to select 335 respondents in Edo and Oyo States, with the use of structured questionnaire and interview schedules. Data obtained were described with frequency counts, percentage, and mean while independent t test was used to make inferences. Results showed that arable crop production (64 %) was the common enterprise among urban farmers and family labour was the major source used. The most common farm locations were open space away from home and backyard and the major factor for practicing urban farming was income generation. Family/friends was the major information source among urban farmers. Lack of credit was the only significant problem among farmers in Edo and Oyo States while pests and diseases was a significant problem only among Oyo State urban farmers. It was further showed that Oyo (Mean = 28.01) significantly different from Edo state (24.50) in their level of involvement in urban farming. It was concluded that farmers in Oyo State involved more in urban agriculture compared to their counterparts in Edo State. It was recommended that agricultural extension programmes should be intensified in urban agriculture especially in Edo State where their level of involvement was lower.

Key Words: *Status, Urban agriculture, Farm characteristics, Motivational factors, Arable crops, Comparative and involvement*

Introduction

The term urban agriculture was originally used only by scholars and media, but now is being adopted by international agencies like the United Nations (UN) agencies such as the United

Nations Development Programme (UNDP) and Food and Agriculture Organization (FAO) as far back as 19th century (FAO, 1996; FAO-COAG, 1999). The most striking feature of urban agriculture that distinguishes it from rural

agriculture is its integration into urban economic and ecological system. Such linkages include the use of urban residents as labour source, use of urban resources (like organic waste as compost and urban waste water for irrigation), direct links with urban consumers, direct impacts on urban ecology (positive and negative), being part of the urban food system, competing for land with other urban functions, being influenced by urban policies and plans among others (Mbiba, 2000). Urban agriculture is not a relic of the past that will be done away with nor brought to the city by rural immigrants that will lose their rural habits over time, but urban farming increases when the city grows. It is an integral part of the urban system (RUAF Foundation, 2009).

Urban agriculture is an age old tradition in Africa though it has been undervalued and resisted by generations of public officials (UNDP, 1996). Urban agriculture therefore represents a traditional contradiction in Africa as most governments regard it as untidy and illegal. In recent times, however, urban agriculture is being ignored or tolerated by some African countries and even in developing countries as a result of globally induced economic crisis, rapid population growth, rural-urban migration, deteriorating national economic or persistent economic difficulties (Hasna, 1998; Drescher and Laquinta, 1999; Mbiba, 2000; Foeken and Mwang, 2000). Under such circumstances, urban food production can be described as a “crisis induced strategy” (Drescher *et al.*, 2000).

The practitioners of urban agriculture produce virtually every food product that can be found in a rural setting: all types of fruits, vegetables, grains and livestock products (Blobsaum, 1987; Wilkinson and

Van, 1997). Supporting this, Nugent (1997) affirmed that the products of urban agriculture are as diverse as those of rural agriculture. These are fruits and vegetables, small livestock, staples such as cassava, maize, beans, fish, nuts, berries, herbs, spices and occasionally cows.

Urban agriculture in Nigeria lacks policy framework owing to limited empirical facts and information that will assist planners in policy decision-making. Profiling urban agriculture practitioners is necessary to improve documentation of urban agriculture by knowing urban farming characteristics, factors motivating urban agriculture practitioners, their sources of information and the constraints associated with urban farming.

The growing population and increasing urbanization is one of the biggest challenges of the next decade. The world population is expected to grow from 6.7 billion to 9.2 billion between 2007 and 2050 and virtually all of the 2.5 billion increases will occur in the developing countries’ urban cities (UNDESA, 2008). According to Cohen and Garrett (2009), this rapid urbanization is pulling the balance of poverty into cities. They also indicated that despite higher rates of poverty in rural areas, rural food insecurity is not necessarily higher than that in the cities.

However, according to Redwood (2008), one of the challenges of urban agriculture is that it is informal and sometimes illegal in nature. Hence, there are no systematic studies of the economic value of urban agriculture on how it may contribute to economic security among low-income city dwellers which require robust data to fill the knowledge gap. It is therefore, in this regard that this study is

conceived to comparatively analyse the status of urban agriculture in Edo and Oyo States being among the most popular States with high population in South south and South west, Nigeria. Specifically, the study was conducted to:

1. identify urban farming characteristics (types of enterprises, labour used, crops grown and farm location) among respondents;
2. identify factors motivating urban agriculture practitioners in the study area;
3. identify urban agriculture practitioners' sources of information; and
4. ascertain the constraints associated with urban agriculture in the study area.

Methodology

This study was carried out in Edo and Oyo States of Nigeria. Edo State is located in the heart of the tropical rain forest and it lies between longitude 5° and 6° 42" East and latitude 5° 45" and 7° 35" North of the Equator. To the North, Edo State is bounded by Kogi State, to the East, by Kogi and Anambra States to the South by Delta State and to the West by Ondo State. There are 2 major vegetation belts in the State: the Forest belt comprising the South and Central parts of the State; and the Guinea Savanna of the Northern most part of the State.

