

**PARTICIPATION OF WOMEN FARMERS IN CASSAVA
FARMING AND EXTENSION SERVICES IN OVIA NORTH-
EAST LOCAL GOVERNMENT AREA, EDO STATE, NIGERIA**

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BENIN CITY, EDO STATE**

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL
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CERTIFICATION

This is to certify that this project work on the **PARTICIPATION OF WOMEN CASSAVA FARMERS IN CASSAVA FARMING AND EXTENSION SERVICES IN OVIA NORTH EAST LOCAL GOVERNMENT AREA, EDO STATE** was carried out by **Benedicta Edem ARCHIBONG (Miss) (AGR1900016)** under the supervision of the Department of Agricultural Economics and Extension Services, Faculty of Agriculture, University of Benin, Edo State, Nigeria.

Mrs. Sharon Okundaye
(Project Supervisor)

Date

Prof. (Mrs.) Koneyikan
(Head of Department)

Date

DEDICATION

This research work is dedicated to the Almighty God, who in His infinite mercy sustained, favoured and strengthened me all through the process of attaining my degree and the writing of my project, and my parents, Mr. Edem and Mrs. Mabel Archibong Williams, for their love, guidance and unwavering support.

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ABSTRACT

Women play a crucial role in agriculture in Nigeria, contributing significantly to food production and the economy, which is often undervalued. The main objective of this study is to assess the participation of women farmers in cassava farming and extension services, The specific objectives include;

1. To describe the socioeconomic characteristics of women cassava farmers.
2. To identify the farming activities performed by women cassava farmers.
3. To identify the respondent's awareness and access to extension services.
4. To analyse the perception of the benefits of extension services on farming activities.
5. To identify the challenges faced by women cassava farmers.

A multistage sampling was carried out with a random selection of female farmers from four communities in the Ovia North East Local Government Area, Edo state, Nigeria. Data were analysed using frequency, mean, median, mode, standard deviation, percentage and tables, and the hypothesis was tested using multiple regression.

Results showed that the greater proportion 35.8% of female farmers were within 40-49 years old, 75.8% were married, 85.8% are literate, 42.5% of persons had a household size of 2-4, 58.3% of persons primary occupation was farming, 62.5% of persons participated in cassava production, 54.2% persons had a farming experience of 1-5 years, 45.8% persons had a farm size of less than one hectare, 35.8% of

persons had an annual income of 200,000-500,000 naira, 90.8 % of persons used farm labour, 52.5% persons never had contact with an extension agent and 58% of farmers used family labour. Farmers participated in Land clearing ($\bar{x} = 3.72$), Planting ($\bar{x} = 3.53$), Weeding ($\bar{x} = 3.99$), Harvesting ($\bar{x} = 3.98$), Processing ($\bar{x} = 3.75$), Transportation (Mean=3.55), Processing to garri ($\bar{x} = 3.48$) and Storage ($\bar{x} = 3.57$). Majority of farmers were aware and had access to profitable market ($\bar{x} = 3.46$), loans, farm credit and other financial aids ($\bar{x} = 3.50$) and ownership of land for farm use ($\bar{x} = 3.08$). The farmers found the following services beneficial, access to profitable market ($\bar{x} = 3.26$), access to loans and financial aid ($\bar{x} = 3.11$), access to information on government policies ($\bar{x} = 3.88$) and access to ownership of land for farm use ($\bar{x} = 3.71$). The farmers faced the following challenges mobility restrictions and transportation difficulties ($\bar{x} = 3.86$), high cost of input and storage facilities ($\bar{x} = 3.18$), insufficient finance ($\bar{x} = 3.33$), inadequate infrastructure ($\bar{x} = 3.68$), expensive and inadequate farm labour (Mean=3.98), insecurity ($\bar{x} = 3.55$) and pest and disease attack ($\bar{x} = 3.97$). I recommend that targeted extension programs should be developed, that address the specific needs and challenges faced by women farmers, including training on modern agricultural techniques and financial literacy

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Cassava, *Manihot esculenta*, is a woody perennial dicotyledonous crop of the *Euphorbiaceae* family that is grown annually in tropical and subtropical parts of the world. It is ranked as the world's most important and produced root crop and is grown principally for its swollen roots, but its leaves are also consumed in some parts of the world as food and livestock feed (Morgan 2021).

Cassava is a major staple crop in regions of the world, including Asia, Africa, and South America, as it is an important component of daily household diets, livestock feed, and raw materials for industry. (Musa and Ahmed 2024) It is a versatile perennial crop that adapts easily to different climate and soil conditions and, thus, can be cultivated all year round. It is easy to produce as it endures poor soils, adverse weather conditions, pests and diseases. (Awotona *et al.*, 2022).

