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# An appraisal of urban agriculture in Abia State

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# AN APPRAISAL OF URBAN AGRICULTURE IN ABIA STATE



BY

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# DEDICATION

THIS WORK IS DEDICATED TO THE GLORY AND HONOUR OF THE ALMIGHTY GOD, AND TO MY BELOVED WIFE, GLADYS UCHECHI MBANASO, WHOSE LOVE AND ENCOURAGEMENT PROPELLED ME TO FINISH THIS WORK.

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May the Almighty God bless you all.

EKWURUCHUKWU

1998

# CERTIFICATION

This is to certify that this study on "Appraisal of Urban Agriculture in Abia State" was carried out by MBANASO, EKWURUCHUKWU OGBONNA (93/Ax/0075/G) for the award of Master of Science (M.Sc.) degree in Agricultural Extension with specialization in Agricultural Extension Administration. The thesis has been accepted to conform with the specified standard.

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## ABSTRACT

The main objective of the study was to assess the practice of urban agriculture in Abia State of Nigeria. The specific objectives were to:-

identify reasons for urban households' engagement in city farming;

determine the socio-economic characteristics of the household practitioners of urban agriculture.

identify factors that influence the practice of urban agriculture in Abia State.

determine the impact of urban farming on household food security, income and nutritional status.

draw policy implications based on the findings of the study.

Data for the study were collected using structured questionnaire. Interviews took place between November 1996 and February 1997. Three hundred respondents participated in the study. Using the cluster sampling technique, they were selected from the two largest cities in the State, Aba and Umuahia.

Data were analysed with the use of frequencies, simple percentages, means, t-test and the probit regression model. The findings of the study were as follows:

The major reason for urban households' engagement in city farming was provision of food for the household as evidenced by the fact that about 97% of the respondents subscribed to it. This was followed by sales to supplement

household income (66.7%).

With respect to socio - economic characteristics, the study revealed that the practitioners of urban agriculture comprised people from different occupations with trading predominating (35.8%). This was followed by the civil service (21.6%), private sector employees (17.2%) and those with urban farming as the only occupation (18%). They were mostly adults of 30 years and above (about 85.8%), middle to high income earners (74.6% earn N12,000.00 and above non - farm income annually) and relatively well educated (about 84.8% had from 6 years of education and above). The households were predominantly male - headed and fairly large in size (about 69.1% had 6 members and above).

The main determinant of urban agriculture in Abia State, Nigeria, was household size.

The study found no significant difference between practitioners and non-practitioner's of urban agriculture with respect to food security, income and nutritional status; it also identified lack of access to land and credit, problem of thieves, pests and diseases as constraints to urban farming.

It, therefore, recommended that, in improving or commercializing urban farming, official recognition should be given to the practice through enactment of appropriate laws.

Adults with fairly long residency in the cities should be encouraged with necessary incentives and greater attention given to women and large sized households. Extension services, as well as liberal doses of credit, should be extended to the urban farmers. In addition, the extension service should carefully plan and execute exploratory surveys on the urban farming situations, concentrating its programme planning on those factors that enhance the practice of urban agriculture.

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# CHAPTER ONE

## 1.1 INTRODUCTION

Agriculture is the practice of cultivating the soil, harvesting crops and raising livestock (New Encyclopaedia Britannica). It includes the growing of plants and the raising of annimals (World Encyclopaedia). A more embracing definition of agriculture is that proffered by Akinyosoye (1976) which says that agriculture is concerned basically with the husbandry of crops and animals for food and other purposes. The primary function of agriculture, therefore, is the provision of food and fibre for man. Its secondary functions include earning of foreign exchange to import goods for meeting non-food needs, generation of savings for investment in other sectors, preservation and conservation of the natural resource base to enhance its production (Spencer, 1990).

The development of stable human communities in many parts of the world has depended on agriculture. The discovery, by man, of raising plants and animals enabled him settle in one place instead of wandering about in search of food (Akinyosoye, 1976; World Encyclopaedia; New Encyclopaedia Britannica). This resulted to the formation of such communities as villages and towns.

The evolution of these early settlements into more complex societies such as cities created needs that could be met adequately only by people freed from farming. These needs include political leadership and administration, crafts like sculpture, and carpentry.

This gave impetus to increased agricultural production, which was met primarily by increasing the size of the cultivated area.

The early city planners understood the importance of agriculture to such constellations of people that they incorporated it in their plans for cities. Facilities which encouraged people to farm were provided. Thus agriculture was practised in Aztec and Mayan cities, early Javanese and Indus settlements and the towns of Tigris and Euphrates (Mougeot, 1993). Moreover, by the early 1930's, a city like Shanghai was able to feed its three million people with food produced within a 100-km radius (Pepall 1993).

This understanding, which informed the inclusion of agriculture in city plans by the early city planners, is a far cry from the situation in our era. The general belief is that agriculture is better practised in the rural areas. In some instances the government ignores the practitioners of agriculture in the urban areas, while in others deliberate policies are made to discourage it (Lachance, 1993). In this way, efforts are hardly made to integrate both rural and urban agricultural practises to maximize agricultural production especially in the developing countries like Nigeria, with predominantly small-scale holdings.

## 1.2 Statement of problem

Agriculture had been the mainstay of the Nigerian economy (MAMSER, 1988; Onyike, 1995).

It supplies food and fibre for the teeming population, raw materials for the industrial sector and is a major source of employment. In the period up to the early 1960s, Nigerian agriculture was able to feed its population, such that little food was imported. Its share of the Gross Domestic Product for 1960 was about 69.4% while it provided employment for 71% of the country's total labour force (MAMSER, 1988).

Available statistics show a steady decline in agricultural productivity and, hence, contribution to economic development. For instance, its contribution to the Gross Domestic Product declined from 69.4% in 1960 to 22% in 1983, with a little improvement to 40.03% in 1989 (CBN,1989).

The decline was triggered off by the discovery of crude oil in commercial quantities in the 1970s, subsequent high rate of rural-urban migration, as well as high rate of inflation. These induced sharp food supply deficits. It became increasingly difficult for the country to feed her teeming population. Food imports rose with bills from #88.3 million in 1971, representing 8.2% of total imports, to #1.8 billion in 1981, representing 14.4% of total imports for that year (FMI, 1991).

Subsequent to this development, a number of policies and programmes were initiated by the Government with the aim of achieving self-reliance and self-sufficiency in food production. These included the National Accelerated Food Production Project (NAFPP), Operation Feed the Nation (OFN), River Basin and River Development Authorities (RBRDA), the Land Use Act, Green Revolution (GR) and the Agricultural Development Authorities(Oranyeli, 1983).

These policies and programmes were, however, lopsided in that they addressed only a segment of the farmer-population, those living in the rural areas. They, therefore, ignored the urban farmers who are equally important to the country's drive for food self-sufficiency.

Urban agriculture, described as the production of food and non-food crops and animal husbandry in the urban areas, is becoming increasingly important as a source of food for the urban populations of African cities as well as many cities of the world (Pepall, 1993; Mougeot, 1993; 1994; Maxwell, 1995). It contributes towards food security, generates employment and income, provides market for agro-inputs and improves nutritional status (Abalu, 1991; Idachaba, 1991; Eberlee, 1993; von Braun et al, 1993 and Maxwell, 1995). Inspite of these contributions, urban farming has been largely misconceived.

