Awareness, Perception, and Involvement in Urban Agriculture among Staff of the University of Benin Nigeria

BY

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DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES

FACULTY OF AGRICULTURE

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A PROJECT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES, FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS FOR THE AWARD OF BACHELOR'S DEGREE IN AGRICULTURE (OPTION: AGRICULTURAL ECONOMICS AND EXTENSION SERVICES)

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CERTIFICATION

This is to certify that this project was carried out by Jeffrey Osemekhian EHIMEN, with the Matriculation Number AGR2008796, of the Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Benin, Benin City, Nigeria.

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DEDICATION

This project work is dedicated firstly to Almighty God, for guidance and strength. Then to my Parents (Dad and Mom) for the continued support and love.

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With a heart full of gratitude, I give all thanks and glory to God Almighty, my source of wisdom, strength, and guidance. His grace has sustained me, His love has uplifted me, and His divine favor has made this journey possible. Through every challenge, He has been my refuge, and without His mercy, this research would not have been accomplished.

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through determination and faith, I have pushed through every obstacle. I celebrate my own hard work and commitment to achieving this milestone.

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been a source of strength, and I truly appreciate everything you have done to make this process smoother. Knowing that I have a family that stands by me through thick and thin has given me the confidence to keep pushing forward.

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TABLE OF CONTENTS

PAGE

LIST OF TABLES

ABSTRACT

Urban agriculture (UA) has become an increasingly important livelihood, nutritional, and resilience strategy among households in Nigeria's rapidly urbanizing cities. However, its uptake among educated professionals including university staff remains insufficiently documented. This study investigated the awareness, perception, and involvement in urban agriculture among academic and non-academic staff of the University of Benin, Nigeria, focusing on two contrasting faculties: Agriculture (agriculturally oriented) and Social Sciences (non-agriculturally oriented). A total of 74 respondents, representing 20% of the total staff, were selected using random sampling. A structured questionnaire was

used to collect data on socioeconomic characteristics, awareness, perception, level of involvement, motivations, and challenges. Data were analyzed using descriptive statistics, Pearson Product-Moment Correlation Coefficient (PPMC), independent t-test, and logistic regression, with significance set at 5% ($p < 0.05$) and processed using SPSS Version 29. Findings show that UA participation cuts across diverse demographic groups but is dominated by middle-aged (mean = 45 years) and male staff (68.9%), most of whom are married (93.2%). Respondents were highly educated, with 50% holding BSc/HND, 27% MSc, and 16.2% PhD degrees, yet earned relatively modest monthly incomes ranging from ₦20,000 to ₦69,999, indicating that UA functions as an essential coping strategy within the university community. Most staff had worked for 11–15 years (55.4%), suggesting residential and occupational stability that supports UA engagement.

Awareness of UA was moderately high (66.2%), with colleagues (55.4%) and social media (48.6%) serving as the primary information channels. However, formal exposure to agricultural training was almost absent only 5.4% had ever attended a UA workshop, and no respondent reported contact with extension agents. Institutional awareness was also low, with only 20.3% recognizing UA activities within the university. Perception of UA was strongly positive. Respondents agreed that UA improves food security (mean = 3.51), enhances sustainability (3.59), promotes mental well-being (3.55), reduces household food

expenses (4.36), and is worthwhile for professionals (3.64). Negative stereotypes such as UA being "only for the poor" were rejected. Academic staff exhibited significantly more positive perceptions than non-academic staff ($t = 3.997$; $p < 0.001$), reflecting disciplinary exposure and familiarity with sustainability concepts. Involvement in UA was moderate (60.8% actively involved). The most practiced activities were vegetable cultivation (60.8%), yam (56.8%), and maize production (48.6%), which requires minimal space and low capital. Poultry (17.6%), fish farming (6.8%), and ruminant husbandry (<7%) were less common due to cost, land, and regulatory limitations. Involvement indices revealed the highest engagement in vegetables (mean = 3.12), followed by yam (2.58), maize (2.52), and poultry (2.55).

Motivation for participation was multi-layered. Respondents engaged in UA to access fresh organic foods (68.9%), improve household nutrition (52.7%), generate additional income (50%), reduce food expenditure, enjoy health and recreational benefits, or pursue research/training objectives (6.8%). The study revealed substantial constraints limiting UA productivity, including land-use conflicts (85.1%), lack of funds (78.4%), high input costs (75.7%), poor storage/processing facilities (82.4%), water scarcity (70.3%), poor extension support (79.7%), harsh climatic conditions (50%), and insecurity/theft (50%). Time constraints (40.5%) also hindered staff participation. Hypothesis testing

produced critical insights for policy direction. The PPMC showed that awareness had a strong and significant relationship with involvement ($r = 0.388$; $p = 0.002$). Logistic regression further confirmed that awareness is a major predictor of participation staff who were aware were 5.07 times more likely to practice UA. Age was also significant ($p = 0.030$), indicating that older staff are more likely to engage in UA. Conversely, sex, education, income, job category, and years of service showed no statistically significant influence on involvement, demonstrating that UA is widely embraced regardless of socioeconomic differences.

The study concludes that while awareness and perception of UA are high among university staff, active participation remains limited by structural, financial, and institutional challenges. To maximize UA's potential in urban food systems, the study recommends: (1) establishing a formal University Urban Agriculture Policy, (2) providing regular training and extension support, (3) offering subsidized inputs and low-cost technologies, (4) developing campus storage and processing infrastructure, and (5) enhancing awareness through institutional communication. Overall, the study underscores the significant role of urban agriculture in improving food security, promoting healthy living, and strengthening household resilience among educated urban populations, while

highlighting the need for systematic institutional support to fully harness its benefits.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Urban agriculture, the cultivation, processing, and distribution of food in and around urban areas, has emerged as a vital tool in combating food insecurity, poverty, and unemployment in developing countries (Mougeot, 2000). In Nigeria, rapid urbanization, economic instability, and rising food prices have propelled urban dwellers, including academic and non-academic university staff, to engage in small-scale agricultural activities as a means of sustenance, economic empowerment, and food security. Within Edo State, the University of Benin (UNIBEN) hosts a significant number of staff who are increasingly participating in urban agricultural practices either as a coping mechanism or a supplementary source of income.

Agricultural extension services are crucial in promoting urban agriculture by facilitating the dissemination of improved farming technologies, best practices, and access to inputs. The role of agricultural extension in urban settings has expanded beyond traditional rural models and now involves adaptive strategies suitable for limited land, water scarcity, and environmental sustainability challenges faced in urban locales (Van den Berg and Jiggins, 2007). Understanding how extension

services influence urban agriculture among university staff in Edo State is vital for developing responsive policies and support structures.

It has been observed that urban agriculture has gained momentum among urban residents as a response to food insecurity and economic challenges, particularly among educated urban dwellers (Edeoghon, 2018). Urban agriculture provides important benefits such as improved household food security, additional income, and employment opportunities for urban dwellers. Through urban farming activities, many families are able to reduce food expenses, enhance nutrition, and create alternative sources of livelihood within cities (Edeoghon, Ajayi and Ugboya, 2018). These benefits make urban farming a valuable strategy for coping with current socio-economic pressures.

Urban farmers engage in diverse activities such as crop cultivation in home gardens, open spaces, and along roadsides, as well as poultry and small ruminant rearing. These practices are often adapted to limited urban spaces and are driven by the need for food security and income supplementation (Omonona and Agoi, 2017). However, several key challenges undermine the growth and effectiveness of urban agriculture. These include inadequate access to land, limited credit facilities, poor infrastructure, weak extension services, and broader socioeconomic factors such as low income levels and rapid urbanization (Olumba, Olumba and Alimba, 2021). There should be emphasis on the importance of integrating urban agriculture into city planning and governance to

enhance food security and nutrition. It advocates for multi-stakeholder coordination between national and local authorities to improve food systems' efficiency and resilience, particularly in rapidly urbanizing areas (FAO, 2020).

1.2 Statement of the Problem

Urban agriculture is not a recent phenomenon, but its relevance has grown in recent years due to increasing urban poverty, inflation, food shortages, and the high cost of living (FAO, 2020). The engagement of university staff in urban agriculture represents a unique intersection between education and livelihood strategies. These staff members, both academic and non-academic, play key roles in the academic ecosystem and often face economic pressures that necessitate income diversification strategies. While some pursue urban agriculture for commercial purposes, others see it as a household-level intervention to meet food needs (Yusuf, Balogun and Falegbe, 2015).

Urban agriculture is increasingly recognized for its potential to enhance food security, provide employment, and improve nutrition in urban areas. However, its practice among university staff remains underexplored. Academic and non-academic staff are often assumed to earn sufficient incomes, yet economic realities—especially in the wake of inflation, delayed salaries, and rising living costs—challenge this assumption (Ogunode and Ugochuckwu, 2015).

Several problems hinder the development and success of urban agriculture in university communities. These include lack of access to land, inadequate extension services, insufficient knowledge of modern urban farming techniques, and limited governmental or institutional support (Olumba, Olumba and Alumba, 2021). Moreover, the dichotomy between academic and non-academic staff may reflect varying levels of awareness, access, and engagement in urban farming practices. There is also a potential disconnect between available agricultural extension services and the needs of urban farmers in the university setting (Mkwambisi, Fraser and Dougill, 2024).

The extent to which extension services have reached or can effectively support urban agricultural activities among university staff is unknown (Olumba, Olumba and Alumba). Furthermore, while informal urban farming is prevalent, there is little documentation of its contribution to household food security and livelihood sustainability within academic communities. This study, therefore, seeks to examine urban agriculture practices among academic and non-academic staff in University of Benin with a view to understanding their motivations, challenges, and the role of agricultural extension in their agricultural engagements.

1.3 Research Questions

1. What are the socioeconomic characteristics of academic and non-academic university staff involved in urban agriculture in University of Benin?

2. What is the level of awareness of urban agriculture among academic and non-academic staff?

3. What is the perception of academic and non-academic staff toward urban agriculture?

4. What is the level of involvement of academic and non-academic staff in urban agriculture?

5. What motivates staff participation in urban agriculture?

6. What challenges hinder effective participation in urban agriculture by academic and non-academic staff?

1.4 Objective of the Study

The broad objective of this study is to assess the perception, awareness, and involvement in urban agriculture among staff of University of Benin, Nigeria.

The specific objectives are to:

1. describe the socioeconomic characteristics of academic and non-academic university staff involved in urban agriculture.

2. determine the level of awareness of urban agriculture among the staff.

3. assess the perception of academic and non-academic staff toward urban agriculture.

4. examine the level of involvement in urban agriculture among staff.

5. identify the motivating factors behind staff engagement in urban agriculture.

6. examine the challenges faced by staff in practicing urban agriculture.

1.5 Hypotheses of the Study

1. There is no significant relationship between socioeconomic characteristics and level of involvement in urban agriculture among university staff

2. There is no significant relationship between staff awareness and their level of involvement in urban agriculture.

3. There is no significant difference in the perception of urban agriculture between academic and non-academic staff.

1.6 Justification of the Study

This research is crucial in understanding how university staff in urban settings are adapting to socio-economic challenges through agriculture. It also seeks to highlight the role of agricultural extension in supporting this adaptation. By providing empirical data on urban agriculture in academic institutions, the findings can guide policymakers, university administrators, and agricultural extension professionals in designing effective support systems for urban farmers. Furthermore, the study contributes to the growing discourse on urban agriculture in Nigeria and the need to include educated, urban populations in agricultural development plans. Given the influence of university staff in knowledge dissemination and innovation adoption, understanding their engagement in agriculture can also have positive multiplier effects. Unlike many existing studies that focus on informal or low-income urban farmers, this study is unique in examining urban agriculture among professionals specifically academic and non-academic university staff. These are individuals with formal employment and educational backgrounds who still find it necessary to engage in farming as a livelihood strategy. Their participation represents a distinctive segment of urban agriculture practitioners whose experiences and needs may differ from the general urban population. Investigating this group provides new insights into how professional, educated individuals are integrating agriculture into their urban lives, and how extension services can be tailored to support them effectively.

1.7 Scope of the Study

The study focuses on the academic and non-academic staff of the University of Benin (UNIBEN) in Edo State. It covers the perception, awareness, types, involvement, motivations, and challenges of urban agriculture practices. The study does not include students or non-staff residents of the university community.

CHAPTER TWO

LITERATURE REVIEW

2.1 Urbanization, Poverty, and the Drivers of Urban Agriculture

Urbanization, especially in the context of developing countries such as Nigeria, presents a dual-edged phenomenon. On one hand, it brings industrial growth, infrastructure development, and access to education and healthcare. On the other hand, it results in severe socio-economic disparities, overstretched social services, and entrenched urban poverty. The combined pressures of urban expansion and systemic underdevelopment have increasingly pushed urban residents toward informal livelihood strategies, with urban agriculture emerging as a prominent and adaptive response (Rivera-Williams, 2025).

2.1.1 The pace and nature of urbanization in Nigeria

Nigeria has experienced a rapid urban transition over the past three decades. According to the United Nations Department of Economic and Social Affairs (UN DESA, 2022), more than half of Nigeria's population now resides in urban areas, with projections suggesting that urban dwellers will constitute over 70% by 2050. However, this urban growth has largely been unplanned and unregulated, especially in secondary cities such as Benin City. The result has been a proliferation of slums, informal housing, and widespread unemployment (Uzinyia, 2025).

Studies by Uzinyia (2025) on Cross River and Akwa Ibom States show that urban population growth has directly strained education, housing, water supply, and healthcare systems. These same conditions are echoed in cities like Benin, where university staff and other residents face mounting costs of living, housing shortages, and volatile food prices. These systemic failures of social services form the background against which urban agriculture has re-emerged as a survival strategy.

2.1.2 Understanding urban poverty

Urban poverty in Nigeria is multifaceted. It is not merely a lack of income, but a condition marked by inadequate access to clean water, poor housing quality, food insecurity, and unstable employment (Rivera-Williams, 2025). Poverty in urban areas is further intensified by inflation, weak governance, and institutional neglect. According to the World Bank (2023), over 40% of urban Nigerians live below the poverty line, with informal employment being their primary source of income.

University staff, although perceived as part of the middle class, are increasingly affected by these conditions. Ogunode and Ugochukwu (2023) assert that academic and non-academic staff in Nigerian universities faces delayed salaries, wage stagnation, and lack of institutional welfare. These realities challenge the assumption that educated urban populations are economically secure, revealing their vulnerability to economic shocks.

2.1.3 Why urban agriculture emerges

Against the backdrop of inflation, unemployment, and food insecurity, urban agriculture has become a form of resilience and resistance. It is practiced by both low-income residents and salaried professionals, including university staff, as a means to supplement food supply, increase household income, and maintain nutritional standards (FAO, 2020; Yusuf, Balogun and Falegbe, 2015).

Edeoghon (2018) emphasizes that educated urban dwellers have increasingly turned to agriculture as both a livelihood strategy and a response to systemic neglect. For some, it is a matter of subsistence feeding their families amidst rising food prices. For others, particularly among university staff, it is a strategy to create additional income streams or contribute to sustainable living practices.

Additionally, urban agriculture plays a cultural role. In many Nigerian households, agriculture is seen not only as a means to survive but as a continuation of traditional livelihoods, adapted to the urban setting. This explains why urban farming is not confined to the urban poor; it extends to educated, employed individuals who recognize its social and economic value.