Africa is the world's largest cassava-producing region, accounting for 61.1% of the world's cassava production. (FAOSTAT, 2020) It has enormous potential to improve food security and people's livelihoods in Africa. Nigeria is the highest cassava producer in the world, producing more than half of the world's cassava. (Morgan 2021) Cassava is considered the most tropical food crop in Nigeria and plays a crucial role in the food security and economic stability of farming communities (Isibor *et al.*, 2024) as it provides food and income for over 30 million farmers,

processors and traders. (Musa and Ahmed 2024) Cassava and cassava-based products are essential to Nigerians as it is consumed daily by almost all households in Nigeria. (Olanike and Joseph 2022) It is a dietary staple carbohydrate for most Nigerians, cutting across cultural and social groups. The roots of cassava are rich in energy, vitamin A, starch and soluble carbohydrates and low in protein. In Nigeria, an estimated 90% of cassava is produced into food, 70% of the 90% is processed into garri, and the remaining 20% into elubo, also called lafun, fufu or abacha, based on the cultural location. There is also high demand for cassava for industrial use, majorly as a local and cheaper substitute for imported materials and semi-finished products, and it is used in the production of starch, ethanol, animal feed, pharmaceuticals, adhesives and cassava flour (used as a replacement for bread flour). This is taken care of by the remaining 10% of cassava produced. (Ibintunde *et al.*, 2021).

Despite Nigeria's position as the largest global producer of cassava, significant challenges remain in improving cassava yield per hectare. Smallholder farmers largely manage current cassava production with minimal mechanization and low access to modern inputs. Although cassava has the potential to contribute significantly to food security, inefficiencies in farming systems, government policies and cultural practices, combined with limited access to agricultural technologies, have resulted in stagnant productivity. (Omoluabi and Ibitoye 2024). These smallholder farmers mainly constitute the rural farming communities in Nigeria.

Rural farming communities depend largely on the production and processing of cassava as it is a resilient and versatile crop that can be grown in diverse agro ecological zones with low inputs and financial requirements. Cassava provides food security, income generation and employment opportunities to rural households. Cassava is a staple food crop that is readily available all year round, as it fits well into the farming systems and smallholder processing in Nigeria, providing a source of livelihood for rural households. (Isibor *et al.*, 2024). Its dry season resistance, resilience to adapt to less productive soils, and capacity to be stored in the ground make it an important food crop for poverty alleviation among smallholder farmers in rural communities. (Awotona *et al.*, 2022).

According to Alakpa *et al.*, 2021, agricultural extension services play an important role in agricultural development as they create awareness and subsequent adoption of modern methods of cassava production, thereby contributing to improving the welfare of farmers and people living in rural areas. It can be organized and delivered in a variety of forms, but the major aim is to increase farmers' productivity and income. It is a key factor in the development of cassava, and its input enhances the cassava value chain (Onemolease *et al.*, 2021).

Small-scale farming (Rural farming) is the backbone of global food production, contributing to approximately 80% of the world's food supply. This sector ensures food security and serves as a vital source of employment, especially for women. On average, women constitute 43% of the agricultural labour force in developing

countries; in some nations, they form the majority. Across sub-Saharan Africa, women play a crucial role in agriculture. (IITA, 2024).

In Nigeria, farming operations are gender specific and match the age as women portray a noticeable responsibility in agricultural production. (Temidayo 2019)

Women play a crucial role in agriculture in Nigeria, contributing significantly to food production and the economy. Women farmers' participation in agriculture varies in terms of farming systems, cultural settings, socio-political, ethnicity, income, status and decision-making. (Osuji *et al.*, 2017) They play an important role in the agricultural value chain, which is often undervalued. In rural communities in Nigeria, the division of labour within the household is gender specific as women perform distinct roles and have low decision-making power and low access and control over productive agricultural resources. Women are inhibited from venturing into agriculture as a result of domestic roles given to them by society, which include reproductive roles, unpaid labour as housekeepers and caregivers, lack of mobility, low numeracy skills and low level of education. They are also faced with non-ownership of farmlands, inadequate farm size, limited access to loans, extension services, farm credit and other financial services. These factors make female farmers handicapped through not having much control over their resources, low yields, low rate of modern inputs and technology adoption and hindered capital. This also prevents important development outcomes in a society, such as eradicating malnutrition and poverty and leads to other ineffective interventions (Olanike and

Joseph 2022). This also undermines the capacity of women to contribute and partake in economic growth and influence intra-household resource allocation, land productivity and welfare levels. (Awotona *et al.*, 2022).

Women dominate cassava production in Nigeria, influencing about 62% of the agricultural labour in the southwestern part, 71% in the southeastern and 59% in the central zones. (Temidayo 2019).