This misconception stems from limited information base on urban agriculture. Most of the claims on urban farming in Nigeria are based on speculations (von Braun et al, 1993). There is no known study to validate such claims and shed some light on the practice of urban farming, its impact on household practitioners and policy implications.

Given the above situation, therefore, the questions which this study sought to answer about urban agriculture in the cities of Abia State, Nigeria, were:

(i) Who are involved in urban farming and why?,

(ii) What factors influence the practice of urban farming in the cities of Abia State?

(iii) What is the impact of urban agriculture on household practitioners with respect to food security, income and nutritional status?,

(iv) What are the policy implications of urban farming for agricultural extension services and programmes?

## 1.3 Objectives of the study

The general objective of the study was to assess the practice of urban agriculture in Abia State in terms of it's implication for extension services in Nigeria. The specific objectives were to:

(i) identify reasons for urban households involvement in urban farming;

(ii) determine the socio-economic characteristics of the household practitioners of urban agriculture;

(iii) identify factors that influence the practice of urban agriculture in Abia State;

(iv) determine the impact of urban farming on household food security, income and nutritional status;

(v) draw policy implications from the study for extension services.

## 1.4 Research hypotheses

The following hypotheses were tested:

1. Farming in the urban areas of Abia State, Nigeria, is not significantly influenced by household size, sex of head of household, length of time household

head had lived in the city, age of head of household, literacy level of household head, access to land and household income.

2. There is no significant difference in the factors that influence farming in the different cities of Abia State.

3. There is no significant difference between practitioners and non practitioners of urban agriculture with respect to nutritional status, income and food security.

## 1.5 Significance of the study

The importance of agriculture to a developing economy like Nigeria cannot be over - emphasized. It contributes towards the country's drive for food self-sufficiency, earns foreign exchange and is a great employer of labour.

Its ability to fulfil these roles, however, has been on the decline since the mid 1960s due to neglect. The situation was aggravated by the oil boom of the early 1970s, wherein the country's economy became increasingly dependent on earnings from oil export alone, with the resultant high food import bills (Igben, 1983; Ayinmodu, 1984).

Cognizant of the dangers of such a lopsided and mono-export economy, and the unreliability of the petroleum export market in particular, the government started directing efforts towards resuscitating the agricultural sector (Ayinmodu, 1984). These efforts were, however, directed only at a segment of the agricultural practitioners - the rural farmers. The urban counterparts were neglected.

This study will, therefore, assess the practice of urban agriculture, highlighting its peculiar needs in Abia State of Nigeria. The results of the study will be the foundation on which appropriate policies on urban agriculture can be formulated. The results will also go a long way in directing scientists into research on appropriate technologies for urban agriculture and the corresponding transfer systems. Implicily, the findings of the study will be useful to researchers, extension and other development workers.

Furthermore, the study will add to the body of literature on urban agriculture.

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

In this chapter, relevant literature related to the study was reviewed. It includes the concept and importance of urban agriculture, characteristics of people involved in urban agriculture, information need, use of technology and problems of urban agriculture.

### 2.1 Concept and importance of urban agriculture

Urban agriculture involves the production of food and non-food crops and animal husbandry in the urban areas (Lee, 1993; Mougeot, 1993; 1994). It is the cultivation of crops and raising of livestock in the towns or cities.

It is agriculture carried out in an environment that is strictly land-starved and characterized by high population density. There is, therefore, high pressure on land; land is needed on which to build houses both for residence and business. Land is also needed for construction of roads and other infrastructural facilities.

The characteristic land scarcity of the urban areas affects the sizes of farm holdings, making them necessarily small. This is not, however, peculiar to urban agriculture. It is the situation in Nigeria where about 95% of all farm holdings is small-scaled (Olayide et al, 1980).

Urban agriculture is carried out on land that is unsuitable to building, undeveloped land, road sides, idle pulbic land, ponds, tanks and household spaces such as backyards (Eberlee, 1993). Its major activities are the production of vegetables, fruits and staple foods such as

cassava, cocoyams, plantain, beans and maize; fish and other livestock are also reared. These include goat, sheep, rabbits, pigs and poultry which is the type most commonly kept (Maxwell, 1995).

Urban agriculture is not of a recent origin. It was a common practice in the cities in the time of Aztec, widespread in Mayan cities, early Javanese and Indus settlements, as well as Tigris and Euphrates (Mougeot, 1993). It has been typical of Chinese cities where they produced fruits, vegetables, grains, fish, livestock and poultry in such quantities as to make each city self-sufficient in food production. For instance, a 1953 study showed that by the early 1930s, Shanghai was able to feed its three million people with food produced within a 100-km radius (Pepall, 1993). Presently, it is found in an advanced form in Asian cities where deliberate policies by policy makers and planners are devoted to its promotion. During the 1980s 25% of all urban households in USA engaged in food production (Mougeot, 1993).

In Africa, urban agriculture has been reported to be of common practice around the major cities (von Braun et al, 1993; Mougeot, 1993). This accounted for 44% of major occupation of the household heads in Dar es Salaam, Tanzania, and over 80,000 households in Cairo, Egypt, in the early 1980s. Vegetable cultivation and animal husbandry were a veritable industry in Kenyan cities, while in Addis Ababa, Kampala, Lusaka, Bamako, Lome, Freetown and Ibadan,

the practice is not foreign (Mougeot, 1993). Of particular note was the recent move by Sierra Leone to promote the practice with the aim of "solving immediate problems arising from mass migration to the Western area (Freetown)" (Sacco, 1995).

The major importance of urban agriculture is its contribution towards the food security of the city where it is practised and, thenceforth, to the nation. Authors in urban agriculture are in agreement that the primary motive for the practice is food for household consumption (Sanyal, 1985; Freeman, 1991; Mvena et al, 1991; Drakakis-Smith, 1992; Maxwell and Zziwa, 1992; Sawio, 1993; Lee-Smith et al, 1997). Food security has been defined as the ability of the majority of people to have economic access to domestically produced food that is adequate for decent existence at all times. It is having secure access at all times to sufficient food (Idachaba, 1991; Maxwell and Frankenberger, 1992; von Braun et al, 1993).

Food security has three specific aims, namely:

(1) Ensuring adequate production of food;

(2) Maximizing the stability of food supplies, and,

(3) Ensuring access to food, particularly on the part of those in greatest need (Abalu, 1991).

When food is produced close to its market its disposal becomes easier and cheaper. Through urban agriculture food is produced and sold within the same locality.

Little or no transport costs are incurred. This makes food prices lower and more accessible to majority of the people. In addition, by supplementing food supplies from the rural areas it helps maximize the stability of such supplies in the urban areas.

Apart from the foregoing, urban agriculture is important for a number of other reasons, which include the generation of both employment and income to the practitioners, artisans such as blacksmiths, masons and carpenters, as well as the service sector such as the transportation of farm inputs and produce. It contributes to improved health in the urban areas both by ensuring cheap supplies of food such as calories, protein, vitamins and minerals, as well as helping improve the sanitary conditions of the cities through the use of urban wastes. It is regarded as the most efficient tool available for transforming urban wastes into food and jobs (Lee, 1993; Eberlee, 1993; von Braun, 1993).

Urban agriculture provides market of a considerable size for agro-inputs such as poultry feed, drugs, improved breeds of livestock, seeds and cuttings. It also increases the scope for agricultural exports for a country. By helping take care of the food requirements of the urban areas, part of the rural resources that would otherwise have been invested to meet urban food needs would now be freed and used to produce for export.

