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Urban Agriculture as a Strategy for Improving Food Security in Uyo Metropolis of Akwa Ibom State, Nigeria

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Abstract: The study was conducted to assess the contribution of urban agriculture to food security in Uyo metropolis of Akwa Ibom State Nigeria. A sample of 85 farmers was chosen from Uyo, the capital city of Akwa Ibom State. A two-round survey was conducted with a well-structured questionnaire to cover the planting season (April/May) and the harvesting season (July/August) to capture seasonal variation. Data analysis involved the use of descriptive and inferential statistics. The analysis revealed that the farming systems in the city include seasonal farming, vegetable growing, backyard gardening, small ruminants/poultry and commercial livestock systems. Most of the urban farms are planted with crops such as maize, melon, cassava and vegetable. The animals kept include poultry, rabbits, sheep, goats and pigs. The average area cultivated varies from less than 1 ha to about 2 ha. The income generated from the farming systems averaged N254,866 per annum and contributes about 34.68% of total household income. The highest contribution of household food demand is from seasonal farming as 68.3% of the produce is for household consumption. The least came from commercial livestock farming, 3.2%. The proportion of produce fro home consumption for all systems averaged 46.22%. The problems faced by urban farmers include limited access to land, lack of credit and incessant harassment by municipal authorities. To protect the urban poor, the study recommends that urban agriculture should be integrated into urban planning.

Key words: Agriculture, strategy, improving food security, metropolis

INTRODUCTION

City farming is one of the strong and positive activities urban residents are undertaking in an effort to take control of food security, social ills and environmental degradation in their communities. It has provided food, jobs, environmental enhancement, education, beautification, inspiration and hope (NUDP, 1996; Mougeot, 1994). Like small farming sectors in rural areas, urban agriculture fulfils multiple functions and provides multiple functions and provides multiple benefits (Ruel *et al*., 1999). At its best, urban agriculture cleans up dumping sites, educates youth and keeps them out of trouble, provides employment, gives utility and respect to elders, builds community, recycles kitchen and urban 'wastes' and produces fresh nutritious food.

The scale of urban food production is generally underestimated. According to the most widely accepted estimate, about 200 million urban dwellers now participate in urban farming, providing 800 million people with at least some of their food (Nelson, 1996). Conservative estimates suggest that, in 1993, between 15 and 20% of the world's food was produced in urban areas. Although numbers are difficult to come by, it is further estimated that as much as 40% of the population of African cities and up to 50% in Latin America are involved in urban agriculture (Maugeot, 1994; Maxwell, 1995; Maxwell *et al*., 1998).

Urban and peri-urban agriculture have been used as a household strategy to respond to both chronic and emergency food security. The supply response to these two conditions is driven by different factors that chromic food insecurity developed from structural problems, declining food affordability and growing urban poverty, whereas emergency urban food production arises quickly in response to breakdowns in normal mechanisms of food distribution (Bakkers *et al*., 2000; Rabinowick, 2002; Ukeje, 2004).

Uyo is the capital of Akwa Ibom State of Nigeria and in the largest food consuming area in the state (NPC, 2004). The occupations of the people reflects the economic characteristics of the area with its status as an administrative capital. Many civil servants resides in Uyo. However, to supplement sources of family income, many individuals (households) are involved in farming activities within the city (Eyo, 2000). Among the various crops cultivated are vegetable such as waterleaf

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(*Talinum triangulare*), green vegetable (*Amaranthus* sp.), fluted pumpkin (*Telferia occidentalis*) tuber crops, such as cassava (*Manihot* sp.), yam (*Dioscorea* sp.) cocoyam (Colacosia esculentus), animals kept include poultry, rabbits, sheep and goats.

The objective is to highlight the importance and contribution of urban agriculture to household food security in Uyo metropolis of Akwa Ibom State.

MATEIALS AND METHODS

The study area: The study was conducted in Uyo metropolis, the capital city of Akwa Ibom state, a major oil producing state in Nigeria. Its land area is 10km radii. Uyo is in the rainforest zone with a mean annual rainfall of about 3000 mm. It lies between latitude 5^0 01^0N and longitude $7^0$85`E of the equator. Typical of the tropics, the climate is usually hot and humid all year round with two seasons, rainy and dry seasons. The mean temperature is 29.33^0 with a population of 106,100 people (NPC, 2004), comprising of people living in several urbanized village. This centre is the largest food consuming area in Akwa Ibom State (Ekpe, 1998; Eyo, 2000).

Sampling procedure: A stratified sampling techniques was adopted in the study. The stratification was based on the prevalent farming systems, viz seasonal, vegetable growing, Backyard gardening, small ruminants/poultry, commercial livestock and Periurban mixed farming. A total of 85 farming households were enlisted in the study comprising of 20 seasonal farming households, vegetable gardening (20), backyard gardening (10), commercial livestock (15) and Periurban mixed farming (20). The sampling for respondents was purposive.

Data collection: A well-structure questionnaire was designed for data collection. A two-round survey was carried out in Uyo urban in 2006. Information was collected during the planting season (April/May) and during harvesting season in (July/August) in order to capture any seasonal variation as a result of slack season and peak season. Survey data were also collected on basic household demographic characteristics, marital status, income and employment and urban farming practices.

Data analysis: Data analysis involved the use of descriptive statistics and inferential statistics. Whole farm and gross margin analysis was undertaken to ascertain income earned from the various farming systems/enterprises.

RESULTS AND DISCUSSION

Analysis of Urban farming system. Over 60% of those actively engaged in Uyo are to women. Most of the farmers are migrants and who see farming as a means of supplementing their incomes and meeting household food needs. Table 1 shows the socio-economic characteristics of farming systems prevalent in Uyo.