Women play essential roles in cassava farming which include; production roles as smallholder farmers, hired or family labourers involved in land preparation, planting, and weeding, as the three main production activities, other production activities include packing, manuring, fertiliser application, harvesting, packing and transportation; processing roles as workers in processing units involved in peeling, washing, grating, sieving and frying and marketing role in small local markets as retailers. The women are usually found in low status and bottom of the value chain where their participation is less visible, especially when involved in a large part of farming activities. Informal workers who are women tend to be underpaid, and their jobs are less secure (Olanike and Joseph 2022).

Women are found mostly in small-scale cassava processing as a greater number of automated equipment (grater and grinder) are possessed and managed by men. Women have shown resistance in the enterprise of production and processing of cassava that have solved the issue of poverty in their respective homes. (Temidayo 2019).

1.2 Problem statement

Women represent half of the agricultural labour force in Nigeria. They play a vital role in all parts of cassava farming, which includes the production, processing and marketing of cassava and cassava produce, but they are not visible and appreciated. Due to the cultural and societal challenges faced by women in cassava production, they tend to face low productivity and low economic contribution to their respective households and society at large.

Therefore, this study answered the following research questions :

1. What are the socio-economic characteristics of women cassava farmers?
2. What are the farming activities performed by the women cassava farmers?
3. Are farmers aware and do they have access to extension services?
4. What are the perceptions of the benefits of extension services on farming activities?
5. What are the challenges faced by women cassava farmers during cassava production?

1.3 Objectives of the study

The main objective of this study is to assess the participation of women farmers in cassava farming and extension services, The specific objectives include;

1. To describe the socioeconomic characteristics of women cassava farmers.
2. To identify the farming activities performed by women cassava farmers.
3. To identify the respondent's awareness and access to extension services.
4. To analyse the perception of the benefits of extension services on farming activities.
5. To identify the challenges faced by women cassava farmers.

1.4 Justification of the study

This study explores how women's participation influences cassava production, the factors that affect them and how they benefit from extension services.

Traditionally, farms are owned and managed by men as heads of the farm families. However, due to economic pressure and greater awareness arising from education, the traditional gender pattern of farming is increasingly breaking down and as a result, women are increasingly involved in farming. (Nwadiolu *et al.*, 2024).

Cassava is a staple crop that plays a crucial role in the food security and economic stability of a society, and women make significant contributions in cassava farming. If women had access to production resources, financial resources and extension services as their male counterparts, they could increase the yields on their farms from

20% to 35% and total agricultural output in developing countries from 2.5% to 4%.

This will reduce the poverty level in the society by 12.7%. (Nwadiolu *et al.*, 2024)

Various studies concerning cassava farming and its impact in Nigeria have been conducted by many researchers in Nigeria. Some of these include Isibor C. A. who investigated “The Effects of Livelihood Risk on Poverty Types among Smallholder Cassava Farmers in Anambra State, Nigeria”. Awotona, T. O. also investigated the “Analysis of gender dynamics in cassava production for resource empowerment among farmers in Oyo State, Nigeria” and much more research.

Therefore, understanding this study will help to develop strategies and solutions through policies, projects and programs that was focused on women farmers to improve their participation in cassava production in Nigeria.

1.5 Research Hypothesis

The hypotheses are stated in the null form;

1. There is no significant relationship between the socioeconomic characteristics of women cassava farmers and the perceived benefit of Extension services in farm activities.
2. There is no significant relationship between the socioeconomic characteristics of women cassava farmers and their participation in cassava farming.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Cassava Farming in Nigeria

Agriculture plays a crucial role in the Nigerian economy, providing food security, employment, revenue, and raw materials for industrial development (Oluchi and Joseph, 2021). It is widely recognized that agriculture is essential for the growth of African economies. In Nigeria, agriculture directly or indirectly employs over 70% of the population, despite being overshadowed by the oil sector (World Bank, 2018). Agriculture also contributes one-third of Nigeria's Gross Domestic Product (GDP) (Onyemekihian et al., 2022). Cassava (*Manihot esculenta*) is a significant food source in the region, supporting 30 million farmers, processors, and traders in the cassava value chain (Oluchi and Joseph, 2021). Originally from South America, cassava is grown in tropical regions for its starchy roots, which are used as a staple food by many households (Uchemba et al., 2021).

Nigeria is the largest producer of cassava globally, followed by Indonesia, Republic of Congo and Angola (Onubuogu *et al.*, 2014). Cassava is widely grown in Nigeria, usually on small farms alongside crops like maize, groundnut, cowpea, cocoyam, and vegetables, depending on the region. It is often planted with maize that has been fertilized or rotated with legumes to make use of residual soil nutrients. Cassava is cultivated in 24 out of Nigeria's 36 states, including the Federal Capital Territory,

(Alakpa *et al.*, 2021) mainly in the southwest, southeast, and north-central regions (Onubuogu *et al.*, 2014).