2.1.4 Structural and policy drivers

Several macro-level factors reinforce the practice of urban agriculture:

Food inflation: Nigeria has faced consistent food inflation above 20% over the past five years (NBS, 2023).

Inadequate rural supply chains: Urban residents have adopted direct production to bypass unreliable supply chains.

Land use regulations and gaps in urban planning: Absence of enforced zoning in many Nigerian cities has allowed informal agricultural activities to flourish in vacant plots, along roadsides, and within institutional compounds.

Government neglect: Urban agriculture remains largely unsupported by national agricultural policy, despite evidence of its contribution to food security and household income (FAO, 2020; Mkwambisi, Fraser and Dougill, 2024).

2.1.5 Urban agriculture in university communities

University communities, such as the University of Benin, are microcosms of the broader urban context. Staff in such institutions experiences many of the same pressures as the general population rising food prices, stagnant wages, and housing costs. Yet, they also possess higher levels of education and technical knowledge,

making them potentially more adept at adopting modern urban agriculture techniques (Edeoghon and Ajayi, 2015).

Within these communities, urban agriculture also intersects with research and pedagogy. Faculty members in agricultural sciences may practice urban farming both for food and as a demonstration or research tool, while non-academic staff may use it primarily for sustenance and income. This dual use of urban agriculture highlights its flexibility and relevance across different occupational strata.

2.2 Concept and Prevalence of Urban Agriculture

Urban agriculture is broadly defined as the cultivation, processing, and distribution of food within and around urban areas. It includes a wide range of food-growing activities ranging from backyard gardens and container farming to small-scale poultry, fish farming, and crop cultivation on open lands, road verges, and institutional compounds (Mougeot, 2000; FAO, 2020). It is distinct from rural agriculture in its proximity to consumer markets, use of limited space, and integration into the daily life and economy of urban residents.

In Nigeria, urban agriculture is increasingly being recognized not only as a response to poverty and food insecurity but also as a legitimate component of the urban food system (Omonona and Agoi, 2017). Its relevance has intensified in recent years due to economic volatility, the rising cost of living, and the inadequacy of food supply

systems in meeting the nutritional needs of growing urban populations (FAO, 2020; Salau and Attah, 2012; Olumba, Olumba and Alimba, 2021).

2.2.1 Prevalence among educated urban residents

Although previously considered an activity for low-income urban dwellers, studies show that educated professionals including civil servants, health workers, and university staff are increasingly involved in urban agriculture (Edeoghon, Ajayi and Ugboya, 2015; Ogunode and Ugochukwu, 2023). This is particularly evident in institutions like the University of Benin, where academic and non-academic staff use both personal and institutional spaces for small-scale crop and livestock production (Okon and Edeoghon, 2017). This growing trend reflects economic necessity, food insecurity, and the desire for organic and home-grown produce. Yusuf, Balogun, and Falegbe (2015) found that even among salaried professionals, urban agriculture has become a crucial strategy for minimizing food costs and enhancing dietary quality.

2.2.2 Institutional and spatial dimensions

Urban agriculture utilizes various spatial configurations home plots, open spaces, containers, and institutional land. According to Aduloju *et al.* (2024), vacant lots, university campuses, green belts, and road medians are commonly used spaces for food production in Nigerian cities. In Benin City, a spatial analysis by Aduloju *et al.*

(2024) revealed that university and public lands are being informally adapted for gardening, particularly by non-academic staff and retirees.

At UNIBEN, aquaculture, poultry, and vegetable production are practiced within both formal (faculty-led) and informal (individual-led) structures. Okon and Edeoghon (2017) observed that many staff members engage in fish farming using university farm resources, while others plant vegetables in residential quarters, highlighting the blend of professional and subsistence agriculture.

2.2.3 Contribution to food security and urban livelihoods

Urban agriculture is now widely acknowledged for its contribution to household food security. It allows families to reduce their dependence on erratic food markets and provides access to nutritious produce at minimal cost (Salau and Attah, 2012). According to Swanepoel, Van Niekerk, and Tirivanhu (2021), small-scale urban farms in informal settlements improve daily vegetable intake and reduce monthly food spending by up to 25%.

Among university staff, these benefits translate into better nutritional outcomes and enhanced coping capacity during economic downturns. Nwanojuo, Anumudu, and Onyeaka (2025) note that during the COVID-19 pandemic, urban farmers with home gardens were less likely to report food shortages. The role of urban agriculture as a resilience mechanism is especially critical in inflation-prone economies like Nigeria's.

2.2.4 Trends and patterns in recent research

Recent scholarship has shown increased interest in the social science dimensions of urban agriculture. Yusuf, Haris, Man, and Ahmi (2022), in a bibliometric review, revealed that studies now emphasize themes such as stakeholder perceptions, gender roles, and urban planning policy gaps. Di Fiore, Specht, and Zanasi (2021) argue that stakeholder motivations in urban farming range from economic survival to environmental consciousness and stress relief. Furthermore, there is growing attention to technological innovation. Controlled Environment Agriculture (CEA) such as hydroponics and vertical gardens is emerging as a space-saving and water-efficient solution, particularly in densely built areas (Nwanojuo, Anumudu and Onyeaka, 2025). Although still underutilized in Nigeria, university communities offer ideal grounds for piloting such methods.

2.2.5 Urban agriculture and green infrastructure

Urban agriculture also contributes to environmental sustainability. It conserves urban green spaces, improves air quality, and supports biodiversity (Adegun, Ikudayisi, Morakinyo and Olusoga, 2021). However, Ilori *et al.* (2025) reported that urban green spaces in Ilorin are rapidly disappearing due to residential and commercial construction, reducing the availability of land for urban farming. This trend underscores the need for formal integration of agriculture into urban planning.

According to Wadumestrige Dona, Mohan, and Fukushi (2021), proactive city planning that protects community gardens and encourages green infrastructure can expand urban farming opportunities and improve urban food resilience. This is particularly important in university settings, where land-use conflicts between development and green space preservation often arise.

2.3 Types and Practices of Urban Agriculture

Urban agriculture encompasses a wide range of practices that vary according to space availability, socioeconomic status, environmental conditions, and the intended purpose of production be it subsistence, income generation, or research. According to FAO (2020), these practices can be broadly classified into home gardening, rooftop or container gardening, peri-urban crop farming, poultry production, aquaculture, and integrated systems such as agroforestry and composting.

In Nigerian cities, urban agriculture practices are shaped by informal access to land, climate, and local consumption patterns. Salau and Attah (2012) observed that urban dwellers in Nasarawa State commonly grow vegetables like spinach, okra, and amaranthus in backyard gardens. Similarly, Edeoghon, Ajayi, and Ugboya (2015) found that urban households in Edo State engage in multiple forms of farming, including livestock rearing and vegetable gardening, often utilizing containers, cemented yards, or borrowed plots.

2.3.1 Crop-based practices

Crop cultivation is the most widely practiced form of urban agriculture. It involves growing vegetables and herbs in home gardens, balconies, abandoned plots, or along drainage channels. Common crops include tomatoes, pepper, ugu (fluted pumpkin), okra, and maize. These crops are selected for their short growing cycles and relevance to household diets (Omonona and Agoi, 2017). Rooftop and vertical gardens have gained attention due to land scarcity in urban centers. Though still relatively uncommon in Nigeria, controlled environment techniques such as hydroponics and vertical farming are being introduced, especially in academic institutions for research and demonstration purposes (Nwanojuo, Anumudu and Onyeaka, 2025).

2.3.2 Livestock-based practices

Livestock rearing is another key component of urban agriculture in Nigeria. Poultry, goats, rabbits, and snails are commonly kept in residential areas for meat, eggs, or commercial sales. According to Edeoghon (2017), poultry farming in urban Benin provides a substantial supplementary income for both academic and non-academic staff of UNIBEN. Aquaculture, particularly fish farming in tanks and concrete ponds, is also practiced in urban institutions. Okon and Edeoghon (2017) reported that the University of Benin's fish farm not only supports research and teaching but also serves as a food source for staff and students.

2.3.3 Integrated and innovative systems

Integrated urban farming systems combine plant and animal production with waste recycling, composting, and water reuse. These methods are environmentally sustainable and efficient for space and input utilization. Adegun *et al.* (2021) argue that integrated systems contribute to urban resilience by minimizing waste and improving green infrastructure.

Controlled Environment Agriculture (CEA), although not yet widespread, holds promise in addressing spatial limitations. The use of greenhouses, hydroponics, and aquaponics systems within institutional environments could play a key role in the future of urban farming in Nigeria, especially if supported by academic research and extension services (Nwanojuo *et al.,* 2025).

2.3.4 Institutional and community-based practices

In university settings, farming practices may be formal (institution-managed farms) or informal (individual staff initiatives). These dual arrangements create opportunities for collaborative learning, research, and food production. At the University of Benin, both the Faculty of Agriculture and individual staff members engage in aquaculture, crop cultivation, and animal husbandry (Okon and Edeoghon, 2017).

Swanepoel, Van Niekerk, and Tirivanhu (2021) highlight the potential of communal farming plots and cooperative structures in enhancing food access among urban

populations. These models encourage knowledge-sharing, reduce input costs through pooling of resources, and provide a platform for collective marketing.

Overall, the types and practices of urban agriculture in Nigeria reflect adaptability, innovation, and resilience in the face of economic and spatial constraints. As more educated professionals engage in these practices, particularly in university communities, the complexity and relevance of urban agriculture will continue to grow.

2.4 Socioeconomic Characteristics and Awareness

The socioeconomic characteristics of individuals engaged in urban agriculture play a significant role in shaping their motivations, awareness levels, and extent of involvement. Factors such as income level, educational attainment, occupation, gender, age, and access to land and resources often determine the form and intensity of urban farming activities (Edeoghon, Ajayi and Ugboya, 2015).

In the Nigerian context, both low-income earners and educated professionals including university staff participate in urban agriculture. Ogunode and Ugochukwu (2023) noted that academic and non-academic staff often turn to farming as a coping mechanism in the face of inflation, salary delays, and economic uncertainty. While traditionally associated with informal sectors and the urban poor, urban farming has become a widespread livelihood strategy across diverse professional groups.

Studies conducted by Edeoghon and Okoede-Okojie (2015) found that younger and middle-aged individuals are more likely to engage in urban agriculture, especially when they have access to land through tenancy, inheritance, or institutional arrangements. Women also play a central role in urban agriculture, particularly in household-based gardening and small livestock rearing.

Awareness of urban agriculture as a productive and viable activity is high among university communities. According to Anozie and Edeoghon (2015), urban farmers in Lagos State, including educated residents, accessed information through extension agents, social networks, and mass media. However, gaps remain in technical knowledge and access to updated practices such as hydroponics or integrated pest management.

Ilori *et al.* (2025) emphasized the importance of spatial and environmental awareness, noting that many urban farmers are unaware of zoning regulations, health implications of water use, or the environmental benefits of green spaces. In university settings like UNIBEN, while the educational background of staff increases their exposure to agricultural innovations, practical implementation is still constrained by time, space, and institutional support. The level of awareness often determines how seriously individuals perceive urban agriculture. Swanepoel, Van Niekerk, and Tirivanhu (2021) highlighted that when urban agriculture is seen merely as a subsistence strategy, awareness efforts may not translate into deeper engagement. Conversely, when framed

within sustainability, income generation, and urban resilience, awareness tends to foster stronger participation. Overall, socioeconomic status and awareness influence the choices individuals make regarding the type of farming practiced, scale of operation, and adoption of improved technologies. A clear understanding of these variables is essential to designing interventions that support urban farmers, especially within academic institutions where knowledge dissemination and resource access are more structured.

2.5 Perceptions and Motivations

Perception refers to the way individuals interpret and make sense of urban agriculture based on their experiences, knowledge, and socio-economic contexts. In university settings, perception greatly influences whether staff see urban agriculture as a productive, necessary, or worthwhile endeavor. Edeoghon (2018) notes that many educated urban dwellers perceive urban agriculture not only as a survival strategy but as a sustainable and beneficial activity that contributes to their well-being. For academic and non-academic staff at institutions like the University of Benin, perceptions are shaped by personal needs, institutional environment, and broader economic realities. Ogunode and Ugochukwu (2023) highlight that delayed salaries, inflation, and insufficient food supply have led to a positive perception of farming as a supplement to income and nutrition. Motivation to participate in urban agriculture varies. Edeoghon, Ajayi, and Ugboya (2015) found that in Edo State, staff members

were motivated by food self-sufficiency, economic empowerment, health concerns (preference for organic food), and a desire to maintain traditional ties to agriculture. According to Di Fiore, Specht, and Zanasi (2021), motivations can also be social and psychological such as community bonding, relaxation, or environmental consciousness.

In university communities, access to knowledge and land can also motivate participation. Okon and Edeoghon (2017) reported that staff who work in agriculturally inclined faculties are more likely to engage in innovative practices due to exposure to demonstrations and workshops. The academic environment fosters experimentation and innovation, further reinforcing positive perceptions. However, not all perceptions are positive. Some staff regard urban agriculture as labor-intensive or incompatible with their professional lifestyle. Ilori *et al.* (2025) observed that time constraints and social stigma sometimes deter educated individuals from farming, particularly when it is associated with poverty or informal labor.

Despite these barriers, most staff involved in urban agriculture express a strong belief in its benefits. Swanepoel, Van Niekerk, and Tirivanhu (2021) emphasized that when urban agriculture is perceived as a legitimate livelihood strategy rather than a survival tactic, it receives broader acceptance and institutional support. This perception is crucial for scaling up urban farming programs and integrating them into city and university planning. Thus, understanding perception and motivation is key to

designing responsive extension services and policies that align with the goals and realities of urban farmers especially in academic institutions where potential for innovation and influence is high.

2.6 Benefits of Urban Agriculture

Urban agriculture provides multiple benefits that span economic, social, nutritional, and environmental dimensions. For university staff, these benefits are particularly important as they supplement income, enhance food security, and offer avenues for health and community engagement. Edeoghon, Ajayi, and Ugboya (2015) observed that many urban dwellers in Edo State engaged in farming to improve household nutrition and generate additional income. Among academic and non-academic staff, these benefits also extend to educational and research purposes, especially when agriculture is linked to teaching and demonstration plots.

One of the primary benefits of urban agriculture is improved household food security. FAO (2020) noted that by producing fresh vegetables, fruits, and animal products, urban farmers reduce their dependency on fluctuating food markets and ensure access to quality food. Swanepoel, Van Niekerk, and Tirivanhu (2021) found that urban agriculture contributes significantly to food availability and affordability, especially in low-income and inflation-prone urban households. Similarly, Gunasiri Wadumestrige Dona, Mohan, and Fukushi (2021) emphasized that integrating urban agriculture into urban planning can help build more resilient and equitable food systems in rapidly

urbanizing regions. From a financial perspective, urban agriculture provides a reliable supplementary income. Salau and Attah (2012) documented that urban farmers in Nasarawa State earned up to 25% of their monthly income from produce sales. University staff who rear poultry or sell vegetables can offset living expenses and sometimes invest profits into other household needs (Edeoghon, 2017).