Seasonal farming: Seasonal farming relies entirely on rainfall. The farmers use land that has been informally accessed. This type of farming is found all over the city, open spaces, periurban fringes and under developed residential and educational institutions. The farmers rarely hire labour but in most cases, especially during planting and harvesting, children assist the farmer. Twenty farms were observed and 75% of them were owned by men. Mainly food crops are grown such as maize, okro, vegetables, cassava etc. Most of them are involved in other occupations.

Vegetable growing systems: Generally, women dominate this category of farming, who is mostly housewives. For most of the farmers, vegetable is their main source of income. There is high demand for vegetables and most of them grow vegetable throughout the year. Vegetable farming mainly occurs along big drains, swamps and streams. Each farmer has a small plot of land practices intensive crop rotation to maximize the use of land and maintain soil fertility by the heavy application of organic manure and fertilizers. Most of them have formed cooperative association to enable them gain continuous access to land. About 80% of them are women who sell their vegetable in nearby markets.

Backyard gardening: This system basically comprises the cultivation of crops for home consumption. It is usually carried out within compounds and newly developing estates. Backyard gardeners are mostly middle-aged women with some level of formal education who do so to supplement household vegetable demand and as a hobby. Often, the whole is involved and in most cases, labor is not hired, as plots are small. It is carried out throughout the year and household wastes are used as fertilizer. Intercropping is normal practice, as several crops are usually planted on the same piece of land.

Small ruminant and poultry farming systems: Both men and women are involved in keeping of small livestock. Twenty farms were observed. The majority of those keeping livestock are women, assisted by their children. In low-density areas, poultry are allowed to move freely

Table 1: Socioeconomic characteristics of farming systems

Farming system	Sex		Average year of education	Year in Farming	% of time put in
	Male	Female			
Seasonal	5	15	9	10	40
Vegetable Growing	4	16	8	4	70
Backyard gardening	2	8	12	3	30
Small ruminants/Poultry	8	12	10	5	60
Commercial livestock	12	3	14	7	80
Total	31	54	10.6	5.8	56

Source: Field Survey, 2006

Table 2: Income from Urban Agriculture

Farming system	Mean annual Income N	% Contribution to Household Income %	Proportion of harvest assumed (%)
Seasonal	174,680	25.4	68.3
Vegetable Growing	350,000	52.6	15.8
Backyard gardening	89,530	8.4	92.1
Small ruminants/Poultry	184,500	14.2	51.7
Commercial livestock	475,620	72.8	3.2

Source: Field Survey, 2006.

and share the same limited compounds with household activities. In high-density areas, they are mainly confined in cages. Goats and sheep can be seen scavenging on refuse dumps. Some who keep them on restricted bases often supplement with household leftovers. In some cases, livestock may provide a regular source of income or a source of supplementary food for the household. They are ready source of income to meet household needs like payment of school fees, medical emergency or a funeral.

Commercial livestock: Raising livestock commercially differs from the keeping of small ruminants and poultry by virtue of its scale and market orientation (Armar-Klemesu and Maxwell, 2000). Most of them have been in the business for an average of 7 years and is a major source of livelihood. The main livestock kept for commercial purposes include poultry, pigs and rabbits. A number of poultry farm exist in Uyo and at the outskirt there are piggery farms. There is extensive use of hired labour for the upkeep of the farms. The urban mature of Uyo provides ready market for the livestock.

Contribution of urban agriculture to household food security in Uyo: An assessment was undertaken in the 2005/2006 farming season to ascertain the contribution of urban agriculture to household income. For the seasonal farmers and backyard gardeners, the main reason for urban agriculture is to produce for household consumption. To generate cash income tends to be the main goal of vegetable growers and commercial livestock raisers. The income generated from farming activities is shown in Table 2.

The mean income from the farming systems in the year is N254,866 and contributes 32.68% of total household income. It shows the importance of the various farming system in enhancing household income. The mean income for vegetable growing is high because the farmers grow vegetable all year round. The vegetable growers who operate along creeks and big drains/swamps do not always depend on rainfall and grow vegetable all year round. The urban nature of Uyo guarantees ready market. A greater majority of their output is for the market. Only 15.8% of the produce is normally consumed by households. The commercial livestock is for income purposes. There is ready market and contributes 72.8% of household income. The proportion of output consumed is only 3.2%. Backyard gardens are mainly for household consumption and contribute only 8.4% of household income. All the people who maintain backyard gardens are part-time farmers. The proportion of produce for household consumption is 46.22% showing that is an important source of household food demands. The other aspect too is for market which is an important source of household income.

Ukeje (2004) reported that urban agriculture also generated employment and incomes for farm labourers that were employed to weed, harvest and market the crop in the Federal Capital Territory, Abuja. This was however collaborated in this study. There was intensive use of local manure since the predominant farming system is continuous cropping. Increase in crop output through increase in the area under cultivation is limited as, the land area cannot be increased easily. The average area cultivated varies from less than a hectare to about 2 ha.

The main problems in urban agriculture as mentioned by the producers include limited access to land and tenure security; high production cost coupled with lack of credit facilities and the use of polluted water for irrigation from the drains and streams. Urban producers complain about theft of crops grown far from the farm household and of harassment from local government officials for alleged violation of environmental regulation.

CONCLUSION

Urban agriculture provides employment and generated income. All the farmers surveyed indicated that they were involved in urban agriculture to generate income to supplement their earnings while others depend solely on their incomes from the farm. The formal and informal economic sectors of the city do not generate adequate income for the poor urban population. At the same time, urban agriculture supplements both diets and

income of the urban poor, even in confined spaces. Therefore, urban agriculture should be regarded as a component in urban food systems. The greatest constraint to urban agriculture is limited access to land and the time has come to start integrating urban agriculture into urban planning.

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