Cassava is widely grown in Nigeria, Smallholder farmers mainly grow cassava because it is drought-tolerant, resilient in poor soil conditions, requires minimal inputs, available year-round, provides food security, inexpensive to cultivate, profitable, and can be stored in the ground for over two years.(Onubuogu *et al.*, 2014, Uchemba 2021) In comparison with the output of various crops in Nigeria, Cassava production in Nigeria surpasses other crops like yam at 27 million tonnes, sorghum at 7 million tonnes, millet at 6 million tonnes, and rice at 5 million tonnes. (Onugbuogu *et al.*, 2024) It is highly efficient in converting solar energy into carbohydrates, making it a cost-effective source of calories for both humans and animals. (Alakpa *et al.*, 2021). The cassava root is the most consumed part domestically and industrially, but other parts like the stem and leaves are also used for medicinal and culinary purposes. (Uchemba *et al.*, 2021, Ezike *et al.*, 2022). Nigeria remains the top cassava producer in West Africa, with an estimated output of 59 million tons and accounts for 20.4% share of the world's total production since 2017, this makes Nigeria the largest cassava producer in the world food market. (Uchemba *et al.*, 2021) Despite this, there is still a gap between the production potential and local demand for the crop and its derivatives, indicating a need for intervention (Onemolease *et al.*, 2021).

According to Onemolease *et al.*, 2021, there has been a rise in the demand for food due to an 18% increase in the amount of food available per person globally over the past 30 years. This increase has been supported by the growth in world food production. In Nigeria, the significant harvest of cassava can be attributed to factors such as rapid population growth, internal market demand, the availability of high-yielding cassava varieties, and an expansion of cassava farming areas (Onubuogu *et al.*, 2014). Despite these improvements, over 820 million people worldwide suffer from chronic hunger, with a quarter of them living in Africa. This situation worsens annually and could become critical if food production does not keep up with the growing population. One way to address this issue is by increasing the cultivation of food crops like cassava, which has been identified as a crop that can help alleviate poverty. Cassava plays a crucial role in combating food insecurity in Nigeria and Africa as a whole, as it is a staple crop for many people. (Onemolease *et al.*, 2021). Cassava is a crucial crop in Nigeria for both food and industrial purposes. (Onemolease *et al.*, 2021). It was designated as one of the priority crops by the federal and some state governments, leading to the implementation of various programs and policies aimed at improving the cassava sector. Some of these initiatives include the Presidential Initiative on Cassava (PIC) in 2002, Cassava Enterprise Development Project (CEDP) in 2004, Root and Tuber Expansion Programme (RTEP) in 2010, and Agricultural Transformation Agenda (ATA) in 2010, among others (Uchemba *et al.*, 2021). Despite these efforts, Nigeria still

struggles with food poverty, with 52% of the population living in poverty, indicating a lack of development in the cassava value chain. (Onemolease *et al.*, 2021). This is largely due to the predominance of small-scale traditional farming methods with minimal mechanization and modern technologies, resulting in low productivity levels. (Akerlele *et al.*, 2019). According to Onubuogu *et al.*, 2014, It is widely recognized that increasing farm productivity through efficient resource utilization by the smallholder farmers is essential for expanding and sustaining agricultural production however as stated by Onemolease *et al.*, 2021, However, a significant challenge lies in the lack of development in the agricultural production process. Simply boosting production without improving the marketing system can lead to oversupply in the market, causing prices to drop and discouraging farmers from investing in cassava cultivation. Small farmers, in particular, face numerous challenges in agriculture, including high input costs, labor expenses, mechanization costs, limited access to extension services, funding shortages, inadequate supply of high-yielding cassava cuttings, poor farm road infrastructure, weather and climate impacts, production and price fluctuations, lack of price control, and issues with preservation and storage among many others (Akerlele *et al.*, 2019). Despite these challenges, cassava offers a wide range of value-added products that can serve as alternative food sources, especially for low-income households. These products include cassava flour, starch, chips, and local delicacies like garri, fufu, and abacha. During times of crisis, such as the COVID-19 pandemic and increased insecurity in

Nigeria, the prices of cassava delicacies skyrocketed, prompting people to seek out alternatives like cassava and maize flour (Elubo) for their food needs. (Uchemba *et al.*, 2021).

Cassava farming still has untapped potential in both production and processing, according to recent studies (Onemolease *et al.*, 2021). Many cassava farmers are using low-yielding varieties because they lack information about better options, highlighting a communication gap between research institutions and farmers (Alakpa *et al.*, 2021). This situation is concerning because despite an increase in cassava production, progress is slow and the agricultural sector is struggling to meet the growing demands of the population. This has led to a food import deficit due to inadequate conditions for agricultural development (Onemolease *et al.*, 2021), To address this issue, there is a need to boost cassava production for both local consumption and export. (Uchemba *et al.*, 2021) This will require efforts to enhance the quality and quantity of cassava production, which cannot be achieved without an effective extension system. (Onyemekihian *et al.*, 2022).