## 2.2 Characteristics of people involved in urban agriculture

Some crucial questions one may ask at this point are: who are the people involved in urban agriculture? Of what gender are they?

Available literature show, firstly, that the practitioners of urban agriculture cut across the different income levels. There are the urban poor with a fewer means of livelihood. They engage in urban agriculture simply to survive. They farm wherever they can find land. Middle income earners also engage in urban agriculture, aiming at food self-sufficiency whereby they are able to provide all staple foodstuffs and sources of protein independent of outside sources. The high income earners, who are the relatively affluent and upper class citizens engage in commercial production. This is often in poultry (Lee, 1993). They tend to farm close to their dwellings, especially backyards.

Secondly, the educational qualifications of the practitioners follow a trend similar to that of the income-level. Those with the least educational qualifications are poor and have fewer means of livelihood. They are, therefore, mostly full-time farmers, devoting the greater part of their time to farming. They also mix operations, planting different types of crops as well as keeping livestock (Ogungbile et al, 1991).

Thirdly, the few studies on the gender aspects of urban farming point to women as the predominant practitioners (Rakodi, 1988, 1991; Memon and Lee-Smith, 1993).

This is in agreement with Maxwell (1995), while Lachance (1993) described the women as having "made it (urban agriculture), their business".

The people with the highest educational qualifications oscilate between the level of middle income earners and relatively affluent upper class citizens. They are predominantly men, devoting only part of their time to the work. Specializations, favouring mostly livestock keeping which is often poultry, also tend to increase from the low income and education levels to the higher levels.

Moreover, most of these practitioners are not recent immigrants from the rural areas. They have been in the cities for periods not less than five years before initiating farming in those cities. This agrees with Maxwell (1995) who indicated that length of time in urban city as well as household size significantly affected involvement of city dwellers in Kampala in urban agriculture.

## 2.3 Urban agriculture and information need

The Oxford Advanced Learner's Dictionary of Current English defined information as "something told; news or knowledge given". Information affects the individual's knowledge level, skills, attitudes and behaviour. It is, therefore, crucial in agricultural development where changes in the farmers' knowledge levels, skills, attitudes and behaviours are necessary (Dare, 1990).

Information is very important in raising the productivity of farmers. The availability of improved technologies with high market potentials, storage facilities, credit, and new markets for existing crops and livestock is conveyed to the farmers through information. This precedes the possibility of adoption by the farmers. Where the information is appropriately utilized it results to increased productivity. In other words, information is a necessary condition for the adoption of recommended technologies which lead to increased productivity (Nwike et al, 1991).

Swanson et al (1984) presented the information needed to lead a farmer-client to adopt a recommended practice as a five-step process, comprising awareness, interest, evaluation, trial and adoption. Initially, information makes the farmer aware of the existence of the practice. If this aroused his interest, he would then desire more details about it, which would set in motion a series of mental activities leading to the decision as whether to try it or not. If he tries it and is satisfied with the result, he would then adopt it, thereby reaping the fruits of the new practice.

Studies on adoption show that most, it not all, of the information needs of the rural farmers are met by the extension service. To some of these farmers, extension agents are the primary source of information on agricultural innovations (Patel and Anthonio, 1971; Opare, 1977; Jagne and Patel, 1981; Laogun, 1986; Iwueke, 1987; Daramola, 1988). This implies that any recommended practice not adequately

projected by extension staff would have a low level of adoption by these farmers. Part of this farmer-clientele of the extension service, it is noteworthy, is based in the urban areas.

Moreover, apart from information flows to farmers for the utilization of agricultural innovations, access to information is also necessary if research should develop technologies that are appropriate to the farmers' conditions. This entails the development of a two-way communication system, implicating the extension service as well (Beltran, 1975; Odurukwe, 1983).

## 2.4 Uses of technology in urban agriculture

Technology has been defined as the methods or techniques of producing goods and services, the science of factor combination (Ijere, 1983). Accordingly, it has three basic aspects in agricultural production, namely.

(1) Physical technology, which is also known as mechanical technology, has to do with mechines, tools, equipment, etc, needed in agricultural production;

(2) Biological technology, which refers to the totality of new and improved breeds and strains of livestock and crops for purposes of increased production;

(3) Chemical technology, which refers to various chemicals used in crop and livestock production such as fertilizers, pesticides, livestock drugs, etc. (Ijere, 1983). Okereke (1983) defined it as 'the systematic application of scientific or other organized

knowledge to practical purposes", while Olayide et al (1980) put it as "the systematic application of collective human rationality to the solution of problems through the assertion of control over nature and all kinds of human processes". Technology, therefore, is a systematic way of solving problems, as well as exercising control over nature by man. It includes new ideas, inventions, innovations, techniques, methods and materials (Okereke, 1983, Nwike et al, 1991).

Technology is basic to development, especially in agriculture (von Braun et al, 1993). Its use advances agricultural production. This is more so where it is appropriate to the particular farm situation. This implies that technology, which is the product of research, should be tailored to suit each farm ecological system (Johnston and Mellor, 1961; Essang, 1975; Okereke, 1983; Oyolu, 1983; Spencer, 1990).

Urban agriculture is carried out in a unique environment which necessitates the development of appropriate technologies so as to maximize gains. Mougeot (1993) had this to say on the peculiar nature of urban agriculture:

> Urban agriculture requires higher technological and organizational precision than rural agriculture because it needs to be more intensive, more tolerant of environmental stress, responsive to market behaviour

and carefully monitored to protect public health. Many highly valued systems must be adapted to smaller-scale operations, such as hydroponics, and stall feeding. Where poorer urban households have little land, technologies must be adapted to make more efficient use of tiny household spaces.

This underscores the need to develop, through research, technologies appropriate to the urban landscape.

## 2.5 Problems of urban agriculture

There are a number of problems facing the practice of urban agriculture. T hese include:

### 2.5.1 Problem of official recognition and encouragement

Most of urban agriculture still remains largely unrecognized by the government. The farmers are, as a result, constantly being harassed by city planners. The fear of being harassed keeps most people who wish to farm from making the necessary effort. The result is that those who particularly have no other means of livelihood roam the streets, resorting to crimes in order to feed and cloth themselves. Official policy which recognizes urban agriculture would give it a boost, increase the practitioners' sense of security and boldness to undertake the practice. This is particularly the case as government's agricultural policies determine the type and magnitude of investment in the sector (Agboola, 1979).

Moreover, since the practitioners of urban agriculture are not officially recognized by the government, they hardly get needed assistance or encouragement from the authorities.

Relevant services like extension and veterinary services are not provided for them and no effort is made to help them benefit from government subsidized inputs. This gives them a sense of alienation in their own country.

### 2.5.2 Inappropriate technologies

The main concern of the government for sometime now had been the rural areas: the development of the rural areas. It has, therefore, directed its efforts towards the development of technologies appropriate to the rural landscape. The research activities of the over 20 research institutes in the country, together with those of the universities of agriculture and faculties of agriculture of other universities, are directed at the rural farmer and his environment. None is devoted to the urban farmer, who subsequently imposes technologies developed for the rural areas on the urban environment.

Urban agriculture is unique, requiring higher technological and organizational precision (Mougeot, 1993). Such technologies need to be:

> More intensive - technologies must be adapted to make efficient use of tiny household spaces as a result of strictly limited land;
> more tolerant of environmental stress;
> responsive to market behaviour, and carefully monitored to protect public health - such as soil and water pollution by agro-chemicals.