Health and nutrition benefits are also prominent. The production and consumption of organic vegetables and poultry reduce exposure to chemically preserved foods. This is particularly valued by educated urban farmers who are aware of the health risks associated with commercially treated foods (Yusuf, Balogun and Falegbe, 2015). Yuan *et al.* (2022) support this, noting that urban agriculture also fosters dietary diversification and increased awareness of nutrition and wellness practices. Urban agriculture supports mental and social well-being. According to Di Fiore, Specht, and Zanasi (2021), many urban dwellers engage in farming for relaxation, stress relief, and community bonding. University staff often view farming as a recreational activity or a connection to their cultural heritage. Community plots and school gardens have also been shown to improve social interaction and reduce urban isolation (Yuan *et al.,* 2022). Environmentally, urban farming contributes to greening cities, recycling organic waste, and improving air quality. Adegun, Ikudayisi, Morakinyo, and Olusoga (2021) highlight that urban agriculture plays a key role in promoting sustainable urban ecosystems by preserving open spaces and enhancing biodiversity. Yuan *et al.* (2022)

further add that urban agriculture helps reduce the urban heat island effect and provides educational opportunities related to ecological sustainability. Institutionally, urban agriculture contributes to research, demonstration, and student training. At UNIBEN, for instance, the Faculty of Agriculture utilizes urban agriculture projects for hands-on learning and extension outreach (Okon and Edeoghon, 2017). These activities reinforce the educational mission of universities while providing food and income benefits to staff.

In sum, the benefits of urban agriculture are substantial and multifaceted. Recognizing and enhancing these benefits through supportive policies, stakeholder engagement, and institutional frameworks can increase staff participation and promote sustainable urban food systems.

2.7 Challenges and Constraints of Urban Agriculture

Despite its recognized benefits, urban agriculture faces a range of challenges that limit its scalability, productivity, and institutional integration. These constraints are particularly relevant within academic institutions where limited space, bureaucratic processes, and lack of targeted support can hinder staff participation. A major challenge is limited access to land. Urban land is highly competitive and often prioritized for construction, infrastructure, and commercial development. Aduloju *et al.* (2024) report that shrinking open spaces due to rapid urbanization in Nigerian cities is one of the greatest threats to sustained urban agriculture. The loss of green spaces

reduces opportunities for food cultivation and limits the environmental benefits of agriculture (Ilori *et al.,* 2025). Institutional and regulatory barriers also pose significant problems. Many urban farmers operate informally and lack security of tenure on the land they use. Without formal recognition or support, they risk eviction or interference. According to Olumba, Olumba, and Alimba (2021), urban farmers in Southeast Nigeria face legal and policy gaps that discourage investment and long-term planning. Within university campuses, lack of formal land-use policies for farming further complicates participation.

Infrastructural constraints, such as poor access to water, lack of storage facilities, and inadequate roads, further limit productivity. FAO (2020) emphasized that in developing countries, weak physical infrastructure makes it difficult for urban farmers to transport, preserve, and market their produce efficiently. Salau and Attah (2012) noted that limited access to water during dry seasons results in low yields and crop failure, especially for vegetable growers. Financial barriers are also significant. Many staff lack the initial capital to invest in quality inputs like fertilizers, improved seeds, or housing for livestock. According to Swanepoel *et al.* (2021), access to microfinance and agricultural credit is limited for informal urban farmers due to lack of collateral or formal registration. Extension services, which are vital for information dissemination and skills development, are often under-resourced or focused solely on rural agriculture. Van den Berg and Jiggins (2007) pointed out that most extension systems

are not adapted to the urban context, and few offer solutions tailored to small-scale, space-constrained farming. Ogunode and Ugochukwu (2023) add that university staff often lack access to updated agricultural knowledge despite working in academic environments. Social stigma and cultural perceptions also act as barriers. Farming is sometimes viewed as a rural or low-status activity, incompatible with the professional identity of university staff (Di Fiore *et al.,* 2021). This perception may discourage participation, especially among younger staff or women who fear social judgment. Environmental constraints such as pollution, waste mismanagement, and soil degradation further reduce the viability of urban agriculture. Adegun *et al.* (2021) stress that many urban farms are located near drainages, refuse dumps, or contaminated lands, posing risks to public health.

Lastly, poor coordination among stakeholders and absence of clear policies hinder the long-term integration of urban agriculture into city and institutional plans. Gunasiri Wadumestrige Dona *et al.* (2021) emphasized the need for multi-level governance structures to support urban agriculture, involving universities, local governments, NGOs, and private actors.

In summary, while urban agriculture offers a wide range of benefits, its sustainability is undermined by numerous interconnected challenges. Addressing these barriers through policy, institutional support, and infrastructural development is essential for strengthening the role of urban agriculture in food security and urban resilience.

2.8 Role of Extension Services in Urban Agriculture

Extension services play a pivotal role in equipping urban farmers with the knowledge, skills, and technologies necessary for sustainable agricultural practices. In the context of university staff engaging in urban agriculture, extension services can serve as a bridge between academic knowledge and practical application, fostering innovation and enhancing productivity. Traditional extension systems in Nigeria have historically focused on rural areas, leaving urban farmers under-supported. Van den Berg and Jiggins (2007) argue that while Farmer Field Schools (FFS) and participatory approaches have improved outreach in rural settings, these models are yet to be fully adapted to the urban environment. Urban agriculture requires context-specific information, including space-saving techniques, rooftop gardening, composting, and pest control for confined areas. Within academic institutions like the University of Benin, the role of extension can be internal or external. Internal extension involves sharing best practices among faculty, staff, and students, often through workshops, seminars, and demonstration plots. Okon and Edeoghon (2017) highlight the contributions of the Faculty of Agriculture at UNIBEN in facilitating knowledge exchange and providing technical support for staff engaged in poultry and fish farming. External extension services provided by government agencies, NGOs, and private sector actors are often limited in urban contexts. Ogunode and Ugochukwu (2023) emphasize that urban farmers especially educated professionals are overlooked in

extension planning, as their farming activities are considered informal or secondary. This neglect reduces opportunities for innovation diffusion and access to new technologies. Digital extension tools such as mobile apps, radio programs, and social media platforms are increasingly being recognized as promising alternatives. Yuan *et al.* (2022) found that urban farmers in several countries benefit from digital platforms that offer weather forecasts, market information, and pest management tips. Integrating such platforms into university-based urban agriculture could significantly enhance productivity and participation. Furthermore, extension services have a critical role in promoting environmentally sustainable practices. Adegun *et al.* (2021) suggest that urban agriculture contributes to green infrastructure only when it follows ecological principles. Extension programs that incorporate urban planning, waste recycling, and organic farming methods can strengthen the environmental benefits of urban farming.

In addition to technical support, extension agents can help bridge policy and governance gaps by advocating for farmers' rights and facilitating access to institutional support. Gunasiri Wadumestrige Dona *et al.* (2021) emphasized the need for multi-stakeholder extension models that include local governments, academic institutions, and civil society organizations.

In conclusion, effective and inclusive extension services are essential to unlocking the full potential of urban agriculture, especially among educated groups like university staff. Expanding the reach, relevance, and responsiveness of extension systems will enhance knowledge-sharing, improve productivity, and promote sustainable urban development.

2.9 Policy Implications and Institutional Support

Urban agriculture cannot thrive without enabling policies and strong institutional support. In the context of Nigerian universities, including the University of Benin, policy frameworks and institutional actions are critical for promoting, regulating, and integrating urban farming activities. Nationally, there is limited explicit policy support for urban agriculture. Most agricultural policies are rural-focused, overlooking the unique needs and challenges of urban farmers. Olumba, Olumba, and Alimba (2021) argue that the absence of clear legal recognition for urban agriculture in Nigerian development plans hinders investment, land tenure security, and infrastructural development. This policy vacuum affects both individual and institutional actors. At the institutional level, support for urban agriculture is often informal and inconsistent. In some cases, faculties of agriculture, like that at UNIBEN, offer practical support such as training, access to seedlings, or demonstration plots (Okon and Edeoghon, 2017). However, these initiatives are rarely backed by formal policy directives or budgetary allocations. Integrating urban agriculture into university development plans

would provide a structural framework for sustainability. Gunasiri Wadumestrige Dona *et al.* (2021) recommend that institutions develop urban food policies that align with broader city plans and sustainability goals. These should include provisions for land use, waste recycling, training programs, and funding support.

Internationally, cities like Toronto, Nairobi, and Kampala have adopted urban agriculture policies that empower local authorities, provide zoning for urban farms, and promote food justice (FAO, 2020). Nigerian cities and institutions can draw lessons from these models to develop localized strategies. Multistakeholder collaboration is also key. According to Swanepoel, Van Niekerk, and Tirivanhu (2021), collaboration between universities, local governments, NGOs, and the private sector improves coordination and resource pooling. This can result in shared infrastructure, coordinated training, and joint research on urban agriculture practices. Yuan *et al.* (2022) emphasize the importance of data and monitoring systems. Institutional support should include mechanisms to collect data on urban farming activities, evaluate their impacts, and guide evidence-based decision-making. This is particularly relevant for academic institutions that have research capacities but often lack applied implementation strategies. Finally, policy and institutional support must prioritize inclusivity and environmental sustainability. Adegun *et al.* (2021) recommend embedding urban agriculture within broader green infrastructure and

climate resilience plans. This ensures that urban farming contributes not just to food security but also to ecological well-being.

In summary, effective policy and institutional support are essential for mainstreaming urban agriculture within academic environments. Establishing clear guidelines, building multi-stakeholder partnerships, and integrating urban agriculture into planning processes will enhance participation, productivity, and sustainability.

2.10 Summary and Emerging Issues

Urban agriculture has gained prominence as a viable response to food insecurity, unemployment, and economic instability in urban areas, especially within educational institutions like the University of Benin. The literature reviewed highlights that university staff are increasingly engaging in urban agriculture not only as a coping strategy but also as a sustainable livelihood and educational tool. Sections 2.1 through 2.9 have revealed the multidimensional nature of urban agriculture. It encompasses diverse practices ranging from backyard vegetable farming and poultry rearing to aquaculture and controlled-environment systems. The socioeconomic characteristics of participants, particularly academic and non-academic staff, influence their awareness, perceptions, and motivations. Their involvement is shaped by economic needs, access to land and knowledge, cultural attitudes, and institutional support. The benefits of urban agriculture are numerous. These include enhanced food security, improved household income, dietary diversity, community engagement, and

environmental sustainability. However, these benefits are limited by various challenges such as land scarcity, lack of policy support, infrastructural constraints, social stigma, and insufficient extension services. Emerging research emphasizes the need to reposition urban agriculture within national policy agendas and institutional development plans. Studies by Yuan *et al.* (2022), Di Fiore *et al.* (2021), and Gunasiri Wadumestrige Dona *et al.* (2021) stress the importance of data-driven planning, stakeholder inclusion, and ecological integration in expanding the reach and impact of urban agriculture. Moreover, as new technologies like hydroponics and vertical farming become more accessible, they offer opportunities for innovation in land-constrained environments like university campuses. Institutional actors particularly faculties of agriculture can play a pivotal role in promoting research-based, environmentally sustainable practices. Okon and Edeoghon (2017) provide an example of how internal extension and academic engagement enhance staff involvement in campus-based agriculture. In conclusion, while urban agriculture is increasingly recognized for its contributions to food systems and urban livelihoods, especially among educated populations, its full potential remains untapped. Addressing structural, informational, and policy-related challenges will be critical to integrating urban agriculture into sustainable urban development and higher education planning. This creates a timely and important foundation for the present study on the perception, awareness, and involvement in urban agriculture among staff at the University of Benin, Nigeria.

CHAPTER THREE

MATERIALS AND METHOD

3.1 Study Area

The study was conducted at the University of Benin (UNIBEN), located in Benin City, the capital of Edo State in southern Nigeria. UNIBEN is one of Nigeria's foremost federal universities and is situated in an urban setting with a population comprising both academic and non-academic staff. The university hosts multiple faculties, including the Faculty of Agriculture and the Faculty of Social Sciences both of which form the focus of this research. Benin City is an urban center characterized by dense population, expanding housing developments, and limited agricultural land. It lies approximately between latitude 5°44′ and 7°34′ North and longitude 5°4′ and 6°45′ East (National Bureau of Statistics (NBS), 2017). Despite its urban status, the city supports various forms of urban agriculture practiced within residential premises, on unused open lands, and in institutional environments (Adegun *et al.,* 2021).

Benin City is experiencing rapid urbanization and increasing cost of living, which have influenced the livelihood strategies of its residents. The urban setting presents both challenges and opportunities for agricultural activities due to limited land space, environmental constraints, and the high demand for fresh food among residents (Rivera-Williams, 2025; UN DESA, 2022). The University of Benin reflects this

broader urban context, with visible practices of urban agriculture among its staff, including crop farming, poultry, fish farming, and gardening within residential and institutional spaces (Okon and Edeoghon, 2017).

The Faculty of Agriculture is known for its technical expertise and research in agricultural sciences, making it a strategic location to study staff involved in agriculture both professionally and personally. The Faculty of Social Sciences, on the other hand, offers perspectives from staff not formally trained in agriculture, thereby providing a broader view of urban farming practices among educated urban professionals. This faculty was particularly selected due to their academic grounding in sociology and related disciplines, which offer valuable insights into the social and economic dimensions of urban agriculture (Edeoghon and Ajayi, 2015). By choosing these two faculties, the study captures a range of perceptions, awareness levels, motivations, and involvement in urban agriculture within a higher education institution located in a dynamic urban environment.

3.2 Population of the Study

The population of this study consists of all academic and non-academic staff from the Faculty of Agriculture and the Faculty of Social Sciences at the University of Benin, Benin City, Edo State, Nigeria. These two faculties were selected to capture a comprehensive representation of both agriculturally inclined and non-agriculturally inclined professionals within the university setting. The Faculty of Agriculture was

chosen because it comprises individuals with direct knowledge and expertise in agricultural practices, while the Faculty of Social Sciences was selected due to the staff's grounding in sociology and other social science disciplines that provide important insights into human behavior, livelihood patterns, and socioeconomic challenges.

Faculty of Agriculture

Department of Agricultural Economics and Extension Services (AEE): 26 lecturers (14 in Agricultural Economics and Resource Management – AER, 12 in Agricultural Extension and Rural Development – AED); 3 non-academic staff.

Department of Crop Science (CRS): 11 lecturers; 9 non-academic staff.

Department of Animal Science (ANS): 16 lecturers; 4 non-academic staff.

Department of Aquaculture and Fisheries Management (AFM): 8 lecturers; 6 non-academic staff.

Department of Soil Science and Land Management (SLM): 11 lecturers; 7 non-academic staff.

Department of Food Science and Nutrition (FSN): 4 lecturers; 5 non-academic staff.

Department of Forestry and Wildlife Management (FWM): 14 lecturers; 7 non-academic staff.

General Cleaners (non-academic workers): 8.

Total for Faculty of Agriculture: 90 lecturers and 49 non-academic staff.

Faculty of Social Sciences

Department of Economics: 26 lecturers; 4 non-academic staff.

Department of Geography: 26 lecturers; 6 non-academic staff.

Department of Political Science: 36 lecturers; 5 non-academic staff.

Department of Public Administration: 35 lecturers; 5 non-academic staff.

Department of Sociology and Anthropology: 41 lecturers; 5 non-academic staff.

Department of Social Works: 35 lecturers; 6 non-academic staff.

Total for Faculty of Social Sciences: 199 lecturers and 31 non-academic staff.