2.2 Agricultural Extension Services in Nigeria

Agricultural extension services are crucial for the development of cassava farming as they play a significant role in improving the entire cassava value chain process, which includes production, processing, and marketing (Onemolease *et al.*, 2021). These services help raise awareness and interest in new technologies, as well as facilitate the adoption and adaptation of new approaches to crop production, post-harvest processing, and marketing. (Oluchi and Joseph 2021).

Uchemba *et al.*, 2021 noted that while there are studies on extension activities in cassava cultivation management, there is limited information on extension activities in other aspects of cassava farming. Many cassava producers lack sufficient information about post-harvest technologies and other necessary information to fully maximize the economic potential of their crops. To encourage cassava farmers to embrace these innovations, there needs to be an increase in awareness of the benefits associated with processing cassava into value-added products using proven technologies. The lack of knowledge on how to add value through proper storage, processing, and marketing hinders agricultural growth. In general, farmers need access to adequate agricultural information on modern technologies to transition from traditional production systems to a more advanced and commercialized system of production (Olajide, 2021).

Agricultural extension is crucial for promoting modern cassava production methods, which can help improve agricultural development and the well-being of farmers in

rural areas. (Alakpa *et al.*, 2021) However, agricultural extension communication, in the context of development, aims to enhance the livelihoods of the participants (the farmers and extension staff) through the process of exchanging agricultural information between themselves and others. (Ezike 2022) It can be seen as the catalyst in the dissemination of information to rural farmers as it is a more participatory process rather than a top-down, supply-driven, technically weak program focusing mainly on progressive farmers. ((Onemolease *et al.*, 2021)) According to Onemolease et al, there is a gap between extension service and cassava farmers in the cassava value chain, possibly due to inadequate, improper and partial involvement of the extension services but Uchemba *et al.*, 2021 pointed out that studies conducted have shown that farmers have not fully implemented recommendations to improve cassava production and this includes timeliness, method of fertilizer application, proper use of herbicides and insecticides. This fact is further supported by Ezike *et al.*,2022. Traditional methods of cassava processing are still widely used in Nigeria, despite advancements in food processing technologies globally which reduces the level of productivity. These traditional methods of cassava processing are labor-intensive, but improved processing technologies have been introduced to increase productivity and reduce labor. ((Ezike *et al.*, 2022) Oluchi and Joseph 2021 pointed out that Low cassava yields can be attributed to a lack of knowledge about the crop's benefits, poor farm management practices (tilling, spacing and weeding) and low soil fertility. Nigeria's average yield per hectare is

10.6 th-1 but over 20 th-1 might be regularly possible (Oluchi and Joseph 2021) By adopting improved production technologies and practices, such as better site selection, land preparation, improved varieties, fertilizer application, irrigation, weeding and harvesting and other planting methods, smallholder farmers can increase their productivity. However, these technologies are not well understood and are slow to be adopted. (Uchemba *et al.*, 2021).

Extension agents need to create awareness about new technologies and ensure they are accessible to farmers. However, the most crucial step is for farmers to actually adopt these technologies. The adoption process involves five stages: awareness, interest, evaluation, and finally, adoption. Successful adoption leads to increased productivity, higher earnings, and reduced poverty. To improve agricultural efficiency and modernization, farmers must embrace new technologies. Unfortunately, the adoption of these technologies is often slow in developing countries, despite being a key solution to poverty. (Ezike *et al.*, 2022).

Nigeria has dedicated extension offices in each of its 36 states, along with numerous agricultural research institutions and extension training programs. The Research-Extension- Farmer-Input Linkage System (REFILS) connects farmers to this network through a body of 7000 extension workers.(Oluchi and Joseph 2021) The public sector extension system in Nigeria is led by the ADPs under the Ministry of Agriculture and is faced with basic problems while some private sectors like the Shell Petroleum Development Company and Total Exploration and Production, also

embarked on agricultural extension services schemes as they treat agricultural development in Nigeria as Corporate Social Responsibility that lacks legislative backing(Ogueri 2013). This started after an initial surge of World Bank funding in the 1980s, the Nigerian Agricultural Knowledge and Information System (AKIS) has struggled due to a severe lack of funding and coordination in times of both economic growth and recession and this led to uneven and irregular nature of information hindering the advancement of food production and the livelihood of African farmers. (Oluchi and Joseph 2021) This can be seen in a situation in Nigeria where agricultural technologies were shared to end users (the farmers) through extension services by both public and private sectors extension agents as they introduced to the same farmers the improved cassava varieties from the research institutes, where they were expecting rewarding results but the local varieties remained popular. It was assumed that the content and quality of extension messages on improved cassava varieties may have been connected with the slow pace of adoption rather than the extension delivery system, which was noted to affect the adoption of improved cassava technology (Ogueri 2013) This caused the farmers to source information from the sources that are readily and conveniently available like other farmers, input dealers, produce buyers and Non-governmental organizations(NGOs).(Oluchi and Joseph 2021) Therefore, some challenges concerning the extension delivery strategy, such as the Unified Agricultural Extension System (UAES) which ensures a single line of command was not fully implemented for logistics reasons. Human resources