### 2.5.3 Lack of agricultural credit

There is generally no agricultural credit available to urban farmers. This is the situation despite the fact that urban agriculture has fewer risks than some poorer urban activities to which credit had been granted (Mougeot, 1993). Many of the urban farmers can ill-afford the capital required for such inputs as fertilizers, pesticides, as well as drugs and feed for livestock. Lack of credit has led, in some cases, to high failure rates, low yields and non-investment in higher yielding systems. In other cases it has deterred prospective farmers from going into production at all.

### 2.5.4 Lack of access to land

Government non-recognition of urban agriculture makes access to land difficult. This stems from the authorities' perception of what a city should be; a place where the residents do not engage in agriculture (Lee, 1993; von Braun, 1993). They, therefore, ignore institutional reforms which will enhance access to land to the city dwellers, particularly for farming purposes (Aronson, 1978; Lado, 1991; Mabogunji, 1992; Smith and Nasr , 1992; Sawio, 1993). Much of public land, which could have been put into profitable agricultural production, and thereby alleviate the sufferings of a reasonable number of people in the urban areas, is left lying idle for fear of being prosecuted for trespassing. In this way non-farmers are not prompted to begin farming while those currently in practice cannot

expand operations (Mougeot, 1993; Eberlee, 1993; Ezedinma, 1995).

### 2.5.5 Problem of thieves

Crops and animals produced in the cities face the danger of being stolen. Those in fenceless farms, particularly poultry, are often stolen by thieves (Ezedinma, 1995). Since urban agriculture is not legalized, victims of these thieves are unable to obtain legal backing or protection for their farms.

## 2.6 Theoritical model of the study

The theoretical model of this study is given in Figure 1, and explained thus:

Independent variables: These consist of institutional factors and geographic location. The institutional factors include government policies such as laws and ordinances which define the government's direction of investment or level of involvement in a particular sector of the economy. Another institutional factor comprises the prevailing beliefs, norms and customs of the people of the area. These could be favourable or unfavourable to urban agriculture. The geographic location has to do with the city's topography and size which influence the availability of land for farming. A city like Aba in Abia State, which is located on a plain, is likely to have more land available for farming than one like Umuahia, situated on a hilly landscape or escarpment.

The intervening variables of urban dweller characteristics include age, gender, educational qualification, income, length of time lived in the city, occupation, access to land and household size. These two variables (independent and intervening) together influence urban dwellers' practice of urban agriculture as elucidated in the previous sections of the literature review.

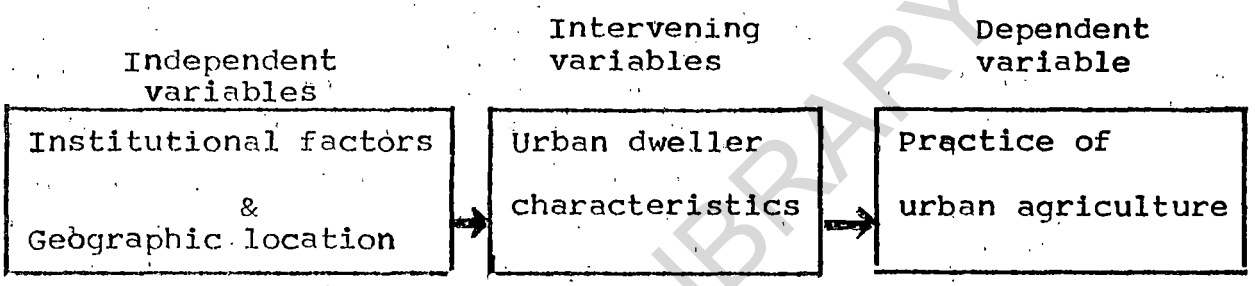


Fig. 1: Theoretical model for the practice of urban agriculture in Abia State.

## CHAPTER THREE

## 3.0 RESEARCH METHODOLOGY

### 3.1 The study area

The study was conducted in Abia State of Nigeria. It is one of the States of the South-Eastern ecological zone of Nigeria, the others being Akwa Ibom, Anambra, Cross River, Enugu, Imo and Rivers States.

The State has a total land area of about 8,000 square kilometres and a population of about 2,297,978 (Abia State Development Committee, 1991; FOS, 1993).

It comprises seventeen (17) Local Government Areas, namely: Aba, Aba North, Afikpo, Afikpo South, Ohaozara, Onicha, Obioma Ngwa, Isuikwuato, Arochukwu, Ohafia, Bende, Ikwuano, Umuahia, Ukwa, Ukwa East, Isiala Ngwa and Isiala Ngwa South (Abia State Development Committee, 1991). The largest towns in the State are Umuahia, the State capital with a population of about 213,630, Aba with a population of about 494,152 and Afikpo with a population of about 103,674 (Abia State Development Committee, 1991; FOS, 1993). These are the major urban areas in the State. Aba is the commercial nerve centre of the State. Consequently, many of its inhabitants are traders. Umuahia, on the other hand, is populated mainly with civil servants.

The soil types of Abia State range from loamy, through the red, deep soil, rich in iron, and grey sandy soil, to clay and gravel (Abia State Development Committee, 1991). The area has a mean annual rainfall of about 2400 mm which is distributed over a 10-month period (February to December).

Its mean daily maximum temperature averages 27°C all through the year, highest from February to April, but does not exceed 35°C. The relative humidity is highest at 09.00 hours (Nigerian time) and is usually between 90 and 95% in most parts of the State for the greater part of the year (Unamma et al, 1995). It falls and reaches a minimum of 40 and 60% in most parts by 16.00 hours (Nigerian time) after which it begins to rise again.

## 3.2 Sampling technique and sample size

The two largest cities of the State, Aba and Umuahia, were selected for study. This was based on the contrasting occupational features of the majority of their inhabitants. Each city was divided into three enumeration areas, namely: high population density area; low population density area; and peri-urban area ( von Braun, 1993; Maxwell, 1995). Each of these enumeration areas, therefore, formed a cluster. Thereafter, fifty (50) households were randomly selected and interviewed from each cluster or enumeration area. This gave a sample size of three hundred (300) households.

## 3.3 Data collection

Preliminary visits were made to the selected urban centres for familiarization with the areas. A structured questionnaire was developed and pre-tested in locations outside the selected study areas. After some modifications, the questionnaire was administered by the face-to-face interview technique.

Data on nutritional status was collected from the children in selected households using the appropriate techniques (Maxwell, 1995). The whole operation lasted four months, November 1996 to February 1997.

## 3.4 Type of data collected

The types of data collected for study were on the following:

1. Demographic and socio-economic characteristics of the respondents (occupation, sex, age, educational qualification etc.)
2. Agricultural enterprises engaged in
3. Length of time lived in city
4. Technologies being used by respondent
5. Constraints to the respondent's improved performance

## 3.5 Data analysis

Simple statistical tools were used in analysing the data collected. These included frequency counts, means and percentages.

In addition, the probit regression model was used in determining the factors that influence urban households' involvement in city farming (Bliven, 1991; Maxwell, 1995). The estimated probit function is given by:

$$\hat{P}_i = bo + b1Xi$$

Where

$\hat{P}_i$ = estimated probit value

$X_i$ = the independent or explanatory variable, such as

$X_1$ = Size of the respondent's household

$X_2$ = Gender of household head, male = 1, female = 2.

$X_3$ = Length of time household head has lived in the city, in years.

$X_4$ = Age of household head, in years

$X_5$ = Literacy level of household head, in years.

