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PERI-URBAN FARMING: PANACEA TO FOOD INSECURITY IN OGBOMOSO, OYO STATE, NIGERIA

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Abstract

Over this century, as urbanization and climate change intensify, peri-urban agriculture will encounter more and more difficulties. Thus, research on decreasing Ogbomoso's, Nigeria, food problem through peri-urban agriculture is necessary. The research design used in the study was a descriptive survey. The population in the region consisted of more than thirty thousand (30,000) Ogbomoso individuals. Sixty (60) respondents were chosen from among Ogbomoso farmers, government employees, traders, and artisans, and questionnaires were distributed among them. Data was gathered through the use of structured questionnaires and primary sources. The findings indicate that a greater number of married men and women engaged in farming than unmarried farmers, even despite their familial obligations. The study looked at and evaluated peri-urban agriculture (PUA) as a means of guaranteeing food supply in Ogbomoso. According to the results, PUA has a lot of potential to guarantee a constant supply of food in the city. Ogbomoso's PUA can lessen the city's food scarcity since it gives residents' homes and marketplaces direct access to food that is grown locally. PUA in Ogbomoso has a future if the opportunities it has been identified as having and the obstacles it faces are sufficiently handled.

Keywords: Peri-urban agriculture, poverty, households, Ogbomoso, food security

Agriculture périurbaine : la solution miracle à l'insécurité alimentaire à Ogbomoso, dans l'État d'Oyo, au Nigéria

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Résumé

Au cours de ce siècle, à mesure que l'urbanisation et le changement climatique s'intensifient, l'agriculture périurbaine sera confrontée à de plus en plus de difficultés. Il est donc nécessaire de mener des recherches sur la réduction des problèmes alimentaires à Ogbomoso, au Nigéria, grâce à l'agriculture périurbaine. Le plan de recherche utilisé dans l'étude était une enquête descriptive. La population de la région comptait plus de trente mille (30 000) habitants d'Ogbomoso. Soixante (60) répondants ont été choisis parmi les agriculteurs, les fonctionnaires, les commerçants et les artisans d'Ogbomoso, et des questionnaires leur ont été distribués. Les données ont été collectées au moyen de questionnaires structurés et de sources primaires. Les résultats indiquent qu'un plus grand nombre d'hommes et de femmes mariés pratiquent l'agriculture que les agriculteurs célibataires, malgré leurs obligations familiales. L'étude a examiné et évalué l'agriculture périurbaine (AUP) comme moyen de garantir l'approvisionnement alimentaire à Ogbomoso. Selon les résultats, l'AUP a un fort potentiel pour garantir un approvisionnement alimentaire constant dans la ville. L'AUP d'Ogbomoso peut réduire la pénurie alimentaire de la ville car elle permet aux foyers et aux marchés d'avoir un accès direct aux aliments cultivés localement. L'agriculture périurbaine d'Ogbomoso a un avenir si les opportunités identifiées et les obstacles rencontrés sont correctement gérés.

Mots-clés : agriculture périurbaine, pauvreté, ménages, Ogbomoso, sécurité alimentaire

1.0 Introduction

The world's urban population is growing, which has prompted extensive study and research on strategies for feeding the growing urban population (Rao et al., 2022). The alternative food system, which can increase more stable food quantities (more food for more people) covering socioeconomic, health, and environmental benefits, should be the focus of efforts toward food supply. The majority of rural residents in developing nations participate in a variety of agricultural pursuits, the majority of which are subsistence farming, which enables households to feed themselves (Sibhatu & Qaim, 2017).

Rural residents are typically poor, and most of them adjacent to cities have looked into practicing PUA—small-scale farming on the outskirts of urban centers—in an attempt to find a ready-made urban market for their produce—as a means of overcoming survival hardships (FAO, 2011). Overall, the food supply should be knowledge-driven through academic study, even though food literacy and skills research in the global north were very helpful in understanding alternative food systems that were more stable within the socioeconomic goals (Meyer et al., 2021).