necessary to implement the T & V (Training and Visit) extension management system has a poor target of 1:1,000 farmers was not achievable which is as a result of the inadequate deployment of the Research- Extension-Farmer-Linkage-System (REFILS) with necessary extension inputs like improved varieties and fertilizer (Ogueri 2013) Due to all these constraints, traditional extension services have often provided inadequate coverage of the small-scale farmers and this causes many technologies that obtain higher productivity and food security not get to the small-scale farmers.(Oluchi and Joseph 2021).

The public extension system of the Ministry of Agriculture has been criticized for not doing up to expectations in helping the farmers to enhance their production output. However, private extension which stands as a better alternative to the extension system of the Ministry of Agriculture, has not been embraced and fully utilized by cassava farmers.(Onyemekihian *et al.*, 2022) It has been suggested that Nigerian extension should move towards a demand-driven (private) extension service to supplement public extension, which has been part of social services rendered by the government for the farming populace and has not lived up to expectations (Oluchi and Joseph 2021, Onyemekihian *et al.*, 2022).

2.3 Women Participation in Cassava Farming and Extension Services

Agriculture in Nigeria is not good for various reasons: One of which is the lack of resources, both socially and legally, means of production, and opportunities for women that are typically available to men. According to the Federal Ministry of Agriculture (FMA) in Nigeria, women make up 75% of the farming population and 74.8% of women are employed in the agricultural sector (Gabriella 2020). According to Tarvershimat *et al.*, 2020, women contribute significantly to agricultural labour, 58 percent in the southwest, 67 percent in the southeast and 58 percent in the central zones. They are almost responsible for all activities like hoeing, weeding, harvesting, transporting, storing, processing, marketing and domestic chores which provide them with additional income-earning opportunities and enhance their ability to contribute to household food security thereby making a significant contribution to food production; providing 60-80% of agricultural labour and are responsible for 80% of food production. Despite all of this, women in Nigeria, like most places in the world, face restricted and disadvantages due to traditional and cultural norms that limits their access and rewards as compared to men. (Gabriella 2020) The main factors hindering women's involvement in cassava production includes non-ownership of farmland, limited access to capital, heavy household chores, small farm size and the high cost of processing cassava roots into chips. They often bear the brunt of care and domestic work which affects their ability to participate in cassava production. (Tarvershimat *et al.*, 2020) The United Nations Food and Agriculture Organisation

estimates that if women had equal access to productive resources as men, they could increase farm yields by 20-30%, potentially reducing world hunger by 12–17%, and lifting 100-150 million people out of undernourishment globally. Women play a significant role in the agriculture sector as self-employed farmers, as unpaid labour on family farms and as paid or unpaid workers on farms owned by other agricultural businesses. They make up 43% of the global agricultural workers and are primarily responsible for crop and livestock farming at both subsistence and commercial levels. Women also produce food and cash crops and administer varied agricultural processes comprising crops, livestock, and fish farming. (Gabriella 2020) Cassava and cassava-based products are essential foods in Nigeria, consumed daily in households and grown by small holder many of them women. (Tavershimat *et al.*, 2020).

Women play a central role in Nigerian cassava production, processing and marketing and contributes a significant amount of labour associated with cassava production and are mainly responsible for processing cassava in Nigeria earning it the nickname “woman crop”. (Bela et al 2018, Gabriella 2020) Tavershimat *et al.*, 2020 noted that Nigerian women carry out the majority of labour associated with cassava production and processing. They form an active and reserved labour force but they rarely own the means of production. Gabriella 2020 further explained that traditionally, Nigerian women are in charge of most of the agricultural labour in the homestead, ensuring household food security and supplementing family incomes. According to Gabriella