Therefore, the total population for this study is 369 staff members, comprising 289 lecturers and 80 non-academic staff across the two selected faculties.

3.3 Sampling Techniques and Sample Size

This study employed random sampling to ensure that each staff member within the population had an equal chance of being selected for participation. The sampling was

conducted across both the Faculty of Agriculture and the Faculty of Social Sciences at the University of Benin, targeting both academic and non-academic staff.

To ensure fairness and adequate representation, 20% of the academic and non-academic staff from each faculty were selected as the study sample. This proportional allocation ensures that the sample accurately reflects the structure of the population.

Faculty of Agriculture:

Total academic staff: 90 × 20% = 18

Total non-academic staff: 49 × 20% = 10

Total from Faculty of Agriculture = 28 respondents

Faculty of Social Sciences:

Total academic staff: 199 × 20% = 40

Total non-academic staff: 31 × 20% = 6

Total from Faculty of Social Sciences = 46 respondents

Thus, the total sample size for the study was 74 respondents, selected randomly from the total population of 369 staff members. This approach enabled a manageable and statistically valid sample for data collection and analysis

3.4 Method of Data Collection

The primary instrument used for data collection in this study was a structured questionnaire. The questionnaire was designed to obtain relevant information on the perception, awareness, and involvement of academic and non-academic staff in urban agriculture at the University of Benin. It consisted of both closed-ended and open-ended questions to allow for both quantitative analysis and respondent expression.

The questionnaire was divided into several sections covering key areas such as:

Socioeconomic characteristics of respondents

Awareness and use of urban agriculture practices

Perceptions toward urban agriculture

Level of involvement in urban farming activities

Motivations and challenges associated with urban agriculture

The questionnaires were self-administered to ensure accuracy and reduce interviewer bias. Distribution and retrieval of the questionnaires were carried out during working hours with the cooperation of departmental administrators and secretaries. A cover letter explaining the purpose of the research accompanied each questionnaire to ensure informed consent and ethical compliance from the respondents.

The researcher ensured confidentiality and voluntary participation throughout the data collection process. Follow-ups were made to maximize the response rate and ensure completeness of the returned instruments.

3.5 Validity of the Instrument

To ensure the validity of the data collection instrument, the questionnaire was carefully reviewed by the research project supervisor, who is an expert in agricultural extension and social research methods. The supervisor assessed the instrument for content validity ensuring that the questions were clear, relevant, and aligned with the objectives of the study. Feedback provided was used to revise ambiguous or irrelevant items before final administration. This process helped to improve the logical consistency, comprehensiveness, and accuracy of the instrument in capturing the required data.

3.6 Measurement of Variables

The measurement of variables in this study was aligned with the research objectives. The key variables measured include:

Socioeconomic Characteristics: These include age, gender, marital status, level of education, occupation, income level, and years of work experience. These were measured using nominal and ordinal scales.

Awareness of Urban Agriculture: Measured by the respondents' familiarity with urban agriculture practices, sources of information, and knowledge of extension services. Responses were recorded using a Likert-type scale and binary options (Yes/No).

Perception of Urban Agriculture: Assessed using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree," covering statements related to the relevance, benefits, and sustainability of urban agriculture.

Involvement in Urban Agriculture: Measured by asking whether respondents were engaged in any form of urban farming and the types of activities involved (e.g., crop cultivation, poultry, aquaculture). Frequency of engagement and scale of practice were also included.

Motivation: This was measured by examining respondents' reasons for practicing urban agriculture (e.g., economic need, food security, hobby), using multiple-choice and ranking questions.

Challenges Faced: Identified through structured questions where respondents selected and rated the severity of constraints such as land access, capital, time, extension support, and environmental factors.

These variables were coded and categorized for quantitative analysis using descriptive and inferential statistical techniques.

3.7 Method of Data Analysis

The data collected from the respondents were analyzed using both descriptive and inferential statistical methods. Descriptive statistics such as frequency counts, percentages, and means were used to summarize the socioeconomic characteristics of the respondents and describe general trends in awareness, perception, and involvement in urban agriculture.

To test the research hypotheses and examine relationships between variables, inferential statistics were employed. Specifically, the Pearson Product-Moment Correlation Coefficient (PPMCC) was used to determine the strength and direction of the linear relationship between the use of extension services and productivity levels in urban agriculture (Allen, 2017).

Data were processed using IBM SPSS Statistics, a comprehensive statistical analysis software released by IBM Corporation, which continues to be widely adopted in social science research since 2015 (IBM, 2022).

All statistical analyses were conducted at the 5% level of significance ($p < 0.05$) using SPSS. This allowed for reliable interpretation of the results and ensured that conclusions drawn were statistically valid and supported by the data.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Socio-Economic Characteristics of Respondents

4.1.1 Sex of respondents

The findings show that 68.9% of the respondents were male, while 31.1% were female. This distribution suggests that UA activities within the university environment are largely male-driven. Similar gender patterns have been reported across Nigeria and other African cities, where men often dominate farming, especially activities involving physical exertion such as crop cultivation, animal husbandry, and aquaculture (Ayanwuyi, 2019; Ojo, Adeoye and Soliu, 2020).

The male predominance reflects broader socio-cultural norms in Nigeria, where outdoor livelihood activities tend to be gendered in favour of men (Swanepoel *et al.,* 2021). Women's participation is often constrained by domestic responsibilities, limited mobility, and reduced access to land or capital (Yusuf, Adepoju and Adeoye, 2022). The distribution therefore reinforces existing evidence that UA within institutional settings may reproduce the same gender patterns found in urban and peri-urban agriculture more broadly.

4.1.2 Age distribution

The age profile reveals that the majority of respondents were 35–44 years (48.6%), followed by 25–34 years (18.9%) and 45–54 years (20.3%). The mean age of 45.17 ± 10.58 years indicates a predominantly middle-aged workforce. This age structure is consistent with existing UA literature, which shows that adults between 30 and 50 years constitute the most active participants due to higher household needs and financial responsibilities (Edeoghon and Ajayi, 2018; Olumba, Ejiogu and Uzoma, 2021). Middle-aged individuals often turn to UA as an adaptive response to rising living costs, inflation, and food insecurity economic pressures that have intensified in Nigeria since 2020 (Ogunode and Ugochukwu, 2023).

Younger respondents (<25 years) accounted for only 5.4%, reflecting limited involvement in UA among early-career staff. Younger urban residents often face constraints such as temporary accommodation, limited income, and lack of land access, which reduces their engagement in UA (Ilori *et al.,* 2025). Thus, the age distribution suggests that UA is more attractive to economically active mid-career individuals who manage family responsibilities and seek alternative food sources or supplemental income.

4.1.3 Marital status

The results show that 93.2% of the respondents were married, 2.7% were single, and 4.1% were widowed. The overwhelming representation of married respondents suggests that UA among university staff is strongly tied to family food needs and household economic management. Married individuals have higher consumption demands, which makes UA an appealing strategy for lowering food expenditre and enhancing dietary quality (Gunasiri Wadumestrige Dona *et al.,* 2021). Similar findings by Swanepoel *et al.* (2021) indicate that married households are more likely to engage in UA as part of broader livelihood diversification strategies aimed at improving household nutrition and coping with rising urban living costs

4.1.4 Educational level

The educational distribution shows that 50% of respondents possessed HND/BSc qualifications, 27% held MSc degrees, and 16.2% had PhDs. Only 6.8% had OND/NCE qualifications. This confirms that the respondents are highly educated—a reflection of their employment in an academic institution.

Education plays a critical role in shaping awareness and adoption of UA. Highly educated individuals are more likely to understand the nutritional, economic, and environmental benefits of UA and may possess greater capacity to adopt improved production techniques (Yuan *et al.,* 2022). Studies in Nigeria also report that

university-educated urban dwellers are more inclined toward organic food production, home gardening, and alternative food systems due to their knowledge of food safety and environmental sustainability (Yusuf *et al.,* 2022; Nwanojuo, Anumudu and Onyeaka, 2025). The high literacy level of respondents therefore suggests strong potential for improved UA practices, innovation uptake, and responsiveness to extension or training programmes.

4.1.5 Job category

The job category reveals that 55.4% of respondents were academic staff and 44.6% were non-academic staff. This relatively balanced distribution indicates that UA is practiced by both professional (academic) and administrative/technical (non-academic) staff. Academic staff may have greater exposure to scientific knowledge, extension innovations, or environmental awareness campaigns, especially those affiliated with the Faculty of Agriculture. Meanwhile, non-academic staff may participate for subsistence or income-supplementary reasons, reflecting broader urban survival strategies (Okon and Edeoghon, 2017). This dual participation supports the view that UA has evolved beyond subsistence farming to include educated, salaried urban dwellers seeking resilience amid economic instability (Rivera-Williams and Asiedu, 2025).

4.1.6 Monthly income

Income distribution indicates that 68.9% of respondents earn between ₦20,000–₦69,999, while 20.3% earn ₦70,000–₦89,999. The mean income of ₦56,816.7 ± ₦21,418.28 shows that most respondents fall within the lower-income bracket, despite being employed in a federal university. This aligns with World Bank (2023) assessments that a significant proportion of Nigeria's public sector workers fall below the urban livelihood security threshold. The continued erosion of purchasing power due to inflation and unstable economic conditions has led many urban professionals to diversify income and food sources, with UA emerging as a critical pathway (Ogunode and Ugochukwu, 2023; Yusuf *et al.,* 2022).

These income levels strongly suggest that UA may serve as a coping mechanism, helping staff reduce food expenses and buffer against economic shocks. This supports evidence from other African contexts where UA acts as a stabilizer during economic downturns (Swanepoel *et al.,* 2021; Gunasiri Wadumestrige Dona *et al.,* 2021).

4.1.7 Years of service

Regarding work experience, 55.4% had been employed for 11–15 years, while 36.5% had worked for 5–10 years. Only 4.1% had less than five years of service, and very few had exceeded 20 years.

The dominance of mid-career staff reflects stability in employment and housing, both of which are enabling factors for engaging in UA. Employees with 10+ years of service often have established households and predictable routines, increasing the likelihood of using available space for food production (Salau and Attah, 2012; Aduloju *et al.,* 2024). The low presence of early-career staff may be linked to temporary accommodation arrangements or limited financial capacity to initiate UA activities.

Table 1: Socio-economic characteristics of respondents

Sex	**Freq, n= 74**	**%**	**Mean**	**Std. Dev.**
Male	51	68.9		
Female	23	31.1		
Age				
Under 25	4	5.4		
25–34	14	18.9		
35–44	36	48.6	45.17	10.58
45–54	15	20.3		
55 and above	5	6.8		
Marital Status				
Single	2	2.7		
Married	69	93.2		
Divorced				
Widowed	3	4.1		
Education Level				
None				
Primary School Leaving Certificate				
SSCE				
OND/NCE	5	6.8		
HND/BSc	37	50.0		
MSc	20	27.0		
PhD	12	16.2		
Job Category				
Academic staff	41	55.4		
Non-academic staff	33	44.6		
Monthly Income				
Below ₦20,000	5	6.8		
₦20,000–₦69,999	51	68.9	56816.7	21,418.28
₦70,000–₦89,999	15	20.3		
₦90,000–₦139,999	3	4.1		
₦140,000 and above				
Years of Service				
Less than 5	3	4.1		
5–10	27	36.5		
11–15	41	55.4		
15–20	2	2.7		
20–25	1	1.4		
Above 25				

Source: Field Survey, 2025.

Location of Urban Agriculture Practice

The distribution of practice locations shows clear patterns in how respondents engage in urban agriculture (UA). Results indicate that 28.4% practiced UA in their home backyard, 18.9% used house foundations, 12.2% engaged in UA on open/institutional land**,** 12.2% used sacks/bags**,** 10.8% used containers/pots, and 9.5% farmed on river banks. The dominance of home backyard production (28.4%) indicates a strong reliance on household spaces for crop cultivation and small-scale livestock production. This trend reflects the increasing shift toward home-based urban agriculture, especially in cities where formal or communal farmlands are scarce. Recent studies from Nigeria and other African cities confirm that households increasingly convert small domestic spaces rear yards, balconies, perimeters, and house foundations, into micro-gardens to cope with food costs and inflation (Edeoghon and Ajayi, 2018; Yusuf, Adepoju and Adeoye, 2022).

The second most common practice location, house foundations (18.9%) suggest creative adaptation to limited space. House foundations and perimeters are often under-utilized zones that households convert into vegetable or herb gardens, reflecting innovative space optimization documented in recent urban food system studies (Sulemana, Donkor and Asante, 2021). Such adaptations are particularly common in dense urban environments where land pressure is high.

The use of open/institutional land (12.2%) highlights the role of the university environment in providing accessible spaces for UA. Some universities across Africa, including Nigerian institutions, increasingly tolerate or unofficially support such practices due to their benefits for community nutrition and staff welfare (Okon and Edeoghon, 2017). This pattern aligns with the findings of Kutiwa, Boon and Chikodzi (2020), who observed that institutional and public lands often serve as accessible UA sites for workers in public institutions facing rising food costs. Additionally, containers/pots (10.8%) and sacks/bags (12.2%) indicate a growing adoption of container-based agriculture, a technique associated with modern urban farming innovations like sack gardening, vertical farming, and containerized vegetable production. These methods are widely recommended for areas with limited land access and have been adopted globally due to their low cost, soil efficiency, and suitability for small spaces (Yuan *et al.,* 2022; Nwanojuo, Anumudu and Onyeaka, 2025). Finally, riverbank farming (9.5%), although practiced by a smaller group, reflects respondents' attempts to access natural water sources for irrigation. However, this may raise concerns about soil contamination, waterlogging, or regulatory restrictions, issues that several studies have highlighted in Nigerian urban centres (Olumba, Ejiogu and Uzoma, 2021).

Generally, the locations of UA practice describe a pattern of space-constrained innovation, where university staff maximize available household or institutional spaces to support food production. This pattern aligns with the global shift toward micro-agriculture, where families adopt flexible production systems due to rising food prices, climate pressures, and lack of formal farmlands (Gunasiri Wadumestrige Dona *et al.,* 2021). The distribution reflects the adaptive capacity of urban residents, consistent with the argument that UA serves as a resilience mechanism in environments characterized by economic instability and limited land access (Swanepoel *et al.,* 2021; Rivera-Williams and Asiedu, 2025).

Table 2: Socio-economic characteristics (Cont'd)

Where do you practice it	Freq	%	Mean	Std. Dev.
Home backyard	21	28.4		
Open/institutional land	9	12.2		
Containers/pots	8	10.8		
House foundations	14	18.9		
River banks	7	9.5		
Sacks/Bags	9	12.2		
Experience in urban agriculture				
Less than 2 year	26	35.1		
2–4 years	31	41.9	5.27	2.66
5–7 years	12	16.2		
8–10 years	2	2.7		
Over 10 years	3	4.1		

Source: Field Survey, 2025.

4.2 Awareness of Urban Agriculture

Awareness is a critical determinant of participation in urban agriculture, shaping individuals' knowledge of available opportunities, practices, and benefits. In this study, awareness was assessed through three key indicators: (1) general awareness of UA, (2) sources of UA information, and (3) awareness of UA practices within the university. The distributions are presented and discussed in Table 3.