$X_6$ = Annual income (non-farm) of household head

$X_7$ = Access to land to respondent for farming purposes.

bo = Intercept

b1 = Regression parameter to be tested for significance.

## 3.6 Limitations of the study

The study was carried out in only two major cities of Abia State which has up to seventeen (17) Local Government Areas. These two cities, Aba and Umuahia, may not effectively be representative of the whole state. The result, therefore, may not be generalizeable for the whole state.

## CHAPTER FOUR

### 4.0 PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the presentation and analysis of the general findings of the study. It is sub-divided into the following sections.

(i) The socio-economic characteristics of the urban farmers.

(ii) Reasons for households' engagement in city farming.

(iii) Factors that influence urban agriculture in Abia State.

(iv) The impact of urban farming on household food security, income and nutritional status.

(v) Constraints to city farming.

A total of three hundred (300) households were interviewed, 150 households from each of the two largest cities in the State, Aba and Umuahia. This is shown in Table 1 below:

TABLE I

Distribution of Respondents as Practitioners and Non-Practitioners

| | Practitioners | | Non-Practitioners | |
|---|---|---|---|---|
| City | Frequency | Percentage | Frequency | Percentage |
| Aba | 105 | 35 | 45 | 15 |
| Umuahia | 99 | 33 | 51 | 17 |
| Total | 204 | 68 | 96 | 32 |

Source: Field survey 1996/97.

Results show that 68% of urban dwellers in Abia State are urban farmers while 32% are non-practitioners, (Table I). This implies that approximately seven out of every ten urban dwellers in Abia State practised urban farming. These farmers grew a variety of crops, mainly on the same piece of land. Among the crops grown were yam, cassava, cocoyam, maize, melon, okro, pepper, garden egg, tefairia (ugu), Amaranth (green), banana and plantain. Some of these crops, like cassava, were the improved type. Many of the farmers also kept livestock such as rabbits, goats, sheep, pigs and poultry, both local and improved breeds.

## 4.1 Socio-economic characteristics of the practitioners of urban agriculture

In estimating the socio-economic characteristics of the farmers in Abia State, certain parameters were considered. These parameters determine the individual respondent's psychology which influences his decision making. They include the major occupation, age, income, educational qualification and gender or sex of household head, as well as household size.

### 4.1.1 Occupation:

The distribution of the urban farmers according to major occupation showed that 3.5% of them had trading as their major occupation, 21.6% of them were civil servants, and 18.1% had farming as their major occupation. About 17.2% had their major occupation as private sector employees, 4.4% were artisans while 2.9% were private sector employers.

These are shown in Table 2 below.

TABLE 2

Distribution of Urban Farmers According to Major Occupation

| Major Occupation | Frequency | Percentage |
|---|---|---|
| Farming | 37 | 18.1 |
| Trading | 73 | 35.8 |
| Civil Service | 44 | 21.8 |
| Artisan | 9 | 4.4 |
| Private Sector Employer | 6 | 2.9 |
| Private Sector Employee | 35 | 17.2 |
| Total | 204 | 100.00 |

Source: Field survey 1996/97

Practitioners in the civil service included top government functionaries such as directors-general and personal secretaries. Categorized under the private sector employers were the chief executives and managing directors of privately-owned companies, importers and exporters, while the private sector employees were the various workers of these companies such as their general managers and secretaries.

It can be deduced from the table above that people from various vocations in life are engaged in urban agriculture in Abia State.

This will be appreciated more with a closer examination of the proportions of the different occupation categories in the whole (i.e urban farmers & non-farmers) as shown in Table 3.

TABLE 3

Distribution of Respondents According to Occupation

| Major Occupation | Frequency | Percentage |
|---|---|---|
| Farming | 37 | 12.3 |
| Trading | 103 | 34.3 |
| Civil service | 70 | 23.3 |
| Artisan | 20 | 6.7 |
| Private sector employer | 17 | 5.7 |
| Private sector employee | 53 | 17.2 |
| Total | 300 | 100.00 |

Source: Field survey 1996/97



Of the 300 respondents sampled, 103 respondents were traders, out of which 73 respondents were urban farmers. This represented about 71% of those who had trading as their major occupation. Similarly, 63% of the civil servant respondents, 45% of the artisans, 32% of the private sector employers as well as 66% of the private sector employees, were practitioners of urban farming.

The practice is, therefore, not carried out only by the poor and unemployed who have little or no other means of livelihood in the city. Moreover, whatever motivated such personalities as the chief executives of successful companies, as well as high-ranking government officials, into engaging in urban agriculture is worth sustaining through encouraging the practice.

4.1.2 Age

The distribution of the practitioners of urban agriculture according to age showed that 32.8% of them were between 30 and 40 years, 28% of them 41 and 50 years and 25% above 50 years. About 9% of the practitioners were below 30 years while 5.4% did not respond to the question on age. These details are shown on Table 4 below.



TABLE 4

Distribution of Urban Farmers According To Age

| Age in years | Rrequency | Percentage |
|---|---|---|
| Undeclared | 11 | 5.4 |
| Less than 30 | 18 | 8.8 |
| Between 30 and 40 | 67 | 32.8 |
| Between 41 and 50 | 57 | 28.0 |
| Above 50 | 51 | 25.0 |
| Total | 204 | 100.0 |

Cource: Field survey 1996/97.

It can be deduced from the table above that majority

of the practitioners (85.6%) are 30 years and above. This strongly suggests that most of the people engaged in urban agriculture in Abia State are not the young and immature people, or inexperienced school leavers. They are rather adults with many years of experience in life. These are people whose decisions and actions would not border on irrationality, frivolity or impetuousity.

4.1.3 Income

TABLE 5

Distribution of Urban Farmers According to Annual Non-Farm Income

| Annual non-farm income | Frequency | Percentage |
|---|---|---|
| None | 32 | 15.7 |
| Less than N12,000.00 | 18 | 8.8 |
| #12,000.00 - N24,000.00 | 60 | 29.4 |
| #25,000.00 - N36,000.00 | 31 | 15.2 |
| #37,000.00 and above | 63 | 30.9 |
| Total | 204 | 100.00 |

Source: Field survey 1996/97

The distribution of practitioners of urban agriculture according to annual non-farm income, shown in Table 5 above, revealed that about 30.9% of the practitioners earned #37,000.00 and above annually, about 29.4% earned between #12,000.00 and #24,000.00, about 15.2% earned between #25,000.00 and #36,000.00, while about 8.8% earned less

than ₦12,000.00. About 16% received no physical cash from their urban farming activities: they earned their income from other sources.

4.1.4: Educational Qualification

The educational distfibution of the practitioners of urban agriculture showed that about 41.7% of them had primary school education, 24.5% of them had attended tertiary institutions such as polytechnics, colleges of education and the university. About 19.0% had attended secondary school while about 15% had no formal education. This is shown in Table 6 below.

TABLE 6

Distribution of Urban Farmers According to Level of Education

| Level of Education | Frequency | Percentage |
|---|---|---|
| None | 31 | 15.2 |
| Primary school | 85 | 41.7 |
| Secondary school | 38 | 18.6 |
| Tertiary level | 50 | 25.5 |
| Total | 204 | 100.00 |

Source: Field survey 1996/97.

As revealed by Table 6 above, a majority of the practitioners of urban agriculture in Abia State are quite literate.

This high level of literacy could inform their participation in the practice since education can positively influence effective urban farming resulting in better space and technology utilization in urban areas.