Agriculture remains the main stay of the State's economy. The people of Edo State are mainly farmers producing cash and food crops as cocoa (*Theobroma cacao*), oil palm (*Elaeis guineensis*), cotton (*Gossypium barbadense*), rice (*Oriza sativa*), rubber (*Hevea brasiliensis*) and vegetables (www.nigerianstates/edo.htm, 2011).

Oyo state is located in the South West region of Nigeria and is bounded in the South by Ogun State, in the North by Kwara State, in the West by Republic of Benin and in the East by Osun State. Latitude 8 degree and Longitude 4 degree east bisect the State into four nearly equal parts. The vegetation pattern of the State is that of rain forest in the South and guinea savannah to the North. Thick forest in the South gives way to grassland interspersed with trees in the North. Agriculture is the main occupation of the people of Oyo State. The predominant crop production is tubers, maize and vegetables.

Population and Sampling Procedure

The population of the study comprised all urban farmers in Edo and Oyo States, Nigeria. Multistage sampling procedure was used for the study as follows:

Stage 1: Two States, Edo and Oyo out of the eight States in the South Western agro – ecological zone of Nigeria (Shaib *et al.*, 1997) were purposively selected for the study. This is because they have the biggest and most ancient cities.

Stage 2: Three cities were purposively selected from each of the two States because they are highly urbanized and each of them represented a senatorial district. In Oyo State, Ibadan (Oyo South senatorial district), Oyo (Oyo Central senatorial district) and Ogbomosho (Oyo North senatorial district) were selected while in Edo State, Benin (Edo South senatorial district), Ekpoma (Edo Central senatorial district) and Auchi (Edo North senatorial district) were selected, making a total of six cities.

Stage 3: A pre-census of the population was carried out in order to get an estimated population of urban agriculture practitioners in each of the six selected

cities. This was done by using a snow ball technique to identify some urban agriculture practitioners in each of the six selected cities.

Table 1 below shows the estimated sample size of respondents selected in each chosen urban centre.

Table 1: Selected sample size of urban agriculture practitioners in each city

Cities	Population of Urban Agriculture (UA)				Total	Representative Sample (Aproximately 10%)
	Practitioners Identified					
	Vegetables	Poultry	Fishery	Crops		
Benin	186	105	72	109	472	50
Ekpoma	117	35	26	111	289	35
Auchi	145	92	30	126	393	40
Ibadan	316	192	184	123	815	85
Oyo	262	124	110	144	640	65
Ogbomosho	203	148	134	189	674	70
					3283	345

*Vegetables comprise of leafy vegetables including okra. Crops comprise of arable crops including plantains and bananas.

In all, 335 copies of questionnaire were found useful while the remaining 10 copies were discarded. A structured questionnaire (for the literate farmers) was used to collect data. For the illiterate farmers, an interview schedule was used. Hypothesis was tested using Analysis of variance (ANOVA).

Results and Discussion

Respondents' Types of Urban Farming/Enterprise

Table 2 shows the types of urban farming/enterprise that the respondents were involved in. From the Table, arable crop production (e.g. maize, yam, cassava) was the most popular type (64.2%) of enterprise the practitioners were involved in both Edo and Oyo States. This was closely followed by production of vegetables. This result is not unexpected as most urban practitioners are likely to be involved in a short duration enterprise that will bring quick income. This result complements that of Olofin (1996) who discovered that a considerable

amount of fruits and vegetables were produced around Kano.

Table 2 also shows that majority (71.0 %) of the urban farming practitioners were not involved in poultry production in both States. This may not be unconnected with the initial capital involvement and the wastes produced in poultry industry which may cause environmental pollution in the cities. Poultry products provide an acceptable form of animal protein to most people throughout the world, with the exception of strict vegetarians. The number of poultry in the world is large and amount to just over two per human. This suggests that the poultry industry is not being properly harnessed among these urban farmers since domestic chickens constitute about 90 % of the total domesticated poultry population (Smith, 1996). A similar result was obtained from fishery enterprise where only about 21.8 % of the respondents were involved. This may be connected to the rigorous routine practices connected with this enterprise.

Table 2: Respondents' types of urban farming/ enterprise

Urban Farming Type or Enterprises	Oyo		Edo		Total	
	Freq	%*	Freq	%*	Freq	%*
Arable crop production	132	62.86	83	66.40	215	64.18
Vegetables (leafy vegetables)	122	58.10	49	39.20	171	51.04
Poultry production	56	26.67	41	32.80	97	28.96
Fishery	48	22.86	25	20.00	73	21.79

*Multiple responses

Types of Labour Used in Urban Farming

Table 3 shows the types of labour engaged in urban agriculture in Edo and Oyo States. A little above average (58.0 %) of the respondents made use of family labour in urban agriculture in both States. However, this is more pronounced in Edo State (71.2 %) than in Oyo State (50.00 %). This result agrees with previous studies on the use of family labour (Adekoya, et al., 2000; Adeoti and Adenuga, 2000; Woodsworth, 2001 and Olofin, 1996: cited in Binns and Lynch, 2001).