4.2.1 General awareness of urban agriculture

The results show that 66.2% (n = 49) of respondents reported being aware of urban agriculture (UA) as a livelihood or food-production activity. This indicates that UA is a fairly well-known practice among university staff, reflecting wider national and global trends where UA has gained prominence due to rising food prices, urban food insecurity, and the need for supplemental household nutrition (Yusuf, Adepoju and Adeoye, 2022; FAO, 2023). The majority awareness suggests that UA is not a fringe activity but a recognized coping strategy among educated, urban-based populations. Recent studies within Nigeria academic space demonstrate similar patterns, showing high urban awareness of UA due to widespread use of social media, community networks, and institutional exposure (Edeoghon and Ajayi, 2018; Nwanojuo, Anumudu and Onyeaka, 2025). Increasing inflation and weakened purchasing power

since 2020 have further heightened public consciousness of alternative food production strategies (Ogunode and Ugochukwu, 2023).

This high awareness supports the argument that urban agriculture is becoming normalized within middle-income and professional settings, particularly as households seek sustainable, reliable, and cost-effective food sources. Swanepoel *et al.* (2021) emphasize that awareness is often the first step toward engagement, as it shapes attitudes, motivations, and perceptions of feasibility. Thus, the 66.2% awareness rate provides an important foundation for understanding participation in subsequent sections of this chapter.

4.2.2 Sources of awareness

Respondents identified several channels through which they became aware of UA such as colleagues: 55.4%**,** social media: 48.6%**,** training/workshops: 5.4%**,** while non extension agents had ever disseminated information on UA to the respondents**.** The data indicate that colleagues (55.4%) are the primary source of information on UA. This underscores the role of peer learning and social networks in disseminating agricultural knowledge among urban professionals. This trend aligns with findings by Sulemana, Donkor and Asante (2021), who noted that interpersonal networks are powerful drivers of knowledge sharing in dense urban environments where formal extension structures are limited.

The second most common information channel is social media (48.6%), reflecting the global shift toward digital platforms as key sources of agricultural information. Studies conducted in Nigeria during and after the COVID-19 pandemic highlight that social media platform such as Facebook, WhatsApp, and YouTube have become essential tools for accessing farming tutorials, success stories, and innovative methods like container gardening and micro-farming (Yuan *et al.,* 2022; Nwalozie and Ezeani, 2021).

The low exposure to training/workshops (5.4%) reveals limited access to formal learning opportunities about UA within the university or community. This is concerning because structured training improves knowledge accuracy, enhances safety practices, and increases adoption of improved technologies (Olumba, Ejiogu and Uzoma, 2021). Notably, no respondents reported receiving awareness from extension agents. This reflects a well-documented gap: Nigeria's extension system overwhelmingly prioritizes rural farmers, leaving urban dwellers underserved (Ogunmodede *et al.,* 2020; Yusuf *et al.,* 2022). The absence of extension support suggests that UA knowledge among university staff is largely self-organized**,** socially transmitted**,** or digitally sourced, rather than institutionally supported. The dominance of colleagues and social media as information sources highlights the increasing importance of informal knowledge systems in urban agriculture. As Swanepoel *et al.* (2021) argue, informal networks often substitute for formal extension structures in

urban spaces, where agricultural knowledge systems are not fully institutionalized. The negligible role of extension agents provides critical evidence of the urban extension gap in Nigeria. Without extension support, UA practitioners may lack essential skills related to soil management, pest control, composting, irrigation, or safe handling of wastewater, issues that have direct implications for long-term sustainability and food safety (Gunasiri Wadumestrige Dona *et al.,* 2021). Thus, the findings highlight an important institutional opportunity: universities can leverage their academic resources to provide structured UA training, technical support, and demonstration plots to improve knowledge quality and productivity among staff.

4.2.3 Awareness of urban agriculture within the university

Only 20.3% (n = 15) of respondents reported awareness of existing UA practices within the university. This low level of internal awareness suggests that even though UA may be practiced within UNIBEN, such as in staff quarters, informal gardens, or near research facilities, these activities are not widely visible**,** not institutionalized**,** or not communicated through formal channels. This mirrors findings by Okon and Edeoghon (2017), who reported that many Nigerian universities engage in small-scale or informal agricultural activities that are poorly documented or publicized. The low internal visibility may also stem from UA being practiced discreetly by staff who use personal or peripheral campus spaces, leading to limited communal knowledge. The limited awareness of UA within the university environment points to significant

opportunities for policy and institutional development. Universities, by virtue of their physical space, research capacity, and community role, can serve as urban agriculture innovation hubs. Yet, as Yuan *et al.* (2022) note, poor communication, lack of institutional frameworks, and absence of designated UA spaces hinder campus-based UA initiatives.

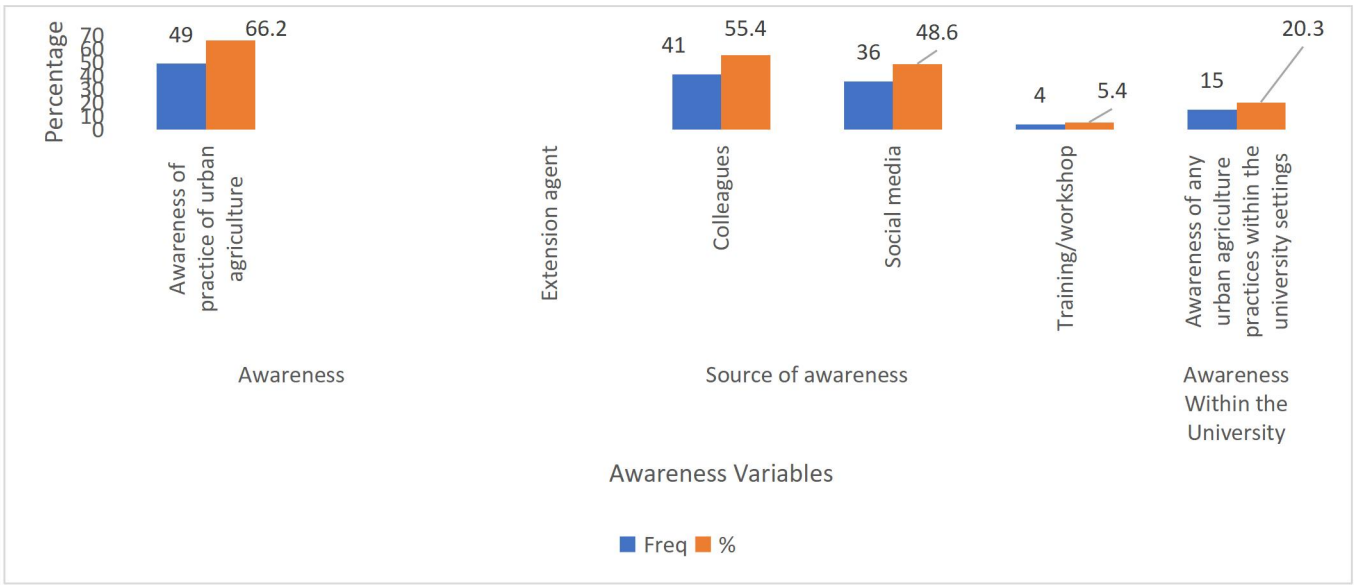

Figure 1: Awareness of urban agriculture

Source: Field Survey, 2025.

4.3 Perception of Urban Agriculture Among Respondents

Perception plays a central role in determining the extent to which individuals adopt or engage in urban agriculture (UA). Positive perceptions enhance participation, innovation uptake, and long-term sustainability of UA initiatives, while negative perceptions hinder adoption. Table 3 presents the respondents' perceptions across eleven statements, using a 4-point Likert scale where mean scores ≥ 3.0 indicate a positive perception**,** 2.0–2.9 indicate neutral or mixed perception**,** and <2.0 indicate a negative perception. The findings reveal clear trends of strong positive attitudes toward the value, feasibility, and multifunctional benefits of UA among the staff of the University of Benin. In the specific terms, the findings show that urban agriculture improves food security" recorded a mean score of 3.51 ± 0.27**,** demonstrating a strong positive perception. This implies that respondents overwhelmingly recognize UA as a viable means of enhancing household food security. This aligns with global and Nigerian literature emphasizing UA's role in mitigating hunger, improving dietary quality, and increasing household food resilience in urban settings (Gunasiri Wadumestrige Dona *et al.,* 2021; Yusuf, Adepoju and Adeoye, 2022).

Studies in Sub-Saharan African cities show that UA contributes significantly to household-level food availability, particularly during periods of economic instability (Swanepoel *et al.,* 2021). UA's short production cycles, especially for vegetables, poultry, and fish, make it an effective buffer against food shortages and rising market

prices. Thus, respondents' perception reflects growing awareness of UA as a reliable, accessible, and low-cost strategy for food security in Nigeria.

The statement "urban agriculture is only for low-income earners" received a mean score of 2.11 ± 0.15, indicating a generally negative or disagreeing perception**.** Respondents reject the stereotype that UA is only associated with poverty or low-income households. This is supported by recent findings that UA is increasingly practiced by middle-income and highly educated urban dwellers, especially professionals seeking healthier diets, supplementary food production, and sustainable lifestyles (Nwanojuo, Anumudu and Onyeaka, 2025; Rivera-Williams and Asiedu, 2025).

UA's evolution from a poverty-driven activity to a mainstream urban lifestyle practice has also been noted in global cities such as Cape Town, Lagos, Accra, and Nairobi (Swanepoel *et al.,* 2021). Respondents' perceptions therefore align with contemporary shifts where UA is now associated with innovation, sustainability, and health-conscious consumption. The statement **"**it is worthwhile for educated professionals to engage in urban agriculture" had a mean of 3.64 ± 0.25, signifying strong agreement. This positive perception highlights the growing acceptance of UA as a respectable and beneficial activity for professionals. Edeoghon and Ajayi (2018) found that educated individuals often adopt UA practices related to organic farming, container gardening,

and home horticulture because of their awareness of environmental and nutritional benefits.

Moreover, Yuan *et al.* (2022) assert that education increases one's likelihood of adopting sustainable agricultural practices due to higher exposure to information, environmental awareness, and critical thinking. Therefore, this finding demonstrates respondents' recognition of UA as compatible with professional work, personal well-being, and economic stability.

The statement **"**it contributes to a healthier and more sustainable lifestyle" recorded a high mean score of 3.59 ± 0.19, reflecting a broadly positive perception. Respondents understand UA as a pathway to improved diet and healthier living. This aligns with research showing that UA promotes access to fresh, organic produce, encourages physical activity, reduces dependence on processed foods, and fosters sustainable living practices (Gunasiri *et al.,* 2021). Additionally, UA is increasingly linked to environmental sustainability, through compost use, green waste recycling, soil improvement, and biodiversity enhancement, making it a crucial urban environmental strategy (Yusuf *et al.,* 2022). Thus, respondents appreciate UA not only for economic reasons but also for its lifestyle and ecological benefits.

The statement **"**urban farming is a distraction from formal employment responsibilities" had a low mean of 1.72 ± 0.33, indicating strong disagreement.

Respondents do not view UA as disruptive to their primary employment. This may reflect the nature of modern UA practices, which are often small-scale, home-based, flexible, and low time-intensive (e.g., sack gardening, container farming, backyard poultry). Recent research highlights that many urban professionals integrate UA into their daily routines without compromising work productivity (Rivera-Williams and Asiedu, 2025; Sulemana *et al.,* 2021). This suggests that UA is perceived as complementary to formal employment rather than competitive.

The mean score of 1.35 ± 0.13 for "effort involved is not worth the stress" indicates strong disagreement. Respondents perceive the effort required for UA as manageable and worthwhile. This suggests that they view UA as a low-barrier, high-benefit activity, particularly given the economic and nutritional returns associated with home gardening and micro-livestock production (Nwanojuo *et al.,* 2025). Modern UA innovations such as drip irrigation kits, grow bags, and compost buckets have further reduced labour demands, making UA accessible even to busy urban residents (Sulemana *et al.,* 2021). The highest-rated statement, **"**urban agriculture helps in reducing household food expenses"**,** had a mean of 4.36 ± 0.09**,** showing overwhelming consensus. Respondents strongly believe UA reduces food spending. This is consistent with national reports showing that Nigerian households spend over 60% of their income on food due to inflation and unstable supply chains (World Bank, 2023).

UA is widely recognized as a key strategy for mitigating these costs, particularly when households engage in vegetable production, small ruminant rearing, or poultry-keeping (Yusuf *et al.,* 2022). The extremely high positive perception underscores how economic hardship is reshaping urban food production practices among educated households. In addition, the mean score for **"**urban agriculture enhances community bonding and social interaction" was 2.45 ± 0.25**,** indicating a neutral or moderately positive perception. While UA is known to foster social cohesion in community gardens and shared urban spaces (Swanepoel *et al.,* 2021), many UA activities among university staff appear to be home-based and individualized. This reduces opportunities for collective gardening, shared labour, or communal learning, which may explain why perceptions of social benefits are not as strong. However, studies in Ghana and Kenya show that when UA is practiced in shared spaces, it strengthens neighbourhood ties and promotes social inclusion (Sulemana *et al.,* 2021). The moderate perception here suggests potential for improved social programming within the university to strengthen UA-based community engagement.

The statement **"**urban farming can play a role in environmental conservation within cities**"** had a mean of 2.53 ± 0.31, reflecting a moderate and mixed perception. The findings show that respondents are somewhat aware but not strongly convinced of UA's environmental significance. Yet studies highlight UA's contributions to urban greening, biodiversity conservation, temperature regulation, and waste recycling

(Gunasiri *et al.,* 2021). The mild perception may stem from limited exposure to UA's broader ecological benefits, which suggests a need for environmental education and awareness campaigns within the university. The mean score of 3.55 ± 0.63 indicates a strong positive perception that UA improves mental well-being and reduces stress. Recent global studies show that gardening and small-scale farming significantly reduce stress, depression, and anxiety while enhancing relaxation and emotional well-being (Yuan *et al.,* 2022). UA's therapeutic value stems from increased physical activity, connection with nature, and the sense of accomplishment from nurturing plants or animals. Respondents' positive perception is consistent with post-pandemic findings where many urban residents adopted gardening for psychological resilience (Rivera-Williams and Asiedu, 2025).

With a mean of 3.81 ± 0.57, respondents strongly agreed that UA has the potential to generate significant household income**.** This perception aligns with studies showing that UA provides supplementary income through the sale of vegetables, eggs, fish, poultry, herbs, and ornamental plants (Olumba *et al.,* 2021). Income opportunities are particularly strong when UA is intensified through vertical farming, container cultivation, or small ruminant production (Sulemana *et al.,* 2021). The positive perception suggests strong entrepreneurial potential among university staff, especially if supported with training in agribusiness management, marketing, and value addition.

Table 3: Perception of urban agriculture among respondents

Perception	Mean	Std. Dev.
Urban agriculture improves food security.	3.51*	0.27
Urban agriculture is only for low-income earners.	2.11	0.15
It is worthwhile for educated professionals to engage in it.	3.64*	0.25
It contributes to a healthier and more sustainable lifestyle.	3.59*	0.19
Urban farming is a distraction from formal employment responsibilities.	1.72	0.33
Effort involved is not worth the stress	1.35	0.13
Urban agriculture helps in reducing household food expenses	4.36*	0.09
Urban agriculture enhances community bonding and social interaction.	2.45	0.25
Urban farming can play a role in environmental conservation within cities.	2.53	0.31
Engaging in urban agriculture improves mental well-being and reduces stress.	3.55*	0.63
Urban agriculture has the potential to generate significant income for households.	3.81*	0.57

Source: Field Survey, 2025.; *Mean ≥ 3.0 =Positive perception.