2020, women participate in cassava farming for the following reasons: for household food security which is often the burden of women and it is a low risk and input crop which is essential for women experiencing severe challenges in gaining access to agricultural inputs. Despite this, they face reduced agricultural productivity due to gender-based inequalities in access to land and control of productive and financial resources, perpetuating food insecurity, malnutrition, and poverty. Women in Nigeria, like women globally, are often overlooked by agricultural services and extension programs. Agricultural extension programming in Nigeria fails to recognize the significant contributions of women in agricultural production and value addition. Policymakers and administrators still hold the belief despite evidence to the contrary, that farmers are men, while women only play supportive roles in agriculture by being farmers' wives. According to the United Nations Food and Agriculture Organisation, for a long time, the very definition of farmers discriminated against women. As Nigerian farmer was legally defined as being "an adult male who has the right to the produce of a farm" while women are not classified as farmers. Agricultural extension activities prioritize training men in the farming and production of cash crops through delivering training exclusively to men granting them a monopoly on access to inputs and services. This preferential treatment can be seen most clearly in farmer residential training centres, which are created to disseminate agricultural technologies and new practices to advance rural development and agriculture. However, many of these centres are not women-inclusive and fail to provide

essential facilities for women, such as separate washrooms, dormitories, and resources for childcare. The absence of these prevents many women from attending or taking part in the centre's activities. Another barrier to women's participation in agricultural service is their day-to-day household activities as they are usually the principal caregivers and in charge of maintaining the household, which may prohibit them from attending residential training. When women manage to bypass these barriers and attend training, they attain the highest number of attendances in the total number of attendances. Sometimes, women are mainly given training in home economics and craft subjects and excluded from more technical agricultural training as it is referred to as a man's training thereby restricting women from gaining skills and knowledge in agronomic practices. This is due to a common misconception that is prevalent in Nigeria and globally is the idea of passive females in agriculture, someone who is not actively engaged in farming and is reliant on their husbands to give them farming information, which is an outdated and wrong perception. The importance of women in agricultural and global development cannot afford this continued thinking when it comes to extension and farming services. (Gabiella 2020).

CHAPTER THREE

3.0

METHODOLOGY

3.1 Area and Scope of Study

This study was carried out in Ovia North East Local Government Area of Edo State. Ovia North East Local Government Area is one of the eighteen serving Local Governments in Edo State Nigeria. This location falls within the Southern Senatorial District, also known as Edo South District alongside Ovia South West, Egor, Oredo, Orihiomwon, Ikpoba Okha and Uhumwode. Ovia North East is located in the Southern part of the state within longitude 5°14'20" E, latitude 5°50'34.80" E and longitude 5°54'42.10.8" N, latitude 6°46',58.80" N. It has its headquarters in Okada. The LGA is divided into several communities which include Adolor, Ekosodin, Iguosodin, Ishior, Isiuwa, Kokhuo, Oduna, Ofunm-Wengbe, Ogbese, Okokhuo, Oghede, Okada, Oluku, Ora, Uhen, Utekon, Utese, Uhiere and Utoka. It has a total area of 2,301km and a population of 234,706 people by 2021(Ojo and Ekun 2024). It is located in a rainforest zone with an average annual rainfall of 2500mm. The minimum and maximum temperature is about 25° C and 28° C. It has two main seasons which are the rainy and dry seasons. The relative humidity is about 83%. The main occupations of the inhabitants in the study area include farming, trading, crafting and civil service jobs. The major crops produced are plantain, cocoa, rubber, oil palm, maize, yam, cassava and pineapple, while livestock production includes poultry, fishery, snail, rabbitry and goat production.

This study is based on the participation of women farmers in cassava farming and extension services and was studied using a combination of quantitative and qualitative methods to collect and analyze data based on cassava produced by women farmers.

The scope of this study comprises women farmers in some communities in Ovia North East.

3.2 Sampling Procedures and Techniques

This study involves a quantitative and qualitative survey design which involves multistage sampling. The sampling method was in three stages.

Stage 1:- The purposive selection of Ovia North East in Edo state, because of the predominance of cassava farmers in the area.

Stage 2:- The random selection of 4 communities which will include Ekosodin, Ekiadolor, Ugbogiobo and Utekon communities in Ovia North East.

Stage 3:- The simple random selection of 30 women cassava farmers from each community to give a total of 120 respondents.

3.3 Data Collection

The data was sourced through a combination of primary and secondary sources. The primary sourcing was with the use of a structured questionnaire and was administered through face-to-face interviews with the farmers which will allow for clarification and probing where necessary.

Secondary data was used to support the primary information and was sourced from a review of existing literature and reports from genuine sources, also academic journals and articles, government reports and international organization reports was used. The data was based mainly on women farmers, cassava farming and production in the area of study.

3.4 Measurement of Variables

3.4.1 Independent variable

Socioeconomic Characteristics: -

Age: The age of the cassava farmer was measured in years

Marital status: The cassava farmers were asked to indicate their marital status from the following options: single, married, divorced, separated and widowed.

Education level: The cassava farmers were asked to indicate their level of education with the following options: non-formal, primary, secondary, adult and tertiary education.

Household size: The cassava farmers were asked to indicate their household size with numerical values.

Primary occupation: The cassava farmers were asked to indicate their primary source of income.