Hired labour was also common in the two States as indicated in Table 3 where

55.8 % of the practitioners engaged hired labour for urban agriculture practice. This is however more pronounced in Oyo State as 58.1 % use hired labour as compared to 52.0 % in Edo State. It is not surprising that from Table 3, that above average 55.8 % of the practitioners also used self labour. This is expected because of the small sizes of the enterprises the practitioners were involved in. Some of them were located at the backyard which may not require hired labour. The small sizes of the enterprises of the respondents may also be attributed to the non-use of farm machinery (0.3 %).

Table 3: Respondents' use of labour in urban farming

Labour type	Oyo		Edo		Total	
	Freq	%*	Freq	%*	Freq	%*
Hired labour	122	58.10	65	52.00	187	55.82
Family labour	105	50.00	89	71.20	194	57.91
Self labour	90	42.86	97	77.60	187	55.82
Exchange labour	3	1.43	10	8.00	13	3.88
Machinery (tractor)	1	0.48	0	0.00	1	0.30

*Multiple responses

Respondents' Farm Characteristics

Table 4 shows that most (78.0%) of the respondents have one or two farm locations, though one location was more prominent in Edo State (52.0 %). Working several fields at different locations ensures

stability in the face of theft or eviction from any given plot (Tinker, 1998). The results revealed that all urban farmers who worked 4 or more fields from the two States were very few (8.66%) and were all from Oyo State. This could be because of

the high competition of land for other uses in the urban areas (FAO, 2007) coupled with the fact that the State capital of Oyo State, Ibadan is the largest city in Africa thus has sufficient land mass (www.ip4properties.com/viewarticle.php?ArticleID=25, 2010).

The average farm size of 1.66 ha was observed. The Table further shows that most of the farmers were small scale farmers since the average poultry stock size for those involved in poultry was about 252 birds. This is because according to Aning (2006), poultry production can be in small scale of 50 – 5000 birds, medium scale of 5001 – 10000 birds and large scale of above 10000 birds. The scale of operation can be operated in extensive, semi-intensive and intensive systems. Results also show that practitioners in fish enterprise owned about 1 pond on the average. This is an indication that urban agriculture is predominantly at the subsistence level (Adekoya *et al.*, 2000).

Major Crops Grown by Urban farming Practitioners

Table 5 shows that in both States, cassava was grown by more than half (59.10 %) the population of urban farming practitioners probably because it has a multi-purpose demand locally and internationally. It is not only a food reserve but also, a cash crop as well as an energy crop. Cassava crop has been found to be of immense importance to Africa

which produced about 54.0 % of the cassava in the world; with Nigeria being the largest producer in the world with approximately 34 million tonnes in 2001; a third more than the production in Brazil and almost double the production of Indonesia and Thailand (FAO, 2004).

Other well grown crops by the urban farmers were maize (52.54 %) being a staple crop and vegetables (51.0 %). Various urban agriculture studies agreed that staple food crops are favourably grown by urban farmers generally (Binns and Lynch, 2001; Olofin, 1996; Adekoya *et al.*, 2000). Vegetable production is also expected to be well practiced among the urban farmers as reported by Adeboye and Opabode (2004); not only because of its short gestation period and ability to play a key role in income generation and subsistence but also, because it is always very more expensive during the dry season. Yam was grown by 44.0 % of the urban farmers. Adekoya *et al.* (2000) however reported that about 73.0 % of the farmers grew tuber crops in their study of urban crop production in Oyo State. Plantain was grown by a few farmers (29.0 %), while banana was grown by about 13.0 %. The least(4.18 %) grown crop was rice and it was not grown at all in Oyo State despite the fact that it is a staple food crop in Nigeria and a major component of the people's diets (Ahmadu, 2011). This could be because of the tedious nature of cultivation of the crop.