4.4 Involvement in Urban Agriculture

Involvement in urban agriculture (UA) reflects the extent to which respondents actively participate in food production activities within urban spaces. Understanding these involvement patterns provides insight into livelihood strategies, food security dynamics, and the relevance of UA within the university environment. Table 4 summarizes respondents' engagement, the types of UA practiced, and the specific crops cultivated. Involvement in urban agriculture reflects the extent to which university staff actively practice food production activities within the urban environment. The results indicate that 45 respondents, representing 60.8 percent of the total sample, were engaged in some form of urban agriculture. This level of involvement demonstrates that urban agriculture has become an important livelihood and food-support strategy among the staff of the University of Benin. The relatively high participation rate aligns with broader urban trends in Nigeria and other African cities, where university workers and middle-income households increasingly adopt small-scale agriculture as a means of coping with rising food costs, unstable supply chains, and the declining purchasing power of formal wages (Ogunode and Ugochukwu, 2023). Similar patterns have been documented by Yusuf, Adepoju and Adeoye (2022), who argued that urban agriculture has shifted from being a survivalist activity associated with the urban poor to a mainstream livelihood practice among educated professionals. The analysis of specific types of urban agriculture practiced by

respondents provides further insight into these involvement patterns. The most widely practiced forms were vegetable cultivation and crop farming, each with 60.8 percent participation. The prominence of these activities indicates that respondents prioritize plant-based production systems that require relatively small spaces, minimal capital investment, and short production cycles. This finding corresponds with studies from Ghana, Kenya, and Nigeria, which show that vegetables and annual crops are the most common components of urban farming because they can be grown in backyard gardens, containers, sacks, and other micro-spaces typical of dense urban settlements (Sulemana, Donkor and Asante, 2021). Vegetable cultivation in particular has been recognized for its role in improving dietary diversity, enhancing household nutrition, and providing quick returns, making it especially suitable for working-class households (Gunasiri Wadumestrige Dona *et al.,* 2021). Respondents also engaged in poultry production, with 17.6 percent reporting involvement. Poultry remains the most commonly practiced livestock activity in urban settings due to its moderate space requirements, relatively low management demands, and the continuous demand for eggs and poultry meat. Olumba, Ejiogu and Uzoma (2021) reported similar trends among urban farmers in Southeastern Nigeria, noting that poultry offers a steady income stream and provides essential protein for household consumption. Other forms of urban livestock production, including fish farming (6.8 percent), sheep and goats (5.4 percent), and piggery (5.4 percent), recorded lower involvement. These activities typically require more space, greater capital investment, and more technical expertise,

which may constrain their adoption among university staff who often live in space-limited residential quarters. Studies by Nwanojuo, Anumudu and Onyeaka (2025) have similarly shown that urban residents tend to avoid larger livestock activities due to land scarcity, regulatory constraints, and environmental concerns. The distribution of crops cultivated by respondents further illustrates the strategic choices made by urban farmers within the university environment. Yams were cultivated by 56.8 percent of respondents, while 48.6 percent cultivated maize. These two staples have strong cultural, dietary, and economic significance in Nigerian households, suggesting that respondents are not only growing supplementary vegetables but also striving to meet core household nutritional needs. The cultivation of staple crops in urban settings has been documented as a growing trend among urban wage earners seeking to reduce dependence on volatile food markets and rising prices of basic staples (Yusuf *et al.,* 2022). Plantain cultivation, reported by 33.8 percent of respondents, also reflects a similar trend toward crop diversification and long-term household food security. Plantains typically require more space than vegetables but produce high yields over time, making them suitable for semi-permanent areas such as house perimeters or institutional lands. Lower involvement was observed for crops such as bananas (8.1 percent) and pawpaw (4.1 percent). These fruit crops often require longer gestation periods and more stable land access, which may not be readily available to staff living in rented accommodations or university quarters with limited personal space. This observation is consistent with findings by Olumba *et al.* (2021), who reported that

long-gestation crops tend to be less favored in urban farming systems where land tenure is insecure or where residential mobility is common. The involvement patterns observed in this study reveal a strong preference for activities that align with the practical realities of urban living. Respondents appear to select forms of agriculture that fit into their available space, financial capacity, and professional schedules. These findings echo those of Yuan *et al.* (2022), who noted that modern urban agriculture increasingly relies on innovative, small-space methods such as container gardening, sack farming, and backyard cultivation. The engagement in crop and vegetable farming among university staff also reflects a broader transformation in urban agriculture, where individuals with formal education and full-time employment increasingly participate in small-scale food production to improve household resilience and reduce food-related expenditures (Rivera-Williams and Asiedu, 2025).

Generally, the involvement of respondents in urban agriculture demonstrates that the practice has become a meaningful and integrated component of household livelihood strategies among professional urban residents. The engagement in vegetable and staple crop production highlights the dual economic and nutritional rationale behind urban agriculture, while the lower involvement in intensive livestock production underscores the influence of spatial, financial, and regulatory constraints. These patterns reinforce the importance of urban agriculture as a flexible, adaptive, and increasingly essential livelihood practice in Nigeria's rapidly urbanizing landscape.

Table 4: Involvement in Urban Agriculture

Involvement	Freq.	%
Involvement in any form of urban agriculture	45	60.8
Type		0.0
Vegetable cultivation	45	60.8
Poultry	13	17.6
Fish farming	5	6.8
Sheep and goats	4	5.4
Piggery	4	5.4
Crop farming	45	60.8
Kinds of crops cultivate		0.0
Yams	42	56.8
Maize	36	48.6
Beans	13	17.6
Plantains	25	33.8
Bananas	6	8.1
Pawpaw	3	4.1

Source: Field Survey, 2025.

4.5 Level of Involvement in Urban Agriculture

The level of involvement in various urban agriculture activities was measured using a Likert scale where mean scores of 2.5 and above denote high involvement, while values below 2.5 indicate moderate or low engagement. The results reveal differentiated levels of commitment across crop and livestock activities, reflecting the practical, spatial and socio-economic realities of respondents. These patterns are explored in detail below.

The activity with the highest level of involvement was vegetable cultivation, with a mean score of 3.12 and a standard deviation of 0.63. This finding indicates that respondents are substantially engaged in vegetable farming, which is consistent with earlier results showing widespread participation in vegetable cultivation. The prominence of vegetables in urban farming systems is attributed to their short growth cycles, adaptability to small spaces and high household consumption value. Studies across Africa confirm that vegetables remain the backbone of urban agriculture because they can be grown in backyard plots, sacks, pots and vertical structures, making them suitable for the limited land and time available to urban professionals (Sulemana, Donkor and Asante, 2021). Vegetable farming is further strengthened by rising food inflation and increasing demand for fresh produce, as documented by Yusuf, Adepoju and Adeoye (2022), who noted that vegetable production helps households reduce daily food expenses and improve dietary quality.

Significant involvement was also observed in yam cultivation, with a mean score of 2.58. Although yams require more space than vegetables, they remain a culturally important staple in Nigerian diets and offer high caloric and economic value. The moderate-to-high involvement suggests that respondents who have access to slightly larger spaces such as house perimeters or open institutional land opt to plant yams as part of their broader household food security strategy. This is consistent with recent urban food system research indicating that certain perennial or bulky crops can still thrive in urban settings when households creatively utilize available land resources (Gunasiri Wadumestrige Dona *et al.,* 2021). A similar level of commitment was observed in maize cultivation**,** with a mean score of 2.52. Maize is another versatile staple crop that grows relatively quickly and is widely used in Nigerian households. The involvement in maize production reflects respondents' desire to supplement household consumption with home-grown staples, thereby reducing dependence on market purchases. This aligns with findings from Olumba, Ejiogu and Uzoma (2021), which show that urban farmers increasingly cultivate maize to enhance food availability and resilience against rising food prices. In contrast, involvement in beans cultivation was low, with a mean score of 1.34. Beans generally require more space, longer growing periods and careful pest management, which may discourage urban farmers facing time, space and technical constraints. Similarly, involvement in plantain and banana cultivation, with mean scores of 1.69 respectively, was moderate but below the high-involvement threshold. While plantains and bananas are valuable

food crops, their space requirements, long gestation periods and need for stable planting sites limit their adoption among urban residents who lack permanent land tenure. This trend is consistent with studies noting that perennial crops are less preferred in urban settings due to land insecurity and household mobility (Nwanojuo, Anumudu and Onyeaka, 2025). Low involvement was also recorded for pawpaw cultivation, which had a mean score of 1.35. Pawpaw trees require stable soil conditions, time to maturity and ample space, further restricting their practicality for many urban farmers. The limited involvement in fruit cultivation broadly reflects the structural constraints of urban landscapes, which favour short-cycle crops over long-term or space-intensive ones.

Among livestock-related activities, poultry farming showed a high level of involvement, with a mean score of 2.55. Poultry is one of the most accessible forms of animal production in urban areas because it requires limited space, low investment and relatively simple management practices. Poultry also provides quick returns through egg production and meat supply. The findings align with national and regional studies showing poultry as the dominant livestock activity in urban agriculture (Olumba *et al.,* 2021; Sulemana *et al.,* 2021). Poultry's economic and nutritional advantages make it particularly appealing to salaried workers seeking reliable sources of protein and supplemental income.

The level of involvement in fish farming was moderate, with a mean score of 2.15. Fish farming in urban settings often requires access to water, tanks or ponds, and technical expertise, which may not be readily available to staff members. This aligns with previous research showing that urban fish farming requires greater capital and management knowledge compared to vegetable or poultry production (Yuan *et al.,* 2022). Nonetheless, the moderate involvement indicates that some respondents are exploring aquaculture as a viable livelihood activity.

The lowest level of involvement was observed for sheep and goat rearing, which had a mean score of 1.09. Rearing small ruminants in urban environments poses considerable challenges, including space limitations, waste disposal concerns, local regulations and neighbourhood complaints. These constraints significantly reduce their feasibility in densely populated institutional environments. Studies across Nigeria and Ghana identify similar patterns, whereby small ruminant production in cities is minimal due to spatial and environmental restrictions (Swanepoel, Van Niekerk and Wentink, 2021).

Taken together, the involvement patterns suggest that respondents strategically select urban agriculture activities that align with their available resources, living conditions, household needs and professional responsibilities. Short-cycle, space-efficient and low-cost practices such as vegetable and maize cultivation or poultry farming are preferred, while space-demanding or technically intensive ventures such as fruit trees,

aquaculture and ruminant rearing are less frequently pursued. These findings support the argument by Rivera-Williams and Asiedu (2025) that modern urban farmers, especially educated professionals, prioritize activities that minimize risk and maximize household benefits within limited resource environments.

The findings show that the levels of involvement demonstrate that urban agriculture serves as an adaptive livelihood strategy among university staff, addressing food security, economic pressures, dietary diversification and household resilience. The variation across activities reflects the influence of spatial constraints, economic considerations and personal preferences in shaping urban agricultural practices. The results reinforce the broader narrative that urban agriculture is an increasingly integral part of urban livelihood systems in Nigeria, offering significant nutritional and economic benefits to households navigating the high cost of living.

Table 5: Level of Involvement

Level of involvement	Mean	Std. Dev.
Vegetable cultivation	3.12*	0.63
Yams	2.58*	0.39
Maize	2.52*	0.55
Beans	1.34	0.42
Plantains	1.69	0.14
Bananas	1.69	0.37
Pawpaw	1.35	0.61
Poultry	2.55*	0.35
Fish farming	2.15	0.04
Sheep and goats	1.09	0.17

Source: Field Survey, 2025.; *Mean ≥ 2.5 = High

4.6 Motivation for Participation in Urban Agriculture

Understanding the motivations that drive respondents to participate in urban agriculture provides valuable insight into the socio-economic and personal factors shaping engagement in food production within the university environment. The findings show that motivations are diverse and multidimensional, reflecting both economic and non-economic considerations. These motivations align with broader global and regional trends in urban food production, where households increasingly turn to urban farming as part of their livelihood, wellness, and lifestyle strategies (Yusuf, Adepoju and Adeoye, 2022).

The most frequently cited motivation was the desire for fresh organic food supply, reported by 68.9 percent of respondents. This demonstrates a strong preference for pesticide-free, home-grown produce, motivated by concerns over food quality, safety, and rising cases of chemical contamination in commercial food systems. Similar motivations have been documented in recent studies across Nigeria and other African cities, where consumers increasingly distrust market-sourced vegetables due to poor hygiene and chemical misuse by commercial farmers (Ayanlade and Radeny, 2020). The shift toward growing personal food is also consistent with global sustainability trends, where urban dwellers seek healthier diets and attempt to reduce their dependence on industrialized food chains (Mougeot, 2021).

Health reasons were also a prominent motivating factor, cited by 52.7 percent of respondents. This indicates that urban agriculture is perceived not only as a food production strategy but also as a means of improving personal well-being. Participation in gardening and small-scale farming has been linked in recent literature to stress reduction, improved mental health, and increased physical activity (Basu, Dutta and Ranjan, 2019). The findings correspond with these arguments, implying that respondents may be motivated by both preventive health considerations and the psychological benefits associated with engaging with nature within urban spaces. Economic motivations are also important, with 50 percent of respondents reporting participation for extra income. This reflects the economic pressures faced by university workers in Nigeria, where inflation, high food prices, and stagnant wages have increasingly strained household finances. The finding aligns with the conclusions of Olumba, Ejiogu and Uzoma (2021), who noted that urban agriculture provides supplementary income that helps urban households cope with economic uncertainties. In such contexts, selling surplus vegetables, poultry products, or staple crops like yams and maize becomes a practical strategy for diversifying income streams. The results further show that 20.3 percent of respondents engage in urban agriculture as a hobby, suggesting that beyond economic necessity, some participants see urban farming as a leisure activity that offers emotional satisfaction. This finding supports recent research emphasizing the recreational and therapeutic dimensions of urban agriculture, particularly among educated and middle-income groups who view gardening as a

creative and rewarding pastime (Rivera-Williams and Asiedu, 2025). Additionally, 10.8 percent indicated that they participate on a part-time basis, reflecting the flexible and adaptable nature of urban agriculture, which can be integrated into the schedules of individuals with full-time professional responsibilities. A small proportion of respondents (6.8 percent) identified research or training purposes as their motivation. This suggests that the university environment provides opportunities for academic experimentation, practical demonstrations, and research-based innovation in agricultural practices. Universities are increasingly recognized as spaces for advancing sustainable food systems through research, student engagement, and community demonstration projects (Nelson and Strella, 2022). This low but notable percentage indicates that some participants view urban agriculture as an academic or professional extension of their work. Despite the relatively strong interest in urban agriculture, the findings reveal a significant gap in institutional support. Only 2.7 percent of respondents reported receiving any form of agricultural extension support or training. This aligns with persistent challenges in Nigeria's extension system, where limited funding, inadequate staffing, and weak institutional coordination constrain the delivery of agricultural advisory services, particularly in urban settings (Ayanlade and Radeny, 2020). The near absence of extension support suggests that respondents rely primarily on personal knowledge, peer networks, or informal learning to engage in urban agriculture. When asked about sources of training or linkage with the university farm, only 2.7 percent indicated receiving support from NGOs, while none cited ADP or

private organizations. This highlights the limited institutional integration of urban agriculture into the university's extension, outreach, or community service frameworks. The lack of structured support mechanisms implies that urban agriculture remains largely informal, individually driven, and disconnected from formal research or capacity-building platforms within the institution. The motivations for participating in urban agriculture among the respondents reveal a complex interplay of dietary, economic, health, recreational, and academic considerations. These motivations reinforce the growing importance of urban agriculture as a multifaceted livelihood and well-being strategy in contemporary urban Nigeria. Respondents' emphasis on organic food, income supplementation, and health aligns with studies highlighting the evolving role of urban agriculture in enhancing household resilience, promoting sustainable food practices, and supporting mental and physical wellness (Sulemana, Donkor and Asante, 2021; Yuan *et al.,* 2022). The findings also underscore a significant gap in institutional support, which suggests an opportunity for the university to strengthen its engagement by integrating urban agriculture into campus sustainability programs, promoting research-oriented demonstration farms, and collaborating with NGOs or ADP structures to deliver meaningful training. Strengthening these institutional linkages could enhance the productivity, sustainability, and long-term viability of urban agriculture practices among university staff.