Particularly since the global food crisis of 1972–1974, there has been a great deal of interest in food security in Africa (Ajibola, 2000; Omotesho et al., 2006). Over time, social scientists, academics, and both governmental and non-governmental organizations have become increasingly concerned with and interested in the topic of food and nutritional development in Third World countries. Food insecurity is rising in many African nations as a result of a rising proportion of household expenditures going toward food purchases, particularly in metropolitan areas (Fawole et al., 2015). Additionally, as a result, the percentage of urban farmers has increased. In certain ways, our urban environment's food security is being positively impacted by the rise in urban farmers. Actually, research on peri-urban areas' ability to support sustainable and healthy cities is growing (Rao et al., 2022). A growing number of practitioners and increased interest from regional legislators and urban planners are driving the growth of PUA initiatives in Europe (Marini et al., 2023).

Nigeria has ample fertile soil that can produce enough food to feed its growing population, but this natural resource is not effectively used for the good of the populace, which is one of the reasons why food insecurity has persisted in the country. Despite the fertile territory that nature has bestowed onto the nation, Uma et al. (2014) stated that the food situation in the nation remains poor because supply has not kept up with demand and agriculture is receiving less attention. It is projected that to fulfill demand and drastically decrease food imports, Nigeria's food situation would improve if the country's yearly food production increased at an average annual rate of 5.9 percent (Federal Ministry of Agriculture, 1993, cited in Amaza et al., 2006). It was said more than ten years ago that Nigeria's food output was not rising quickly enough to support the country's growing population. Due to the rapid population growth rate, food demand has surged in Nigeria (FAO, 2021)

In Nigeria, PUA plays a significant role in the food supply and livelihoods of residents. Some urban residents use the peri-urban areas' accessible land for food production in an effort to address the issue of the food gap. A thorough grasp of the current situation regarding PUA food production enabled urban planners to consider ways to fortify food security by averting the typical conflict between

supply and demand in urban areas. Peri-urban agriculture is growing in southern countries due to issues such as natural disasters, high unemployment, skyrocketing inflation, elimination of subsidies, and prevalent conditions of rapid urbanization (Mougeot, 2005). In this context, local authorities play a crucial role. However, when it comes to designing, planning, and managing urban areas, they usually fall short of integrating the food production systems or, for that matter, the spatial arrangement of food markets to facilitate food access for the urban poor (FAO, 2011; Battersby, 2011). Although there has not been much empirical research done on PUA in Nigeria, many people there are becoming more and more reliant on its produce to meet their needs for fresh fruits, vegetables, and dairy products. Olayiwola (2012) explained that although peri-urban agriculture is an important economic activity for hundreds of millions of people worldwide, it hasn't been thoroughly examined by various works within the local context.

To counter the possibility of a food crisis and provide food security for Nigerian cities' inhabitants, urban and peri-urban agriculture must be supported and strengthened. Compared to cities, peri-urban areas have more land available for agriculture. Therefore, the study's objectives are to ascertain the potential of peri-urban agriculture in Ogbomoso, Oyo State, as well as its challenges. As far as we are aware, no similar study has ever been conducted in the field of study.

2.0 Study Area and Methods

2.1 Study Area

Situated on the A1 highway, Ogbomosho, often spelled Ogbomoṣo, is a city in Oyo State, Southwest Nigeria. By March 2005, the population was predicted to have increased from 645,000 in 1991 to 1,200,000. The city is regarded as one of the biggest metropolitan areas in Nigeria. Members of the Yoruba ethnic group make up the majority of the population. Some of the region's most notable agricultural products are tobacco, maize, cassava, and yams. Between latitudes 8007'N and 8030'N and longitudes 4004'N and 4015'E, Ogbomoso is located. In the state of Oyo, it is one of the most significant towns.

2.2 Research Design

The research design used in the study was a descriptive survey. In order to assist the reader in comprehending the distribution of data, descriptive research collects data, explains phenomena, and then arranges, tabulates, illustrates, and describes data collected in the form of graphs and charts (Cooper & Schindler, 2011). The concept was improved to evaluate Ogbomoso's peri-urban agriculture's potential to alleviate the food crisis. Farmers, public servants, traders, artisans, and other interested parties made up the population of interest in this case study. The study's population consisted of more than thirty thousand (30,000) residents of the town. Since random sampling is thought to be the most accurate method for choosing representative samples, it was employed. Sixty respondents were chosen from among Ogbomoso's farmers, civil servants, traders, and artisans.