Table 4: Respondents' farm characteristics

Farm Characteristics	Oyo (n=210)			Edo (n=125)			Total (n=335)			
	Freq	%	Mean	Freq	%	Mean	Freq	%	Mean	
Number of farm locations										
1	83	39.52		65	52.00		148	44.2		
2	68	32.38		46	36.80		114	34.03		
3	28	13.33		12	9.60		40	11.94		
4	12	5.71		0	0.00		12	3.58		
5	8	3.81	2.2	0	0.00	1.5	8	2.39	1.96	
6	2	0.95		0	0.00		2	0.60		
8	5	2.38		0	0.00		5	1.49		
10	2	0.95		0	0.00		2	0.60		
Farm size (ha)										
0.5 and below	94	44.76		31	24.8		125	37.31		
0.6 to 1.00	29	13.81		17	13.6		46	13.73		
1.1 to 2.0	43	20.48	1.5	35	28.0	2.0	78	23.28	1.66	
2.1 to 3.0	15	7.14		19	15.2		34	10.15		
> 3.0	17	8.10		14	11.2		31	9.25		
100-500	40	19.05		30	24.00		70	20.90		
Poultry stock	501-1000	7	3.33	258.37	4	3.20	240.0	11	3.28	251.53
	1001-3000	5	2.38		5	4.00		10	2.99	
	3001-5000	3	1.43		2	1.60		5	1.49	
	>10,000	1	0.48		0	0.00		1	0.30	
Fish stock (no of ponds)										
1	3	1.43		0	0.00		3	0.90		
2	8	3.81		3	2.40		11	3.28		
3	17	8.10		11	8.80		28	8.36		
Farm Characteristics										
Farm Characteristics	Oyo (n=210)			Edo (n=125)			Total (n=335)			
	Freq	%	Mean	Freq	%	Mean	Freq	%	Mean	
4	11	5.24		6	4.80		17	5.07		
5	4	1.90	0.89	3	2.40	0.84	7	2.09	0.87	
6	1	.48		2	1.60		3	0.90		
8	1	.48		0	0.00		1	0.30		
10	1	.48		0	0.00		1	0.30		
14	2	.95		0	0.00		2	0.60		
15	0	0.00		1	0.80		1	0.30		

Table 5: Major crops grown by urban farming practitioners

Major Crop Grown	Oyo		Edo		Total	
	Freq	%*	Freq	%*	Freq	%*
Vegetables	120	57.14	50	40.00	170	50.75
Maize	114	54.29	62	49.60	176	52.54
Yams	96	45.71	52	41.60	148	44.18
Cassava	123	58.57	75	60.00	198	59.10
Bean, Melon	14	6.67	19	15.20	33	9.85
Rice	0	0.00	14	11.20	14	4.18
Plantain	67	31.90	30	24.00	97	28.96
Bananas	29	13.81	15	12.00	44	13.13

*Multiple responses

Farm Location

Table 6 reveals that the farm locations of both on-plot and off-plot were utilized by urban farmers. Among the on-plot locations, backyard location was more common (49.25 %). Most enclosed cultivators were either the owners of the houses or were very close to the owners of such houses. Asomani-Boateng (2003) reported that urban agriculture cultivators make the choice of backyard and around the house locations primarily because of proximity to residence and the opportunity to keep an eye on their farms. The least (6.57 %) utilized on-plot location was house foundation. This is contrary to the Cuba's experience of high use of similar unconventional plots such as roof top locations (Taboulchanas, 2000).

As for the off plot locations, the highest (61.49 %) concentration of cultivators were found in the open space away from home. This agrees with Asonami-Boateng (2003) who discovered similar trend in Accra, Ghana. Most open space cultivators did not know the owners of the land they cultivated as they just cultivate any unused land as observed by Obosu-Mensah (2004) in a study he conducted on changes in official attitude towards urban agriculture in Accra, Ghana. He also affirmed that for most of

the urban farmers, urban agriculture is a source of income. Asomani-Boateng (2003) also added that theft has been a major challenge to these groups of farmers in a study he conducted in Accra, Ghana. To tackle this problem, farmers have had to organize themselves into groups and take turns watching their farms, especially, during harvest periods. Unconventional plots such as railway line and power line right of way were utilized by few of the urban farmers. This may be because of harassment from local government officials for violation of environmental regulations (www.citeulike.org/article/2885748, 2008). In both States, 4.78 % of urban farmers utilized the unconventional plot of under high power tension lines (PHCN), while railway lines were only utilized in Oyo State by 4.29 % of the urban farmers. Cultivating along the river banks attracted only about 15 % of the farmers. Though water availability is guaranteed all year round, much pilferage/competition may hinder farmers from using this form of farm location. Hungwe (2006) confirmed access to water and land for urban farming as a major problem for most urban agriculture studies and because farmers rarely invest in water supply, river bank locations are highly valued by farmers so

an all year round farming can be possible. This type of farm location is especially

important for vegetable growers who need a lot of water for their farm operations.