Table 6: Motivation for participation

Motivation	Freq	%
Purpose for engaging in it**		
Fresh organic food supply	51	68.9
Extra income	37	50.0
Health reasons	39	52.7
Research/training	5	6.8
Part time	8	10.8
Hobby	15	20.3
Have you received any agricultural extension support or training	2	2.7
Sources of University farm		
ADP		
NGO	2	2.7
Private organization		

Source: Field Survey, 2025. **Multiple responses given.

4.7 Challenges of Urban Agriculture

The challenges associated with engaging in urban agriculture are diverse and reflect the structural, environmental, economic, and institutional constraints faced by respondents. The results from Table 7 reveal a multilayered set of barriers that influence the extent, productivity, and sustainability of urban agriculture practices within the university community. These findings align with emerging research across African cities, which identifies similar patterns of constraints limiting the expansion and effectiveness of urban farming (Ayanlade and Radeny, 2020; Nwanojuo, Anumudu and Onyeaka, 2025).

One of the most significant challenges reported by respondents is lack of funds, identified by 78.4 percent of participants. This underscores the capital-intensive nature of certain agricultural inputs, such as seeds, organic fertilizers, animal feed, irrigation tools, and simple storage equipment. Limited financial resources restrict farmers' ability to adopt improved technologies, scale production, and sustain farming activities over time. This result corresponds with earlier studies indicating that urban agriculture in Nigeria and similar contexts is often self-funded, with minimal access to credit or institutional financing mechanisms (Ogunode and Ugochukwu, 2023). Without adequate financial support, urban farmers are forced to operate at subsistence levels, limiting their potential to contribute meaningfully to household income and food security. Closely related to this financial challenge is the reported high cost of

agricultural inputs, cited by 75.7 percent of respondents. The rising prices of seeds, fertilizer, animal feed, and other essential materials pose a major constraint, particularly in periods of inflation and currency depreciation. Research by Sulemana, Donkor and Asante (2021) highlighted that input price inflation is a major threat to the profitability of urban agriculture across West Africa, mirroring the situation observed in this study.

Inadequate storage or processing facilities, affecting 82.4 percent of respondents, emerged as another major economic challenge. The absence of appropriate storage options results in post-harvest losses, particularly for perishable crops like vegetables and fruits. This limitation affects the ability of urban farmers to preserve produce for personal consumption or sale, thereby reducing profitability. Recent evidence suggests that the lack of cold-chain infrastructure and simple preservation technologies remains one of the most persistent constraints in Nigeria's food system (Yusuf *et al.,* 2022). A particularly critical finding in this study is the prevalence of land-use conflicts with other urban projects, reported by 85.1 percent of respondents. This reflects the growing competition for land within urban environments, where residential, commercial, and infrastructural development often supersede agricultural activities. The rapid urbanization documented in Nigerian cities has intensified such conflicts, leading to displacement of gardens, demolition of informal farms, and restricted access to suitable land (Ayanlade and Radeny, 2020). This challenge is compounded by land

scarcity, cited by 55.4 percent of respondents, which further emphasizes the limited availability of secure spaces for farming activities within the university community. Environmental constraints also play a significant role in shaping respondents' experiences with urban agriculture. Water access, reported by 70.3 percent, is a major limiting factor. Reliable water supply is essential for crop production, especially during dry seasons, and many urban farmers lack access to irrigation systems or affordable water sources. This aligns with findings from Yuan *et al.* (2022), who observed that urban agriculture is disproportionately affected by irregular water supply and high water costs, especially in rapidly growing cities. Respondents also identified harsh climatic conditions, such as flooding, heat waves, and drought, as challenges, with 50 percent reporting these issues. Urban farmers are particularly vulnerable to climate variability due to limited adaptive capacity and the localized micro-climatic effects of urban heat islands. Climate-induced disruptions have been extensively documented as major threats to urban food production systems, affecting yield consistency and crop survival (Gunasiri Wadumestrige Dona *et al.,* 2021). Insecurity and theft, affecting 50 percent of respondents, further complicate urban farming efforts. Theft of crops, tools, and livestock reduces the economic viability of urban agriculture and discourages long-term investment. Similar concerns were highlighted by Olumba, Ejiogu and Uzoma (2021) in urban farming communities in Southeastern Nigeria, where poor security infrastructure limits the productivity and attractiveness of urban farming. Institutional and policy-related challenges appear to be particularly severe in

this study area. Lack of extension and advisory services, reported by 79.7 percent of respondents, suggests a substantial disconnect between farmers and formal agricultural support systems. Limited access to extension services deprives farmers of updated knowledge, improved techniques, and best practices that could enhance productivity. This challenge is echoed in multiple studies that show inadequate extension services as a major impediment to agricultural innovation and growth in Nigeria (Ayanlade and Radeny, 2020). Moreover, poor institutional support, cited by 60.8 percent of respondents, reinforces the notion that urban agriculture remains marginalized within formal urban planning frameworks. Respondents also identified limited government or institutional support programs (68.9 percent), which further illustrates systemic neglect of urban agriculture in policy implementation. Although Nigeria has multiple agricultural policies, they rarely prioritize urban agriculture, instead focusing on rural production systems (Nwanojuo *et al.,* 2025). The low level of institutional engagement suggests missed opportunities for integrating urban agriculture into campus sustainability programs, university community development initiatives, or state-level food security interventions. Time constraints, reported by 40.5 percent of respondents, reflect the demands of formal employment on university staff who must balance full-time responsibilities with farming activities. This challenge indicates that even individuals motivated to practice urban agriculture may find it difficult to allocate sufficient time to manage their farms effectively. The literature acknowledges time limitation as a common challenge among urban professionals involved in part-time

urban agriculture (Rivera-Williams and Asiedu, 2025). Finally, a range of ecological challenges such as pest and disease outbreaks**,** poor soil quality**,** and waste disposal or pollution issues were also reported. These reflect the environmental degradation commonly associated with urban areas, including contaminated soils, solid waste accumulation, and substandard sanitation systems. Such ecological stresses reduce productivity and elevate the risks associated with farming in densely populated areas, echoing the observations of Ogunode and Ugochukwu (2023), who found that urban environmental conditions significantly constrain agricultural output and quality. The challenges identified in this study illustrate a complex and interconnected set of constraints that hinder the efficient practice and potential scaling-up of urban agriculture within the university setting. These challenges underscore the need for targeted interventions, including improved institutional support, expansion of extension services, infrastructural investments in water and storage facilities, and clearer land-use policies that recognize urban agriculture as a legitimate and valuable component of urban food systems. Without addressing these constraints, the significant potential of urban agriculture to contribute to household food security, income supplementation, and environmental sustainability may remain unrealized.

Table 7: Challenges of urban agriculture

Challenges face in practicing urban agriculture	Freq	%
Land scarcity	41	55.4
Time constraint	30	40.5
Lack of funds	58	78.4
Lack of knowledge/training	25	33.8
Poor institutional support	45	60.8
Insecurity/theft	37	50.0
Water access	52	70.3
Environmental challenges that affect your urban agriculture activities		
Pest and disease outbreaks	25	33.8
Poor soil quality	21	28.4
Harsh weather/climatic conditions (flooding, drought, heat)	37	50.0
Waste disposal or pollution issues	28	37.8
Economic challenges		
High cost of inputs (seeds, fertilizer, feed, etc.)	56	75.7
Low market prices for produce	31	41.9
Poor access to buyers/marketplaces	12	16.2
Inadequate storage or processing facilities	61	82.4
Institutional or policy-related challenges		
Lack of extension/advisory services	59	79.7
Zoning or legal restrictions on farming	3	4.1
Land-use conflicts with other urban projects	63	85.1
Limited government/institutional support programs	51	68.9

Source: Field Survey, 2025. **Multiple responses given.

Hypotheses Testing

There is no significant relationship between socioeconomic characteristics and level of involvement in urban agriculture among university staff.

The logistic regression model indicates that among the socio-economic characteristics examined, only age was found to have a statistically significant relationship with involvement in urban agriculture ($p = 0.030$). The positive coefficient ($B = 0.0635$) implies that as age increases, the likelihood of participating in urban agriculture also increases. The Exp(B) value of 1.066 indicates that each additional year of age increases the odds of involvement by approximately 6.6%. This finding aligns with recent studies showing that older adults are generally more engaged in food production activities due to accumulated experience, stable routines, and greater interest in food security and household sustainability (Ayanlade and Radeny, 2020; Yusuf, Adepoju and Adeoye, 2022). Other socio-economic variables such as sex, education, job category, income, and years of service were not significant predictors of involvement. This suggests that participation in urban agriculture cuts across demographic lines within the university setting. These results agree with Muleme *et al.* (2021), who found that urban farming participation in institutional environments is less dependent on income or gender and more influenced by personal preference, available space, and time. Although sex was not statistically significant ($p = 0.268$), its positive coefficient ($B = 0.5618$) suggests that males may have a slightly higher

likelihood of participating in urban agriculture than females. However, this difference is not strong enough to be considered meaningful. Similar insignificance of gender was reported in studies by Olumba, Ejiogu and Uzoma (2021), who noted that gender disparities in urban agriculture participation have narrowed in modern urban settings.

Education level showed a negative but non-significant coefficient (B = –0.2427), implying that higher educational attainment does not reduce or increase participation significantly. This agrees with Rivera-Williams and Asiedu (2025), who argued that urban agriculture in universities is embraced across academic ranks as part of lifestyle, nutrition, and sustainability goals. Job category and income also showed non-significant effects, suggesting that academic and non-academic staff are equally likely to be involved. This balance indicates that urban agriculture functions primarily as a supplemental household activity rather than an economically driven livelihood. Studies conducted in Kenya, Ghana, and Nigeria have reported similar patterns (Sulemana, Donkor and Asante, 2021). Years of service also showed no effect on involvement (p = 0.907), meaning the duration of employment in the university system does not influence the decision to practice urban agriculture. This suggests that participation is more linked to individual choice and household needs than workplace tenure.

Table 8: Results of Binary Logistic Regression showing significant relationship between variables

Variable	Coefficient (B)	Std. Error	z-value	p-value	Exp(B)
Intercept	–0.9557	1.558	–0.613	0.54	0.384
Sex	0.5618	0.507	1.109	0.268	1.754
Age	0.0635	0.029	2.172*	0.030	1.066
Education	–0.2427	0.225	–1.078	0.281	0.784
Job Type	–0.5307	0.51	–1.040	0.298	0.588
Income	–9.27	1.45	–0.639	0.523	0.999
Years of Service	–0.0051	0.043	–0.117	0.907	0.995

Source: Field survey, 2025.; Log-Likelihood (LL Model) = –46.412; p-value = 0.2525; Pseudo R^2 (McFadden) = 0.078

Relationship between staff awareness and their level of involvement in urban agriculture

The logistic regression model shows a strong and statistically significant relationship between awareness and involvement in urban agriculture among university staff. The coefficient for awareness (B = 1.624, p = 0.002) indicates that staff who are aware of urban agriculture are significantly more likely to be involved in it than those who are not aware. The odds ratio (Exp(B) = 5.07) reveals that staff who are aware of urban agriculture are approximately 5 times more likely to participate in it compared to those who are unaware. This effect is statistically significant at the 0.01 level. This clearly demonstrates that awareness is a critical determinant of participation. The pseudo R^2 value of 0.149 indicates that awareness alone explains approximately 15% of the variation in involvement. In behavioural research and social studies, pseudo R^2 values between 0.10 and 0.20 are considered meaningful, indicating a moderate but important explanatory contribution (Gujarati and Porter, 2020). The findings show that awareness plays a central role in motivating staff involvement in urban agriculture. This pattern aligns with existing literature, which emphasizes awareness as a precursor to adoption and behavioural engagement in agricultural and environmental practices. Ayanlade and Radeny (2020) found that awareness of urban food production techniques significantly increased household participation in Lagos and Ibadan. Similarly, Musa, Adekunle and Balogun (2019) noted that awareness campaigns are

powerful drivers of agricultural innovation uptake in urban centers. The strong positive effect of awareness on participation also aligns with the diffusion of innovation theory, which states that exposure to information increases the likelihood of adopting new practices or technologies (Rogers, 2020). In the context of this study, awareness likely enhances staff knowledge of the benefits, feasibility, and opportunities associated with urban agriculture, thereby encouraging involvement. Furthermore, awareness often increases interest in food safety, cost savings, and wellness all of which are recognized motivators for urban agriculture participation (Sulemana, Donkor and Asante, 2021). Staff members who are aware may also have access to social networks (colleagues, social media groups, workshops) that reinforce positive views about urban agriculture, increasing the probability of active involvement. The findings also reflect a common challenge in institutional environments where limited awareness programs and inadequate communication channels lead to underutilization of available urban farming opportunities. Yusuf, Adepoju and Adeoye (2022) argue that awareness levels significantly shape the adoption of urban vegetable gardening within schools and universities in Nigeria. Where awareness is low, participation is often fragmented and unorganized. These results imply that increasing awareness through seminars, university-based extension, demonstration plots, and social media advocacy can significantly enhance involvement in urban agriculture. This is particularly crucial in academic settings

where urban agriculture can serve as both a nutritional resource and an educational tool for sustainability.

Table 9: Awareness and level of involvement

Variable	Coefficient (B)	Std. Error	z-value	p-value	Exp(B)
Intercept	–0.820	0.412	–1.99	0.046	0.44
Awareness	1.624	0.532	3.05	0.002	5.07

Source: Field survey, 2025; Log-Likelihood (LL Model): –42.81, LL Null**:** –50.32; Ratio Chi-Square: 15.02; p-value**:** 0.0001; Pseudo R^2 (McFadden)**:** 0.149.

Difference in the perception of urban agriculture between academic and non-academic staff

The test yielded a t-value of 3.997 with a p-value < 0.001, indicating that the difference in perception between academic and non-academic staff is highly statistically significant**.** At the 0.05 significance level, we therefore reject the null hypothesis and conclude that academic and non-academic staff differ significantly in their perception of urban agriculture. Specifically, academic staff recorded higher mean perception scores than non-academic staff. This suggests that academic personnel tend to view urban agriculture more positively, perhaps due to higher exposure to research, sustainability discourse, and training opportunities that enhance awareness of its socio-economic and ecological benefits.