A structured questionnaire in English, in printed format, while illustrators interpreted it in the respondents' local language (Yoruba), was utilized to gather primary data. Questionnaires with two sections, A and B, are the instruments used to collect data. While part B contained the study-related characteristics, section A offered demographic data on the respondents. A standardized questionnaire was

used to gather data and get information from the pupils. The options available to the responders were Strongly disagree, Strongly agree, Agree, and Disagree. The statistical technique used in analyzing the data in this study is the chi-square test.

3.0 Results and Discussion

3.1 Socioeconomic Characteristics of Respondents

Table 1 presents the socioeconomic characteristics of the respondents. The study looked at and evaluated PUA as a means of guaranteeing food supply in Ogbomoso. Before deciding to participate in an intervention, a person's impression of it is thought to be influenced by several factors, including their level of education. It is thought to instill in the person a drive to study more, go to training, and look for information about both agricultural and non-agricultural pursuits. These results would suggest that because most respondents could read and write in Ogbomoso, they could adhere to training and instructions. These results are consistent with those of Ebinabor (2006), who discovered that 96% of respondents in Ogbomoso, Nigeria, have at least some degree of education.

The findings indicate that a greater number of married men and women continued to farm in spite of their obligations to their families, which may increase output. Couples who are married are more likely to participate in the establishment of economic groups. Compared to singles, married couples are more likely to be productive. The majority of farmers in Ruangwa, Tanzania, were married, as noted by Mgonja and Shausi (2022), regarding the social and economic factors influencing farming. These findings are consistent with the findings of this study. This suggests that family labour may be used in farm processing and marketing. This finding is consistent with Ayinde et al., (2016) findings showing that 79-91% of farmers were married. It is thought that married people have kids, who have families who can help them out on the farm, particularly in situations when agricultural labourers are scarce.

Table 1. *Socio-Economic Characteristics of Respondents*

Age (Years)	**Frequency**	**Percentage**
≤30	15	25
31-40	20	33.3
41-50	10	16.6
51-60	12	20
Above 60	3	5
Total	60	100.00
Gender	**Frequency**	**Percentage**
Male	23	38.3
Female	37	61.7
Total	60	100.00

Table 1 continued

Education	**Frequency**	**Percentage**
No formal education	7	11.7
Primary education	12	20.0
Secondary education	20	33.3
Tertiary education	21	35.00
Total	60	100.00
Occupation	**Frequency**	**Percentage**
Farming	33	55
Civil servant	14	23
Business/trading	2	3.3
Artisan	7	11.7
Others	4	6.7
Total	60	100.00
Marital status	**Frequency**	**Percentage**
Married	29	48.3
Single	13	21.7
Separated	11	18.3
Divorced	2	3.3
Widow	5	8.3
Total	60	100
Source of labour	**Frequency**	**Percentage**
Family	12	20.0
Hired only	28	46.7
Both	20	33.3
Total	60	100

Source: Field Survey, 2023.

3.2 Source of Water of the Respondents

As indicated in Table 2, thirty percent of respondents used rain and river/streams water for farming; 38.3% of the respondents used rain and nearby well or well on the farm for farming; 8.3% of the respondents used rain only for farming; 23.3% of the respondents used rain and borehole for farming.

Water is a necessary component of urban agricultural production and ensures that these techniques can be carried out wherever there is water (Premanandh, 2011).

The sources of water mentioned by the respondents were boreholes, rivers/streams, wells, and rain. This is comparable to Taiwo (2014) report, which said that farmers recognized hand-dug shallow wells and rivers/streams as their water sources.

Table 2. *Source of Water of the Respondents*

Source of water	**Frequency**	**Percentage**
Rain and river/streams	18	30.0
Rain and nearby well or well on the farm	23	38.3
Rain only	5	8.3
Rain and borehole	14	23.3
Total	60	100.0

Source: Field Survey, 2023.

3.3 Types of Peri-Urban Farming

The result in Table 3 shows that 93.3% of the respondents used open fields for farming, 1.7% of the respondents used a greenhouse for farming, 5.0% of the respondents used balcony gardens for farming, while none of the respondents used moist gardening, rooftop gardens and hanging garden.

Salau and Attah (2012) studied Nasarawa State, Nigeria; their findings appear to support those of Dossa et al., (2011), Andres and Lebailly (2011), and Abdulkadir et al., (2012) in various sub-Saharan African regions, suggesting that urban and peri-urban agriculture in their study area has developed a means of bridging seasonal gaps in the supply of fresh fruits and vegetables to the state's urban dwellers.