Table 6: Farm location of urban farmers

Farm Location	Oyo		Edo		Total	
	Freq	%*	Freq	%*	Freq	%*
On-Plot						
Backyard	104	49.52	61	48.80	165	49.25
frontage of the house	14	6.67	12	9.60	26	7.76
house foundation	9	4.29	13	10.40	22	6.57
Off plot						
open space away from home	131	62.38	75	60.00	206	61.49
railway line	9	4.29			9	2.69
river bank	43	20.48	8	6.40	51	15.22
Power line right of way	12	5.71	4	3.20	16	4.78

*Multiple responses

**Respondents’ Perceived Factors
Motivating Their Urban Farming**

Table 7 below expressed that income generation was the strongest motivating factor for engaging in urban agriculture (\bar{x} = 4.5), while provision for market was next (\bar{x} = 4.48). Closely followed by these were the provision for fresh nutritious food (\bar{x} = 4.44) and production for home consumption (\bar{x} = 4.27). These findings agree with that of Nugent (2000) who found that the urban poor were more dependent on local food production for income and nutrition. All motivating factors were however important. This high motivation for urban agriculture among city dwellers could be the reason why there is hardly any city in the world free from urban agriculture (Nugent, 2000).

The standard deviation values shows how the values deviate from the mean.

The standard deviation value of income generation as a motivating factor for engaging in urban agriculture (SD = 1.0) shows a dispersion of 4.50 ± 1.0 , which is small, implying that the standard deviation is in agreement with the mean of ≥ 3.00 that income generation is a great motivation for entry into the practice of urban agriculture by urban dwellers (especially the urban poor). However, the standard deviation value of availability of labour as a motivating factor for engaging in urban agriculture (SD = 1.1) shows a dispersion of 3.27 ± 1.1 , which is large because it alters the mean of ≥ 3.00 negatively. This implies that though labour is a significant factor as a motivator, but not as important as other factors like income generation and provision of fresh nutritious food as a motivation for entry into the practice of urban agriculture by urban dwellers.

Table 7: Respondents’ perceived motivating factors for urban farming

Factors Motivating Urban Farming	Oyo		Edo		Total	
	Mean	SD	Mean	SD	Mean	SD
Income generation	4.46*	1.0	4.57*	1.0	4.50*	1.0
Provision of vegetables/crops/fish/poultry for market	4.46*	1.0	4.51*	1.1	4.48*	1.0
Provision of fresh nutritious food	4.45*	1.0	4.44*	1.1	4.44*	1.0
Production for home consumption	4.15*	1.1	4.48*	1.0	4.27*	1.1
Provision of employment	3.94*	1.2	4.57*	.9	4.18*	1.1
Availability and accessibility of land	3.45*	1.1	3.90*	1.0	3.61*	1.1
Farming tradition or background	3.50*	1.3	3.59*	1.3	3.53*	1.3
Availability of water	3.55*	1.1	3.45*	1.2	3.51*	1.1
Availability of input (e.g. seeds, organic fertilizer)	3.25*	1.1	3.63*	1.2	3.39*	1.2
Availability of labour	3.21*	1.1	3.36*	1.1	3.27*	1.1

*Significant factors (mean \geq 3.00)

Respondents’ Information Sources on Urban Agriculture

Table 8 shows that the major information sources of urban farmers were the family/ friends (\bar{x} = 2.19) and neighbours (\bar{x} = 2.16). This shows the social impacts urban agriculture can have on practitioners which is in consonance with RUAFA (2010) that stated that urban agriculture functions as an important strategy for poverty alleviation and social integration. Other information sources such as television, agricultural extension staff, agricultural cooperatives, agricultural magazines/publications and newspaper were not common. This result is similar to research studies carried out by Olowu (1995) on a comparative analysis of the impact of the Nigerian Agricultural and Cooperative Bank Small Holder Direct Loan Scheme on Small-Scale Farmers in Nigeria. His studies showed that the most frequently used source of agricultural credit information out of fifteen information sources was friends/relatives/neighbours. The use of radio as a means of information source among the urban farmers was only significant in Oyo State. This is similar to

Ajayi (2003) who found that the use of radio was the most popular among farmers in South West Nigeria for agricultural information. Yahaya *et al.* (2009) also attested that Oyo State women preferred radio as a means of communication among all the media types used to mobilize them for the National Programme on immunization. Farmers generally received little advice from extension workers just as was the case among Kano farmers (Binns and Lynch, 2001). This could be related to the present rural focus of agricultural extension services (Adekoya *et al.*, 2000).

The standard deviation values shows how the values deviate from the mean. A standard deviation that does not change the regular mean negatively shows that the variable is significant across all the population. The standard deviation value (SD = 0.8) for family/friends and the standard deviation value (SD = 0.7) for neighbours both have a dispersion of 2.19 ± 0.8 and 2.16 ± 0.7 respectively. By these dispersions, both variables deviate negatively from the mean showing that the significance is not very strong across all the population.