4.1.5 Gender:

Table 7 below showed that majority of the farming households in the urban areas were headed by males. A total of 177 households (about 86.8%) were male-headed while the remaining 27 households (about 13.2%) were headed by females. This was also reflected in the 300 households interviewed, in which male-headed households were 267 (89.0%) and female-headed ones 33 (11.0%).

TABLE 7

Distribution of Urban Farmers/Respondents According to Gender of Household Head

| Gender of Household head | Urban Farmers | | All respondents | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| Male | 177 | 86.8 | 267 | 89.0 |
| Female | 27 | 13.2 | 33 | 11.0 |
| Total | 204 | 100.0 | 300 | 100.0 |

Source: Field survey 1996/97.

### 4.1.6 Household Size

The distribution of urban farmers by household size is shown in Table 8. The table shows that majority of the households (58.3%) had between 6-10 persons. Twenty-eight percent of the households had 1-5 persons. Some respondents (2.5%) refused to disclose their household size. This may not be unconnected to the traditional belief that, by disclosing the size of a household, such a household would be unable to increase beyond that size.

TABLE 8

Distribution of Urban Farmers According to Household Size

| Household | Frequency | Percentage |
|---|---|---|
| No response | 5 | 2.5 |
| 1-5 | 58 | 28.4 |
| 6-10 | 119 | 58.3 |
| 11-15 | 18 | 8.8 |
| 16 and above | 4 | 2.0 |
| Total | 204 | 100.0 |

Source: Field survey 1996/97

The results in Table 8 suggest that the households of urban farmers in Abia State are fairly large in size. This implies that the household heads have to provide for members of their households such things as food, clothing and school fees, as well as pay house rent. It is, therefore, not surprising that they engage in urban agriculture.

This is particularly so since there is no government welfare scheme in the State.

## 4.2 Reasons for households' engagement in city farming

Authors on urban agriculture have adduced various reasons as forces driving people into farming in the built - up areas. Many of them noted food for household consumption as the primary motive for the practice (Lee-Smith et al, 1987; Maxwell, 1995). The findings of this study in this regard are presented below.

TABLE 9

Distribution of Urban Farmers According to Reasons for Engaging in the Practice

| Household | Frequency | Percentage |
|---|---|---|
| Family consumption | 198 | 97.0 |
| Sales | 136 | 66.7 |
| Gift | 1 | 0.5 |
| Hobby | 1 | 0.5 |

Source: Field survey 1996/97

As shown in Table 9 above, 97.0% of the practitioners of urban agriculture had family consumption as the reason for engaging in the practice, while 66.7% of them had sales only as the reason. One respondent each engaged in urban farming for purposes of gift and hobby.

The implication here is that majority of the people who engage in urban farming in Abia State do so for one

major purpose: supply of food for household. This is in agreement with Maxwell (1995), the findings of which showed majority of the farmers engaging in the practice as a measure of food security. Lee-smith et al (1987) is also in agreement with this. This is followed by those who engage in urban farming as a supplementary source of income for meeting non-food needs of the household such as payment of school fees, house rent and clothing. When the household size of the urban farmers is considered, the reasons proffered for engaging in urban farming becomes very realistic.

## 4.3 Factors that influence urban agriculture in Abia State

To ascertain the main factors that influence urban agriculture in the two cities of Aba and Umuahia, as well as Abia State as a whole, two separate regression models were estimated. These were the logit and probit regression models. After considering the signs of the estimated coefficients, statistical levels and the predictive power of the models, the full probit model was chosen and used for further analysis of the data. The results of this model for the two cities, Aba and Umuahia, are presented in tables 10 and 11 respectively.

TABLE 10

Probit Regression of Factors that Influence Urban Agriculture in Aba

| Variable | Description | Coefficient | T-ratio |
|---|---|---|---|
| Constant | | 0.8207 | |
| $X_1$ | Household size | 0.0594 | 1.367 |
| $X_2$ | Gender | -0.5973 | -1.541 |
| $X_3$ | Educational level of household head (in years). | -0.5402 | -1.993* |
| $X_4$ | Non-farm income | -0.3561 | -1.395 |
| Long likelihood | | -64.3361 | |
| N | Sample size | 107 | |

*Significant at 5%

Source: Field survey 1996/97

Table 10 showed educational level (in years) as the only determinant of urban agriculture in Aba. This was statistically significant at 5% level and negatively correlated to urban agriculture. This suggests that highly educated city dwellers make significant contribution to urban agriculture while the less or uneducated ones make insignificant contribution to it at least in Aba area.

This result seems to make a lot of sence based on the fact that Aba is a major commercial centre in the Eastern part of Nigeria. The uneducated or less educated city dwellers are more into business or self employment than the civil service and, therefore, may not have time to farm.

This is unlike the civil servants who relatively seem to have more time to engage in agriculture so as to augment their income.

Household size was found to be positively correlated with urban agriculture but statistically insignificant within 1% level. On apriori grounds large-sized households are expected to make appreciable contribution to urban agriculture either because they have more mouths to feed or because of the availability of cheap family labour needed to do farm work. However, the result of this variable still has some policy implications since it is directly related to urban agriculture.

On the other hand, gender of household head and non-farm income were found to be inversely related to urban agriculture and statistically non-significant within 1% level. The result of the gender of household head involved in urban agriculture tends to highlight the place of gender in the contribution of urban agriculture to the stabilization of food production, and hence food prices, in the country. The result suggests that female household heads who engage in urban farming make greater impact than male household heads. The policy implication here is that women city dwellers should be given greater incentives to practice urban farming.

Finally, on apriori grounds, the sign on the value of the variable, non-farm income, was expected but its statistical non-significance is unrealistic. Higher levels of non-farm income are expected to significantly discourage urban farming.

The result only seems to be tenable if it is interpreted to only mean that lower levels of non-farm income invested in urban agriculture reduce output, otherwise the result should be investigated in further research into urban farming.

TABLE 11

Probit Regression of Factors that Influence Urban Agriculture in Umuahia

| Variable | Description | Coefficient | T-ratio |
|---|---|---|---|
| Constant | | -09759 | |
| $X_1$ | Household size | 0.1384 | 2.727* |
| $X_2$ | Gender of household head | -0.9438 | -1.507 |
| $X_3$ | Length of time household head had lived in city | 0.0167 | 1.674 |
| $X_4$ | Age of household head | 0.0312 | 1.884 |
| $X_5$ | Non farm income | -0.2657 | -1.082 |
| Loglikehood | | -75.8525 | |
| n | Sample size | 146 | |

*Significant at 1% level.

Source: Field survey 1996/97

With regard to the factors influencing urban agriculture in Umuahia, table 11 showed it to be household size. This variable was positively correlated to urban agriculture and statistically significant within 1% level.

This is probably so because large-sized families are likely to have surplus labour for farm work as well as more mouths to feed. Gender, length of time lived in city, age and non-farm income were, however, found to be statistically non-significant. Whereas length of time lived in the city and age of household head were positively correlated to urban agriculture, gender and non-farm income were negatively correlated.

Table 12 below shows the pooled result for the two cities, Aba and Umuahia. The variable household size was shown to be the major factor affecting urban farming in Abia State. It was statistically significant within 1% level. The results of the separate regression for Umuahia and that of the pooled are in agreement with the findings of Maxwell (1995).

The policy implication of this is, that in commercializing agriculture in the two cities, greater emphasis should be given to household size while gender of household head, length of time household head had lived in the city, educational level and age of household head should be de-emphasized.