Since the beginning of human settlements, people have been cultivating food in cities and peri-urban settings (Steel, 2008). A growing number of practitioners and increased interest from regional legislators and urban planners are driving the growth of urban agriculture initiatives in Europe (Marini et al., 2023). Ogbomoso farmers appear to have some awareness about PUA, based on the large number of respondents who said they cultivate in open fields. This supports the finding made by Rauf (2010) that farming in Ibadan's peri-urban areas has long been a part of the locals' lives, and they have a wealth of experience dealing with the issues that come with it.

Table 3. *Types of Peri-Urban Farming*

Types	**Frequency**	**Percentage**
Greenhouse	1	1.7
Open field	56	93.3
Balcony garden	3	5.0
Moist gardening	-	-
Rooftop garden	-	-
Hanging garden	-	-
Total	60	100

Source: Field Survey, 2023.

3.4 Challenges of Peri-Urban Agriculture

According to Table 4, the farmers asserted that the reason for low productivity and "wretchedness" associated with the farming activity was the lack of financial incentives or assistance in bearing or subsidizing the high costs of needed inputs like insecticides, farm implements and water. "Is urban sprawl a challenge?" Thirty-nine (39) of the respondents (65.0%) said yes, while 21 of the respondents representing 35.0% said no. The increasing urbanization and sub-urbanization may explain the reasons for the increasing relocation of farms, which in turn increases the distance between farmers' residence and their farmlands and increases the costs of production. "Is scarcity of labour a challenge to PUA?" fourteen (14) of the respondents (23.3%) said yes, while 46 of the respondents (76.7%) said no. Also, "Is erosion an impediment to PUA?" 15 of the respondents (25.0%) said yes, while 45 of the respondents (75.0%) said no. When asked if stealing of farm produce discourage them from PUA, twenty-eight (28) of the respondents (46.7%) said yes, while 32 of the respondents (53.3%) said no. Availability of land is a not challenge to PUA according to the respondents.

Population growth and changes in land use, such as the development of residential and commercial structures, may have a detrimental impact on PUA since they reduce the amount of land available for farming and road accessibility. The results of Ramsey and Danielle (2011) supported the idea that PUA is negatively impacted by population growth and the ensuing urban sprawl, particularly for a number of staple food groups like fruits, bread, and grain-based foods. Food security for some demographic subgroups may be jeopardized as a result since access to and availability of these goods may be restricted, and their prices are likely to rise.

Table 4. *Challenges of Peri-Urban Agriculture*

Challenges	**Yes**	**No**
Inadequate finance	17 (28.3)	43 (71.7)
Urban sprawl	39 (65.0)	21 (35.0)
Scarcity of labour	14 (23.3)	46 (76.7)
Erosion and flooding	15 (25.0)	45 (75.0)
Stealing of farm produce pilferage	28 (46.7)	32 (53.3)
Poor access to land	16 (26.7)	44 (73.3)

Source: Field Survey, 2023.

3.5 Potential for Peri-Urban Agriculture

The results summarized in Table 5 indicated that when respondents were asked if the abundance of land is a challenge to PUA, 43 of the respondents (71.7%) said yes, while 17 of the respondents representing 28.3% said no. This encouraged them to engage in farming, as it was used to supplement their income. Meanwhile, good soil is a challenge to PUA, as the respondents (98.3%) said yes, while one of the respondents (1.7%) said no that good soil is a challenge of peri-urban agriculture. This shows that some of the farmers in Ogbomoso knew well how to enhance the productivity of their farms. The farmers found the local manure or compost more beneficial to them because, as they claimed, it helped to supplement the necessary

nutrients absent in the soil. Availability of water is a challenge for PUA; 85.0% said yes, while nine of the respondents (15.0%) said no. Also, when asked if proximity to the market is a challenge of PUA, 75 % said yes. When asked if good road condition is a challenge 48.3% said yes, while 51.7% responded that good road condition to the market is not a challenge.

The peri-urban area (PUA) has not received much attention or research, as evidenced by the work of Mandere et al. (2010), who show that little study has been done within sub-Saharan Africa, though they acknowledge studies centered on concepts, definitions, and environmental impacts of agriculture in the peri-urban areas. Population growth later served as a catalyst for the adaptation of multifunctional farming in peri-urban areas in an effort to meet the ever-increasing need for food by urban dwellers, as many emerging nations began to observe expanding urban demand for food and services (Zasada, 2011).