Table 8: Respondents' information sources on urban agriculture

Information Sources	Oyo (n=210)		Edo (n=125)		Total (n=335)	
	Mean	SD	Mean	SD	Mean	SD
Family/friends	2.23*	0.8	2.12*	0.8	2.19*	0.8
Neighbours	2.03*	0.7	2.38*	0.6	2.16*	0.7
Radio	2.04*	0.7	1.74	0.6	1.93	0.7
Television	1.86	0.7	1.30	0.5	1.65	0.7
Agricultural extension staff	1.73	0.8	1.46	0.6	1.63	0.8
Agricultural cooperatives	1.60	0.8	1.26	0.6	1.47	0.7
Internet	1.48	0.7	1.42	0.7	1.46	0.7
Agricultural magazines/publications	1.47	0.7	1.28	0.5	1.40	0.6
Newspaper	1.41	0.6	1.13	0.4	1.31	0.6

*Regular (mean \geq 2.00).

Problems Faced by Respondents on Urban Agriculture

Table 9 shows that the major problem of the urban farmers was lack of credit to expand their farms (\bar{x} = 2.13). This result corroborates that of Aho et al. (1998) who posited that one of the causes of urban poverty is insufficient credit and they added that city-dwellers think that if a minimum amount of funding were available, many among them would be successfully self-employed. Also supporting this view, FAO (2007) stated that financial support for urban growers has been limited. This problem is of utmost concern as Olowu (1995) in his study concluded that the beneficiaries of the Nigerian Agricultural and Cooperative Bank Small Holder Direct Loan Scheme on Small-Scale Farmers in Nigeria have higher socio-economic status, higher social participation status, and higher crop yield than non-beneficiaries.

Another major problem especially in Oyo State was pests and disease attack (\bar{x} = 2.11). The result obtained in Oyo State on pests and diseases agrees with that of Jacobi et al.(2000) who found that in thirty selected countries of Africa, Latin

America and Asia, pests and diseases was a problem nearly everywhere in urban agriculture except in Havana Santiago de los Caballeros in Dominican Republic.

The standard deviation value (SD = 0.7) for credit to expand implies a dispersion of 2.13 ± 0.7 , which is large since it alters the mean negatively. This shows that its significance does not affect the entire population.

Differences between the Six Surveyed Urban Cities in Terms of Constraints of Urban Agriculture

Total constraints or problems of urban agriculture from the various cities were sampled. Table 11 shows the variations that were observed in their constraints. ANOVA results (F = 15.55, P < 0.01) show there is a significant difference in the constraints of urban agriculture in the different cities at probability level 0.01. Post-hoc test (LSD) in Table 10 reveals that the constraints of urban agriculture in Ekpoma (23.11) and Benin (23.26) were not statistically significantly different but different from that of Oyo (27.23), Auchu (27.38), Ogbomosho (28.29) and Ibadan (28.34) as observed in Table 10. Urban agriculture problems in

Oyo, Auchi, Ogbomosho and Ibadan were however not statistically significantly different from each other.

Differences in the Problems of Urban Agriculture between States

Table 11 reveals the t-test statistics showing that there is a significant

difference (t = 6.830, P < 0.01 in the constraints of urban agriculture between Oyo and Edo States. This means that Oyo State experiences more urban agriculture problems or constraints than their Edo State counterparts.

Table 9: Problems of urban agriculture

Problems	Oyo (n=210)		Edo (n=125)		Total (n=335)	
	Mean	SD	Mean	SD	Mean	SD
Lack of credit to expand	2.19*	0.7	2.02*	0.8	2.13*	0.7
Pests and diseases attack	2.11*	0.7	1.59	0.6	1.92	0.7
High cost of labour	1.96	0.8	1.70	0.7	1.86	0.8
High cost of transportation	1.80	0.7	1.73	0.7	1.77	0.7
Weather (flooding, climate change, etc)	1.91	0.8	1.51	0.6	1.76	0.8
High cost of input	1.81	0.7	1.64	0.6	1.75	0.7
Inadequate agricultural information and extension services	1.76	0.7	1.58	0.7	1.69	0.7
Inadequate water	1.66	0.7	1.74	0.7	1.69	0.7
Small size of land	1.72	0.7	1.57	0.7	1.66	0.7
Stealing	1.76	0.8	1.38	0.6	1.62	0.7
Animal destroying farm	1.73	0.7	1.35	0.6	1.59	0.7
Government policies	1.60	0.7	1.51	0.7	1.57	0.7
Poor Sales	1.63	0.7	1.41	0.6	1.55	0.6
Lack of market	1.51	0.6	1.37	0.5	1.46	0.6
Harassment by land owner	1.47	0.6	1.14	0.4	1.35	0.6
Electricity	1.39	0.7	1.29	0.5	1.35	0.6

*Serious problem (mean ≥ 2.00)

Table 10: Difference between the six urban cities in terms of constraints or problems of urban agriculture