TABLE 12

Probit Regression (Pooled) on Factors that Influence Urban Agriculture in Abia State

| Variable | Description | Co-efficient | t-Ratio |
|---|---|---|---|
| Constant | | 0.2157 | |
| $X_1$ | Household size | 0.0967 | 3.008* |
| $X_2$ | Gender of household head | -0.5418 | -1.724 |
| $X_3$ | Length of time household head lived in city | 0.0142 | 1.782 |
| $X_4$ | Age of household head | 0.0139 | 1.391 |
| $X_5$ | Educational qualification of household head | -0.1892 | -1.015 |
| $X_6$ | Non-farm income | -0.2629 | 1.561 |
| Loglikelihood | | -154.1850 | |
| n | Sample size | 280 | |

*Significant at 1%.

Source: Field survey 1996/97

## 4.4 Impact of Urban Agriculture on Household Food Security, Income and Nutritional Status

In assessing the impact of urban agriculture on the household, three variables were considered in relation to practitioners and non-practitioners of urban farming. These variables were food security, income and nutritional status. This was in realization that the impact of urban farming on the household is a combination of these three factors (Maxwell, 1995). Food security was measured as various levels of ease of accessibility at all times in the year to sufficient food. Income referred to cash income outside farm activities; nutritional status was measured on the basis of height for age of young children.

TABLE 13

Food Security, Income and Nutritional status Test of Farming and Non-Farming urban Dwellers

| Variable | n | T-test value |
|---|---|---|
| Food security | 260 | 0.106 |
| Income | 240 | -0.082 |
| Nutritional Status | 102 | -0.204 |

Source: Field survey 1996/97

As shown in table 13 above, non of the variables was statistically significant with respect to urban and non-urban farmers.

This means that there is difference in food security, income and nutritional status between farming and non-farming households in the urban areas that is attributable to urban agriculture, and that whatever differences that exist are due to chance.

However, the positive value of food security may suggest that there is a measure of food security accruable to the practitioners of urban agriculture but which does not significantly differ from that obtainable by non-practitioners.

However, Maxwell (1995) found a significant difference between farmers and non-farmers in the cities with respect to nutritional status and food security.

## 4.5 Constraints to city farming

There were some problems attendant to city farming in Abia State, as in other endeavours of life. These include lack of access to land, unavailability of vital inputs such as fertilizers, thieves, lack of access to credit, pests and diseases.

Generally, urban areas are more land-starved than the rural areas. This makes the farm size in the city usually small. This fact does not, however, discourage people from farming in the city. The discouraging aspect is the lot of hurdles standing in the way to getting these pieces of land, most of which are lying idle, for farming.

The authorities here probably have a perception of urban areas similar to those portrayed by Lee (1993) and von Braun (1993). They view the city as a place where farming is out of place.

Some of the inputs needed for farm work were not available. Prominent among these was fertilizers, the scarcity of which was discouraging the use of improved cassava varieties by farmers.

Some of the farmers also have problems with the security of their farms. Thieves were stealing both crops and livestock. Ezedinma (1995) identified a similar problem among market gardeners in Lagos.

Banks and lending institutions abound in the cities more than the rural areas. The urban farmers have difficulty getting access to the loanable funds held by these institutions which preferred lending money to traders to lending it to urban farmers. Mougeot (1993) stated this to be so, despite the fact that agriculture has fewer risks than some poorer urban businesses to which loans are granted by these credit institutions.

# CHAPTER FIVE

## 5.0 SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

### 5.1 Summary

Urban farming is becoming an increasingly important source of food for the Urban dwellers in African cities. Nigerian cities, particularly those of Abia State, are no exception. They grow a wide variety of crops such as cassava, yam, cocoyam, melon, maize, garden egg, pepper, telfairia (ugu), bananas and plantains, mostly on mixed cropping basis and using simple farm implements. They also keep such livestock as goats, pigs, rabbits and poultry, both local and improved breeds. Every available land is suitable for their operations and include idle public land, undeveloped land, roadsides, ponds, tanks, backyards and land that is unsuitable to building.

The study area used was Abia State, Nigeria, comprising seventeen (17) Local Government Areas. These were Aba, Aba North, Afikpo, Afikpo South, Ohaozara, Onicha, Obioma Ngwa, Isuikwuato, Arochukwu, Ohafia, Bende, Ikwuano, Umuahia, Ukwa, Ukwa East, Isiala Ngwa and Isiala Ngwa South.

Using the cluster sampling technique, the two largest cities in the State, Aba and Umuahia, were chosen and 150 respondents sampled from each. This gave a total of 300 respondents used in the study.

The findings of the study are as stated below.

1. Practitioners of urban agriculture in Abia State cut across various vocations, with majority of them traders (35.8%),

followed by civil servants (21.6%). An appreciable number of the practitioners had farming as major occupation (18.1%) while private sector employees constituted 17.2% of the practitioners.

2. With regard to age, the practitioners are mostly adults, 30 years and above (85.8%).
3. More high non-farm income earners were engaged in urban farming than those of the low income earning group. Those earning N12,000.00 to N36,000.00 annually comprised about 44.6%. Next were those earning N37,000.00 and above comprising 30.0%. The least in number were those earning less than N12,000.00 annually which constituted about 8.8%.
4. The practitioners were literate as about 84.8% of them had a minimum of primary school education. Precisely 41.7% had primary school education, 24.5% had tertiary level of education while 18.6% had secondary school education.
5. Male-headed households out-numbered female-headed ones.
6. About half of the household practitioners of urban agriculture (58.3%) had 6 to 10 members, those with 1 to 5 members constituted 28.4% while a minimal

## 5.2 Conclusion

Agriculture is concerned with the husbandry of crops and livestock (animals) for food, fibre and other purposes useful to man. Through its primary function of supply of food and fibre to man, it acts as the main spring of every human society. Where its proceeds are inadequate, supplementation is inevitable, and this is often through importation.

As agricultural production from the rural areas is steadily dwindling, and the harsh economic conditions are making supplementation through importation more difficult, African city dwellers are increasingly resorting to farming in the urban areas as a means of supplementing their diets as well as, often, income. City dwellers in Nigeria, especially those of Abia State, are not left out in this quest.

The conclusions from this study, therefore, are as follows:

- Majority of the urban dwellers farm in the cities.
- The main reason for the households' engagement in the practice is the combination of food supply and supplementation of income through sales, followed by family food supply only. The other reasons of sources of income, gift and hobby are minor.
- The people who engage in urban agriculture are mostly from the middle to high income classes, relatively well educated and adults of 30 years and above.

They also have households that are fairly large in size.

- The factor or determinant of urban agriculture in Abia State is household size,
- Urban agriculture confers some measure of food security on the practitioners. There were no significant differences with respect to income and nutritional status between the practitioners and non-practitioners of urban farming.

In addition, the study identified some problems faced by the urban farmers. These included lack of access to land, lack of access to credit, problem of thieves, pests and diseases.

## 5.3 Recommendations

Since urban farming is becoming pervasive in the cities of Africa, including those of Abia State, Nigeria, the wise thing to do is not to ignore it but to realistically address it with a view to making it a veritable contributor to the country's drive towards self-sufficiency in food supply. Based on the findings of this study, the following recommendations are made:

1. Legal backing should be given to urban farming. This could be done by enacting laws that officially recognize the practice, at the same time encouraging people to participate in it.
2. In commercializing urban agriculture, adults who have lived long in the city should be encouraged.