According to the data, the respondents have access to a large amount of land for PUA practice. This is in contrast to Taiwo (2014), who noted that some of the examined farmers had small farms, which may indicate the difficulty farmers have in acquiring land. Furthermore, Lynch et al., (2001) noted that in Kano State, Nigeria, the size of a plot for urban agriculture varies between 0.01 and 0.4 ha in built-up neighborhoods and between 0.1 and 2.0 ha in peri-urban neighborhoods.

A large percentage of respondents (98.3%) said that their locality had good soil, which is evidence that there is good soil in our study area. One of the essential conditions for any agricultural production is the existence of healthy soil (Dexter & Czyřz, 2011; Powlson et al., 2011). It affects both the selection of urban agriculture areas and farmer production (Buckley & Carney, 2013). The more productive the land is likely to be, the less money spent on buying manure and organic fertilizers; conversely, the more money spent, the less appealing the land (Kihara et al., 2010; Schittenhelm et al., 2011). However, the farmers said that the local compost or manure supplemented the essential nutrients that were lacking in the soil, which is why they considered it more advantageous.

The outcome demonstrated that a few Ogbomoso farmers were skilled in increasing farm productivity. This outcome is also consistent with a related finding by Magnusson and Bergman (2014), who noted that PUA has a competitive advantage over products from farther away due to its close proximity to local markets. The farmers said that doing this increased their earnings.

Table 5. *Potential of Peri-Urban Agriculture (PUA)*

Potentials	**Yes**	**No**
Abundance of land	43 (71.7)	17 (28.3)
Good soil	59 (98.3)	1 (1.7)
Water availability	51 (85.0)	9 (15.0)
Nearest to the market	45 (75.0)	15 (25.0)
Good road to the market	29 (48.3)	31 (51.7)

Source: Field Survey, 2023.

4.0 Recommendations

Through its agricultural extension organization, the Oyo State Agriculture Development Programme (OYSADEP) ought to empower farmers. To lessen the shortage of farm labour and boost output, the OYSADEP should help farmers obtain soft loans and suitable equipment. Sufficient extension services must be consistently offered to give farmers the knowledge they need to manage and avoid erosion and flooding on their farms.

In order to increase the amount of land available for agriculture, the Bureau of Physical Planning and Development Control (BPP&DC) should work with farmers to implement policies that integrate agricultural land use with urban land use. This can be achieved, for example, by designating agricultural zones and establishing additional farm settlement schemes in the six less-urban local government areas of Ogbomoso. Additionally, the government should purchase the floodplains of all streams and rivers that pass through peri-urban areas and provide sufficient protection against any physical development, except for agriculture, which should only be allowed during the dry season to avoid product washes away. As a result, there will be less chance of floods and wetlands erosion, and only farmers will be able to use them for farming during both the rainy and dry seasons.

In addition,

1. The government ought to construct marketing facilities for the sale of agricultural goods.
2. The study recommends that loans be extended in response to small-scale farmers' needs and circumstances in rural areas. In particular, accessibility and less conditionality have been considered. In actuality, these tiny processors rely on credit to pay for their operations.
3. The Ogbomoso Local Government ought to support farmers by providing them with laws, rules, and guidelines that make it easier for small-scale processors to buy raw materials at auctions.
4. In order to help farmers and sellers compete with identical products made by larger, more sophisticated processors, the government should teach them business and marketing techniques as well as current technologies.

5.0 Conclusion

The study looked at and evaluated PUA as a means of guaranteeing food supply in Ogbomoso. We shall conclude that peri-urban agriculture holds significant promise for sustaining food supply in metropolitan areas. Ogbomoso's PUA can lessen the city's food scarcity since it gives residents' homes and marketplaces direct access to food that is grown locally. Peri-urban agriculture in Ogbomoso has a future if the opportunities it has been identified as having and the obstacles it faces are sufficiently handled. It is imperative to overcome the obstacles pertaining to the current and future food supply in order to attain food security in Ogbomoso. Planners and everyone else involved in the food system are also affected by this task, which is not solely the government's problem.

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