Cities	Frequency	Problems (\bar{x})	Significant level
Ekpoma	35	23.11 ^b	0.000
Benin	50	23.26 ^b	
Oyo	60	27.23 ^a	
Auchi	40	27.38 ^a	
Ogbomosho	65	28.29 ^a	
Ibadan	85	28.34 ^a	

F =15.55, (P ≤ 0.05); means with different superscripts are statistically (significantly) different

Table 11: Difference in the constraints of urban agriculture between States

State	Constraints		t	Significant level
	Average	Difference		
Oyo	28.010	3.474	6.830*	0.000
Edo	24.536			

*Significant at $p \leq 0.05$

Conclusion

The most practiced enterprise was arable farming having cassava as its most cultivated crop. The study has also shown that urban farmers had high interaction among themselves as they still rely on information from their colleagues for their production. Urban farmers seem not to seek formal means of information probably because the venture itself is still regarded as “informal” in both States and this call for policy intervention. The study also established that urban farmers still face the major problem of lack of credit to expand their production.

Recommendations

1. Government should sponsor more agricultural programmes on television and radio stations to teach urban farmers especially on how to handle the problems of pests and diseases.
2. There is need for agricultural extension programmes for urban agriculture as in the rural areas.
3. There should be an organized arrangement between Local Government Area and the urban farmers to allow free government land to be used by urban farmers and urban farmers should practice intensive farming since income generation was the strongest motivation for engaging in urban agriculture.

References

- Adeboye, O.C. and Opabode, J.T. (2004). Status of Conservation of the Indigenous Leafy Vegetables and Fruits of Africa. *African Journal of Biotechnology*, 3: 700 - 705.
- Adekoya, A.E., Meludu, N.T. and Adeniyi, T.K. (2000). Urban Crop Production: A Case Study of Ibadan North Local Government Area of Oyo State. *The Nigerian Journal of Agricultural Extension*, Vol. 4, AESON.
- Adeoti, A.I. and Adenuga, K.O. (2000). Vegetable Marketing: A Strategy for Poverty Alleviation among Urban Women. In: Olowu, T.A. (Eds.). *Proceedings of the Sixth Annual National Conference of the Agricultural Extension Society of Nigeria*. ARMTI, Ilorin, Nigeria.
- Ahmadu, J. and Alufohai, G.O. (2011). Effect of Yam Production on Poverty Alleviation of Farmers in Ika Area of Delta State, Nigeria. *International Journal of Agricultural Economics and Extension Services*. University of Benin, Nigeria. Pp 148-160.
- Aho, G., Lariviere, S. and Martin, F. (1998). *Poverty Analysis Manual with applications in Benin*. Universite Laval and UNDP (United Nations Development Program). Pp 51 – 85.
- Ajayi, M.T. (2003). *Analysis of Mass Media Use of Agricultural Information by Farmers in Nigeria*.

- Journal of Extension Systems*, 19(2): 45 – 55.
- Aning, K.G. (2006). The Structure and importance of Commercial and Village based poultry in Ghana: Final Review report.
- Asomani-Boatang, R. (2003). Urban Cultivation in Accra: An Examination of the Nature, Practice, Problems, Potentials and Urban Planning Implications. City Farmer, Canada Office of Urban Agriculture. www.cityfarmer.org/donate.html-donate. Viewed on September, 2010. 12 pp.
- Binns, T. and Lynch, K. (2001). Feeding Africa's Growing Cities into the 21st Century: The Potential of Urban Agriculture. City Farmer, Canada.
- Blobaum, R. (1987). Farming on Urban Fringe: The Economic Potential of the Rural Urban Connection in Sustaining Agriculture near Cities. In: Lockeretz, W. (Eds.). Soil and Water Conservation Society, Ankemy, Iowa. City Farmer: <http://www.cityfarmer.org/>
- Cohen, M.J. and Garret, J.L. (2009). The Food Price Crisis and Urban Food 9 (In) Security. Human Settlements Working Paper Series; Urbanization and Emerging Population. Issues – 2: Joint Population Series of IIED. Pp 1- 39.
- Drescher, A.W. and Iaquina, D. (1999). Urban and Peri-urban Agriculture: A New Challenge for the UN Food and Agriculture organization (FAO) – International Report. Rome.
- Drescher, A.W., Jacobi, P. and Amend, J. (2000). Urban Food Security: Urban Agriculture, a response to Crisis? University of Freiburg, Germany. 3 pp.
- FAO. (1996). Urban agriculture: An Oxymoron? In: The state of food and agriculture 1996 (Rome: FAO). Pp 43-57.
- FAO-COAG (1999). The “COAG – Paper”, Report on the Committee on Agriculture (CAAG) Secretariat to the COAG, FAO, Rome.
- FAO, (2004). A cassava industrial revolution in Nigeria: The potential for a new industrial crop. Rome, FAO. Retrieved September 4th, 2010. www.fao.org/docrep/007/y5548e/y5548e01.
- FAO (2007). Profitability and Sustainability of Urban and Peri-Agriculture. FAO. Rome. 108 pp.
- Foeken, D. and Mwangi, A.M. (2000). Increasing Food Security through Urban Farming in Nairobi. In: Bakker, N; et al. (Eds.). Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda. A Reader on Urban Agriculture. Deutsche Stiftung fur Internationale Entwicklung (DSE). Germany. Pp 303 - 329.
- Hasna, M.K. (1998). NGO Gender Capacity in Urban Agriculture: Case Studies from Harare (Zimbabwe), Kampala (Uganda), and Accra (Ghana). Cities Feeding People CPF Report Series, Report 21. IDRC, Ottawa.
- Hungwe, C. (2006). Urban Agriculture as a Survival Strategy: An Analysis of the Activities of Bulawayo and Gweru Urban Farmers in Zimbabwe. City Farmer. Canada Office of Urban Agriculture.
- Jacobi, P., Drescher, A. and Amend, J. (2000). Urban Agriculture – Justification and Planning