3. Greater attention should be directed at women living in the cities if urban farming is to wield more impact on the household's nutrition and income. This could be done by giving them greater incentives.
4. Household size should be taken into consideration while administering incentives for increased participation in, and production of, urban farming. Large-sized households should be preferred to smaller ones.
5. Extension services should be directed at the urban farmers to enable them benefit from Government incentives and findings of the various agricultural research institutes and universities in the country.
6. Credit should be made liberally available to the urban farmers to enable them expand their activities through the purchase of necessary inputs, many of which are costly.
7. For effective extension services to urban farmers, there should be carefully planned and executed exploratory surveys of the urban farming situations.
8. Extension service should also concentrate its programme planning on those factors that enhance the practice of urban agriculture.

proportion (about 10.8%) had more than 10 members. Thus the households were fairly large in size.

7. The major reason for engaging in city farming by most of the farmers was provision of food for household (97.0%), followed by sales (66.7%) for purposes of supplementing household income.

8. The major factor affecting urban farming in Abia State was household size. On the basis of cities, level of education was the factor affecting the practice in Aba (though negatively correlated), whereas household size was the one affecting the practice in Umuahia

9. Although urban agriculture confers some measure of food security on the practitioners, its impact with respect to income and nutritional status is not different from that of non-practitioners.

10. The constraints to urban agriculture include lack of access to land, lack of access to credit, problem of thieves, pests and diseases.

## 5.4 Suggestions for further research

One of the areas that need exploring in further research is the effect of intrahousehold processes, such as allocation of labour and control of cash, on urban farming. This could highlight some of the gender issues in urban agriculture.

Other areas worth investigating are the extent of extension services to the urban farmers and the appropriateness of agricultural technologies to the urban landscape in view of the proximity of such farmlands to residential homes and water sources.

Research into these areas will go a long way in helping urban farmers in Abia State improve their productivity as well as raising their standard of living.

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## QUESTIONNAIRE

This research is entirely an academic one aimed at assessing urban agriculture in Abia State. All information supplied is solely for this purpose and would by held in confidence.

General Direction:

Kindly complete this questionnaire by filling in the blank spaces provided or ticking ( / ) to the appropriate response (s) to each of the questions.

Section One: Farmer Characteristics:

1. Urban area (a) ☐ Aba (b) Umuahia ☐
2. Enumeration area: High density ☐ Low Density ☐
   Peri Urban ☐
3. Gender of household head: (a) Male ☐ (b) Female ☐
4. Occupation: (a) Major .....
   (b) Minor .....
   .....
   .....
   (in decreasing order of importance)
5. Age .....
6. What is your estimated annual income? ....
   (i) Farm related.....
   (ii) Non-Farm .....
7. Number of years spent in school .....
8. How many people do you have in your household in this city?...

.....

9. Out of this number, how many are dependents? .....

10. How long have you lived in this city .....

Section Two: Farm Enterprise

11. Do you farm in this city (a) Yes ☐ (b) No ☐

12. If yes, why do you farm? .....

13. What farm enterprises are you engaged in? Also indicate the size of each enterprise.

| Enterprise | Size |
|---|---|
| | |

14. What is the total area of land available to you for farming in this city? .....

15. Why are you engaged in the enterprises mentioned above?

| Enterprise | Reason |
|---|---|
| | |

16. For how long have you been engaged in the enterprises in urban cities?

| Enterprise | Length of time |
|---|---|
| | |

17. What cropping system do you practice in your urban farm?

(a) Mixed for all crops ☐

(b) Mixed for some crops (specify) .....

(c) Sole for all crops ☐

18. If you keep livestock, what management system do you practice?

| Livestock | Management system |
|---|---|
| | |

19. For each enterprise engaged in indicate (in %) the contribution to your household's food requirements in 1995.

| Enterprise | % contribution to household food requirement |
|---|---|
| | |

Section Three: Farm Inputs

20. What seeds do you plant in your farm?

(a) Improved seeds (specify crops ☐

(b) Traditional seeds ☐

21. From what source do you get the seeds you plant in your farm?

(a) Market ☐ (b) Friends ☐ (c) Personal store ☐

(d) ADP (Agric) ☐ (e) Others (specify) ☐

22. Are the seeds improved or traditional seeds?

(a) Improved yes ☐ No ☐

(b) Traditional yes ☐ No ☐

23. What tools do you use on your farm (Tick appropriate ones)

(a) Hoe ☐ (b) Matchet ☐ (c) Spade ☐

(b) Digger ☐ (e) Rake ☐ (f) Trowel ☐

(g) Watering can ☐ (h) Others (Specify) ☐

24. Do you use fertilizers on your farms? (a) Yes ☐ (b) No ☐

25. If yes, what type(s) and quantities of fertilizers did you use last year (1995)?

| Type of fertilizer used | Quantity of fertilizer used |
|---|---|
| | |

26. If yes to (25), what is your source of supply?

(a) Market ☐ (b) Neighbours ☐ (c) Other farmers ☐

(c) Other people (specify) .....

27. If no to (23), why do you not use them? .....

28. Do you use insecticides on your farms?

(a) Yes ☐ (b) No ☐

29. Do you use herbicides on your farms? (a) yes ☐

(b) No ☐

30. Do you receive visits from extension agents?
(a) Yes ☐ (b) No ☐

31. If yes, how often are these visits? .....

32. Have you visited an agric development agency or extension agent before? (a) Yes ☐ (b) No ☐

33. If yes, why did you visit? .....

34. Is there any farmers organization(s) in you locality?
(a) Yes ☐ (b) No ☐

35. If yes, are you a member to any of them? (a) Yes ☐ (b) No ☐

36. Have you obtained any loan for your farm operations before?
(a) Yes ☐ (b) No ☐

37. If yes, when? .....

38. Was it difficult to obtain? (a) Yes ☐ (b) No ☐

39. If no to (33), why? (a) Don't need it ☐
(b) Don't know where to get it ☐ (c) Difficult to obtain (cannot meet the required conditions ☐

Section Four: Other Constraints

40. Do you hire labourers for your farm work? (a) Yes ☐
(b) No ☐

41. Is labour a problem in your farm work? (a) Yes ☐ (b) No ☐

42. Has there been any incident of thieves stealing your crops?
(a) Yes ☐ (b) No ☐

43. Would you want to produce more than you are presently doing?
(a) Yes ☐ (b) No ☐

44. If yes, what is keeping you from increasing your level of production? (a) Access to land ☐ (b) Market for produce ☐

(c) Availability of credit ☐ (d) Others (specify) ☐

45. How would you describe your access to land for farming in this city? (a) Very easy ☐ (b) Easy ☐ (c) Difficult ☐ (d) Very difficult ☐.

46. How do you get land on which to farm? (a) Rent it ☐ (b) Farm any empty/idle land ☐ (c) Farm my backyard ☐ (d) Other (specify) ☐

47. If you rent land how much did you pay last year?.....

48. For each commercial enterprise you engage in, how would you describe the availability of market for the produce?

| Enterprise | High available | Available | Not very available |
|---|---|---|---|
| | | | |

49. What other problems do you encounter in your farm work in this city?

(a) .....

(b) .....

(c) .....

(d) .....

50. Nutritional status:

(a) Age of child..... (b) Height.....

(b) Weight .....

51. How is sufficient food accessible to your family throughout the year?

(a) Easily accessible ☐ (b) Moderately accessible ☐ (c) Just accessible ☐

(d) Difficult ☐