The significant difference observed between the two groups aligns with existing studies suggesting that professional role and educational exposure often influence attitudes toward agricultural innovation and sustainability practices. Academic staff are generally more likely to engage with contemporary debates on food systems, environmental sustainability, and urban development, which may explain their higher perception scores. Recent studies support this pattern. Rivera-Williams and Asiedu (2025) found that individuals with higher academic exposure tend to demonstrate stronger positive perceptions toward urban farming because they understand its ecological, nutritional, and psychosocial benefits more deeply. Similarly, Yusuf,

Adepoju, and Adeoye (2022) observed that educational level and occupational category were key predictors of positive attitudes toward home gardening and urban vegetable production in Nigerian tertiary institutions.

The higher perception among academic staff may also stem from their involvement in teaching, research, or sustainability projects that highlight the importance of urban agriculture for climate adaptation, food security, and health promotion. Academic staff typically interact with environmental science, food systems, and community development research more than non-academic staff, which may elevate their understanding and appreciation of urban agriculture (Ayanlade and Radeny, 2020). Conversely, the relatively lower perception among non-academic staff may be due to limited access to information, heavy work schedules, or fewer opportunities for training and awareness programs. As Sulemana, Donkor, and Asante (2021) emphasize, positive perception and adoption of urban agriculture are strongly influenced by knowledge access and awareness, both of which appear stronger among academic personnel. The implications of this finding are critical. If perception strongly influences involvement which earlier results confirmed then targeted awareness, training programs, and institutional sensitization campaigns may help bridge perception gaps between staff categories. Enhancing the perception of non-academic staff could significantly increase overall participation in urban agriculture, improving household food security and contributing to sustainable campus food systems.

Table 10: Difference in the perception of urban agriculture between academic and non-academic staff

Statistic	Value
t-statistic	3.997
p-value	0.000157
Mean (Academic staff)	3.6)
Mean (Non-academic staff)	3.2)

Source: Field survey, 2025.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The findings show that urban agriculture is practiced by a diverse but predominantly male and middle-aged population. Most respondents were men (68.9%) and married (93.2%). The average age was 45 years, indicating that UA is largely embraced by economically active mid-career individuals who seek additional livelihood support. The respondents were highly educated, with 50% possessing HND/BSc qualifications, 27% MSc degrees, and 16.2% PhDs, reflecting the academic nature of the institution. Monthly income levels were generally low, with the majority earning between ₦20,000 and ₦69,999, suggesting that UA serves as a coping mechanism against rising food costs and economic instability. Over half (55.4%) had between 11–15 years of service, indicating residential stability that supports UA practice. Awareness levels were moderately high, with 66.2% of staff aware of UA as a livelihood strategy. Colleagues (55.4%) and social media (48.6%) were the dominant sources of information. However, formal institutional exposure was low: only 5.4% had attended training/workshops, and none reported receiving information from extension agents. Internal awareness within the university was also low, with only 20.3% acknowledging the presence of UA activities on campus. This implies the absence of structured visibility, policy support, or communication on UA within the institution.

Perception of UA was overwhelmingly positive. Respondents strongly agreed that UA improves food security (mean = 3.51), promotes healthier and sustainable lifestyles (3.59), reduces food expenses (4.36), and enhances mental well-being (3.55). They also believed UA is worthwhile for professionals (3.64) and has income-earning potential (3.81). Negative stereotypes such as UA being "only for low-income earners" or a distraction from formal work were rejected. However, perceptions regarding UA's role in environmental conservation and community bonding were moderately positive, indicating room for awareness enhancement. A total of 60.8% of respondents were actively involved in UA. The most practiced activities were vegetable cultivation and crop farming (60.8% each), reflecting preferences for short-cycle, low-space activities suitable for urban environments. Poultry (17.6%) and fish farming (6.8%) were practiced to a lesser extent, while sheep/goat rearing and piggery recorded minimal participation due to space, cost, and regulatory barriers. The most cultivated crops were yam (56.8%) and maize (48.6%), followed by plantain (33.8%). Fruit crops requiring larger space or longer gestation showed low adoption. Using mean score thresholds (≥2.5 = high involvement), vegetable cultivation showed the highest involvement (3.12), followed by yam (2.58), maize (2.52), and poultry (2.55). Activities such as beans (1.34), pawpaw (1.35), plantains and bananas (1.69), and sheep/goats (1.09) received low involvement ratings. This indicates that respondents prioritize activities requiring low capital, small space, and minimal technical inputs.

Motivations for engaging in UA were diverse and multi-dimensional. The most cited reasons included the desire for fresh organic food (68.9%), extra income (50%), and health benefits (52.7%). Others engaged in UA as a hobby (20.3%) or on a part-time basis (10.8%). A small group (6.8%) practiced UA for research or training. Institutional support was extremely low—only 2.7% reported receiving extension advice or training, and only 2.7% had connections to the university farm via NGOs, highlighting a significant support gap. Respondents experienced numerous constraints, categorized into environmental, economic, institutional, and socio-structural challenges such as the economic challenges were most severe: inadequate storage/processing facilities (82.4%), high cost of inputs (75.7%), and lack of funds (78.4%), while the institutional challenges were also prominent: land-use conflicts (85.1%), poor extension/advisory services (79.7%), and limited government/institutional support (68.9%). Environmental challenges included water access (70.3%), harsh climatic conditions (50%), pests/diseases (33.8%), and waste/pollution issues (37.8%). Social challenges included insecurity/theft (50%) and time constraints (40.5%). These challenges collectively limit the sustainability and scalability of UA within the university environment. Only age had a statistically significant relationship with involvement in UA ($p = 0.030$), indicating that older individuals are more likely to participate. Other variables like sex, education, income, job category, and years of service showed no significant influence, suggesting that UA participation is broadly inclusive across staff categories. Awareness had a strong and

significant influence on involvement ($p = 0.002$), with aware staff being five times more likely to participate (Exp(B) = 5.07). Awareness explained 15% of variation in involvement, demonstrating its strong predictive power. A significant difference was found between the perception of academic and non-academic staff ($t = 3.997$; $p < 0.001$). Academic staff displayed more positive perceptions, likely due to greater exposure to sustainability concepts, research, and agricultural knowledge.

5.2 Conclusion

This study examined the socio-economic characteristics, awareness, perception, involvement, motivations, and challenges associated with urban agriculture (UA) among staff of the University of Benin. The findings demonstrate that urban agriculture is an increasingly important livelihood, nutritional, and lifestyle strategy among professional urban residents, particularly within institutional environments. The results reveal that despite the university's academic orientation, economic pressures, rising food prices, and household sustainability needs have pushed a significant proportion of staff to adopt UA as a complementary livelihood activity. The study concludes that UA is practiced primarily by middle-aged, educated, and economically active staff who rely on small-scale, space-efficient production systems such as vegetable gardening, yam cultivation, maize farming, and poultry production. Participation is driven by multiple motivations most prominently the need for fresh organic food, the desire to improve household nutrition, the need to reduce food

expenses, and the quest for supplemental income. These motivations reflect the dynamic role of UA in enhancing household resilience in the face of Nigeria's economic instability. Awareness emerged as a powerful determinant of involvement, demonstrating that staff who are informed about UA are significantly more likely to participate. This underscores the importance of information access and institutional communication in promoting UA engagement. Conversely, the low level of institutional visibility and absence of structured training or extension support highlight a major gap that limits the potential impact of UA within the university community. Perception of UA among respondents was generally positive, especially regarding its benefits for food security, health, cost reduction, and mental well-being. However, academic staff displayed significantly more positive perceptions than non-academic staff, suggesting that professional background and exposure to sustainability discourse shape attitudes toward UA. The findings also reveal substantial challenges hindering the productivity and sustainability of UA. These include limited land availability, inadequate storage facilities, high cost of inputs, poor access to extension services, water shortages, land-use conflicts, and harsh climatic conditions. These multidimensional constraints reflect structural, economic, and institutional barriers that undermine UA's contribution to food security and household welfare.

The study concludes that urban agriculture has significant potential to enhance food security, promote healthy living, and improve household resilience among university staff. However, realizing this potential requires coordinated institutional support, improved access to agricultural information, infrastructural investments, and clear policies that integrate UA into campus sustainability agendas. Strengthening these structures will not only boost staff participation but also position urban agriculture as a strategic component of food system resilience within university environments and Nigeria's broader urban landscape.

5.3 Recommendations

Based on the findings of this study, the following recommendations are proposed to enhance the practice, productivity, and sustainability of urban agriculture among university staff:

1. The University of Benin should develop a formal Urban Agriculture and Campus Sustainability Policy that identifies designated spaces for UA, regulates land-use conflicts, and integrates UA into the institution's welfare, health, and sustainability programs. Such a policy will reduce displacement of gardens, enhance visibility, and institutionalize UA as a legitimate campus practice.

2. Given the extremely low access to training and extension support, the university should partner with ADP, NGOs, and agricultural departments to provide regular

workshops, extension advisory services, and practical demonstrations on improved production techniques, organic farming, water conservation, and pest management. Improved knowledge will significantly increase involvement and productivity.

3. To address the challenges of high input costs, water scarcity, and limited tools, the university or collaborating agencies should establish a subsidized input scheme and promote low-cost technologies such as drip irrigation kits, sack farming, container gardening, and composting systems. Reliable access to resources will enable staff to scale up production and reduce post-harvest losses.

4. Since inadequate storage and post-harvest handling were major constraints, the university should invest in small community storage units, drying racks, processing hubs, or cold boxes for UA practitioners. Local marketing platforms such as weekly campus mini-markets should also be created to help staff sell surplus produce and generate additional income.

5. Awareness was a major predictor of involvement. The university should deploy institutional communication platforms like newsletters**,** social media groups, seminars, and staff orientation programs to highlight UA's benefits and showcase successful staff practitioners. Special sensitization targeting non-academic staff can help bridge the perception gap and expand participation across all employment categories.

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RESEARCH QUESTIONNAIRE
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES
FACULTY OF AGRICULTURE
UNIVERSITY OF BENIN
BENIN CITY

Dear Respondent,
This questionnaire is designed for academic and non-academic staff of the University of Benin to assess their **"Awareness, Perception, and Involvement in Urban Agriculture among Staff of the University of Benin, Nigeria"**. Your responses will be treated with confidentiality and used strictly for academic purposes Thank you for your participation.

Ehimen Jeffery
Researcher

Section A: Socio-Economic Characteristics

1. Sex: ☐ Male ☐ Female
2. Age: ☐ Under 25 ☐ 25–34 ☐ 35–44 ☐ 45–54 ☐ 55 and above
3. Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed
4. Education Level: ☐ None ☐ Primary School Leaving Certificate ☐ SSCE ☐ OND/NCE ☐ HND/BSc ☐ MSc ☐ PhD
5. Job Category: ☐ Academic staff ☐ Non-academic staff
6. Department: _____
7. Monthly Income Estimated from Urban Agriculture: ☐ Below ₦20,000, ☐ ₦20,000–₦69,999, ☐ ₦70,000–₦89,999, ☐ ₦90,000–₦139,999, ☐ ₦140,000 and above
8. Years of Service: ☐ Less than 5, ☐ 5–10, ☐ 11–15, ☐ 15–20 ☐ 20–25, ☐ above 25

Section B: Awareness of Urban Agriculture

9. Are you aware of the practice of urban agriculture? ☐ Yes ☐ No
10. If Yes, how did you become aware? (Tick all that apply) ☐ Extension agent ☐ Colleagues ☐ Social media ☐ Training/workshop ☐ Others: (Please specify) _____
11. Do you know any urban agriculture practices within the university settings? ☐ Yes ☐ No

Section C: Perception of Urban Agriculture

To what extent do you agree with the following statements? (Use: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Statement	**1**	**2**	**3**	**4**	5
12. Urban agriculture improves food security.					
13. Urban agriculture is only for low-income earners.					
14. It is worthwhile for educated professionals to engage in it.					
15. It contributes to a healthier and more sustainable lifestyle.					
16. Urban farming is a distraction from formal employment responsibilities.					
17.Effort involved is not worth the stress					
18. Urban agriculture helps in reducing household food expenses					
19. Urban agriculture enhances community bonding and social interaction.					
20. Urban farming can play a role in environmental conservation within cities.					
21. Engaging in urban agriculture improves mental well-being and reduces stress.					
22. Urban agriculture has the potential to generate significant income for households.					

Section D: Involvement in Urban Agriculture

23. Are you currently involved in any form of urban agriculture? ☐ Yes ☐ No
24. If Yes, what type(s)? (Tick all that apply) ☐ Vegetable cultivation ☐ Poultry ☐ Fish farming ☐ Sheep and goats ☐ Piggery ☐ Crop farming ☐ Others (Please specify) _____
25. What kinds of crops do you cultivate? (Tick all that apply) ☐ Yams ☐ Maize ☐ Beans ☐ Plantains ☐ Bananas ☐ Pawpaw, Others (Please specify) _____
26. Indicate your level of involvement in the following enterprises

Statement	Highly involved	Moderately Involved	Slightly involved	Barely Involved
Vegetable cultivation				
Yams				
Maize				
Beans				
Plantains				
Bananas				
Pawpaw				
Poultry				
Fish farming				
Sheep and goats				
Others				

27. Where do you practice it? ☐ Home backyard ☐ Open/institutional land ☐ Containers/pots ☐ House foundations ☐ River banks ☐ Sacks/Bags ☐ Others (Please specify) _____
28. How long have you been engaged in urban agriculture? ☐ Less than 2 year ☐ 2–4 years ☐ 5–7 years ☐ 8–10 years ☐ Over 10 years

Section E: Motivation of Staff in Participation in Urban Agriculture

29. What is your purpose for engaging in it? (Tick all that apply) ☐ Fresh organic food supply ☐ Extra income ☐ Health reasons ☐ Research/training ☐ Part time ☐ Hobby

30. Have you received any agricultural extension support or training? ☐ Yes ☐ No

31. If Yes, from whom? ☐ University farm ☐ ADP ☐ NGO ☐ Private organization Others (Please specify) _____

Section F: Challenges faced in Urban Agriculture

32. What challenges do you face in practicing urban agriculture? (Tick all that apply) ☐ Land scarcity ☐ Time constraint ☐ Lack of funds ☐ Lack of knowledge/training ☐ Poor institutional support ☐ Insecurity/theft ☐ Water access, Others (Please specify): _____

33. Which environmental challenges affect your urban agriculture activities? (Tick all that apply) ☐ Pest and disease outbreaks ☐ Poor soil quality ☐ Harsh weather/climatic conditions (flooding, drought, heat) ☐ Waste disposal or pollution issues ☐ Others (Please specify): _____

34. Which economic challenges limit your participation in urban agriculture? (Tick all that apply) ☐ High cost of inputs (seeds, fertilizer, feed, etc.) ☐ Low market prices for produce ☐ Poor access to buyers/marketplaces ☐ Inadequate storage or processing facilities ☐ Others (Please specify): _____

35. Which institutional or policy-related challenges do you face? (Tick all that apply) ☐ Lack of extension/advisory services ☐ Zoning or legal restrictions on farming

☐ Land-use conflicts with other urban projects ☐ Limited government/institutional support programs ☐ Others (Please specify): _____