- Guidelines: Urban Vegetable Promotion Project. City Farmer. Canada. 41pp. Mbiba, B. (2000). City Harvests: Urban Agriculture in Harare (Zimbabwe). In: City Harvest – A Reader in Urban Agriculture. GTZ, Eschborn.
- Nugent, R.A. (1997). The Significance of Urban Agriculture, City Farmer. Canada's Office of Urban Agriculture. www.cityfarmer.org. Viewed in 2001.
- Nugent, R.A. (2000). The Impact of Urban Agriculture in the Households and Local Economies; In: Bakker, N; et al. (Eds.). Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda. A Reader on Urban Agriculture. DeutscheStiftung fur Internationale Entwicklung (DSE). Germany. Pp 67-93.
- Obosu-Mensah, K. (2004). Changes in official attitudes towards Urban Agriculture in Accra. African Studies Quarterly. www.goggle.org. 14 pp.
- Olofin, E.A. (1996). Highlights of the Field Production Survey, Paper delivered at seminar on 'Horticultural activities in urban and peri-urban Kano', 18 Sept. 1996
- Olowu, T.A. (1995). A Comparative Analysis of the Impact of Nigerian Agricultural and Cooperative Bank Small Holder Direct Loan Scheme on Small-Scale Farmers in Nigeria: A final report submitted to the management of the Nigerian Agricultural and Cooperative Bank (NACB). Department of Agricultural Extension, University of Ibadan, Ibadan. 56 pp.
- Redwood, M. (2008). Urban Agriculture and Changing Food Markets; Paper Presented at the International Governance Resources to the Food Crisis Workshops Centre for International Governance Innovation, University of Waterloo, Waterloo, Ontario, Canada. 4th – 5th December.
- RUAF Foundation, (2009). What is Urban Agriculture? Resource Centres on Urban Agriculture and Food Security. <http://www.ruaf.org/node/512>. Viewed in June 2009.
- Shaib, B., Adamu, A. and Bakshi, J.S. (1997). (Eds.). Nigeria: National Agricultural Research Strategy Plan 1996 – 2010. Department of Agricultural Sciences. Federal Ministry of Agriculture and Natural Resources (FMANR). Abuja, Nigeria. Intec Printers Limited, Ibadan. 335 pp.
- Smit, J. (1996). Urban Agriculture: Progress and Prospect 1975 – 2005. Cities Feeding People Series Report 18. International Development Research Centre. Ottawa.
- Tinker, I. (1998). Feeding Megacities: Cities Feeding People: An Examination of Urban Agriculture in East Africa. IDRC; Ottawa. Pp 13 -14.
- United Nation Department of Economic and Social Affairs (UNDESA), (2008). World Urbanization Prospects: The 2007 Revision, Executive Summary, New York. www.un.org/esa/population/publications/wup2007/2007wup_Execsum_web.pdf (Viewed in April 2010).
- Woodsworth, A. (2001). Urban Agriculture and Sustainable Cities. City Farmer, Canada's Office of Urban Agriculture.

www.citeulike.org/article/2885748,
(2008). Urban Agriculture and food
insecurity/Poverty in Nigeria.
[www.ip4properties.com/viewarticle.php?
ArticleID=25](http://www.ip4properties.com/viewarticle.php?ArticleID=25), (2010). People,
Population and Settlement. Oyo
State Profile. Cited February, 2010.
www.nigerianstates/edo.htm, (2011). Edo
State, Nigeria. Viewed on 20th June,
2011.

Yahaya, M.K., Fadairo, O.S. and Abe,
A.O. (2009). Media Utilization for
Mobilizing Women for the National
Programme on Immunization (NPI)
in Oyo State. *Nigerian Journal of
Rural Sociology. Nigerian Rural
Sociology Association*, 9(1): 25 – 32.