Participation in cassava farming: The cassava farmers were asked to indicate what type of cassava farming they were involved in with the following options: Production, processing and marketing.

Years of experience: The cassava farmers were asked to indicate their years of experience in cassava farming.

Land size: The cassava farmers were asked to indicate the size of their land.

Annual income: The cassava farmers were asked to indicate annual income gained from cassava farming.

Farming methods: The cassava farmers indicated the farming methods used in farming.

Contact with extension agent: The cassava farmers indicated how often they come in contact with an extension agent.

3.4.2 Dependent variable

Participation and level of participation: The cassava farmers were to indicate the type and level of participation they are involved in.

Access to resources: The cassava farmers were to indicate their access to farm resources with the following options:

Ownership of farmlands, access to loans, access to extension services and access to farm credits.

Benefits of Extension services: The cassava farmers were to indicate the benefits they achieved from their access to extension services.

Impact of Participation: The cassava farmers were to indicate the impact of cassava farming on their livelihood.

Challenges: The cassava farmers were to indicate the challenges they face in cassava farming.

3.5 Data Analysis

To achieve the objectives of this study, the data analysis tools used will included descriptive statistics such as frequency, mean, median, mode, standard deviation, percentage and tables to analyze the objectives. The hypothesis was analyzed using multiple regression.

The formula for multiple regression, where there are multiple independent variables, is:

$$y = b_0 + b_1 x_1 + b_2 x_2 + \dots + b_n x_n + U$$

Explanation of Terms:

Y: The predicted value of the dependent variable.

b_0 : The intercept (constant term), represents the value when all values are zero.

$b_1, b_2, b_3, \dots, b_n$: The coefficients (slopes) for each independent variable, showing the change in for a one-unit change in each, assuming all other values are constant.

$x_1, x_2, x_3, \dots, x_n$: The independent variables or predictors.

They can be represented as:

Y= Participation of women farmers

x1= Age

x2= Marital status

x3 = Educational qualification

x4= Household size

x5= Primary occupation

x6= Participation in farming

x7= Experience in farming

x8= Size of farmland

x9= Annual income

x10= Farm method used

x11= Contact with extension agent

U= Error term

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter presents the results of data analysis, interpretation and discussion of the data gotten from the field. A total of 140 copies of the questionnaire were taken to the field, extra 20 copies were to make up for outliers and improperly filled questionnaires. 120 copies were found to be properly filled while the remaining twenty copies were not properly filled, they were removed to allow for normally distributed data for the analysis. The analysis, interpretations and discussions were done concerning the objectives and hypothesis of the study as outlined below:

4.1 Socio-economic characteristics of respondents:

The socioeconomic characteristics of cassava farmers examined include; age, marital status, educational qualification, household size, primary occupation, participation in cassava farming, years of experience in cassava farming, farmland size, annual income, farm method used and contact with extension agent. These findings can be found in Table 1.

Age: As shown in Table 1, the modal age is 40-49 years (35.8%), followed by 50+(33.3%) with a mean age of 46.01 years. The result shows that the majority of the sampled farmers are strong and very active. It also shows that very few young people of 2.5% are engaged in cassava farming in the study area. These results among other factors would influence the participation of women farmers in cassava farming and extension services. This includes the need for the farmers to feed their

families and take care of other needs of the family with crops from the farm and income gotten from the sales of output from the farm, this notion is supported by Tarvershimat et al 2020, as stated that cassava is a daily menu in households and grown mostly by smallholder women farmers as they are mostly responsible for almost all farming activities to provide additional income-earning opportunity and enhance their contribution to household food security. This notion is supported by Gabriella 2020.

Marital Status: As shown in Table 1, the majority (75.8%) of the sampled farmers are married, 9.2% are separated, 7.5% are single, 5% are divorced and 2.5% are widowed. The percentage of married women shows that they are engaged with the responsibility of food security and income generation which cassava farming comes into view. Also married women engage more in cassava farming which is labour-intensive but have access to free labour through family labour since they are mostly in charge of farms owned by families as stated by Gabriella 2020. It is also pointed out by Gabriella 2020 when she stated that women are supportive farmers of their husbands who is regarded as real farmers. This socioeconomic characteristic also increases the chance of the woman farmer to lands which may be attained through the influence of their husbands. This does not exclude the separated, widowed, single and divorced women as they also have responsibilities to take care of and therefore participate in cassava farming.

Educational Qualification: As shown in the results in Table 1, 35% of the farmers had secondary education, 33.3% had primary education, and 17.5% had tertiary education. This result shows that a greater percentage (85.8) of the farmers are literate, that is, they can read and write and they can also perform basic arithmetics. This shows a greater advantage in women farmers' willingness to participate in extension services to boost cassava farming if given to opportunity and access to extension services. This is stated by Gabriella 2020 in her article that the attendance of women in extension trainings is usually higher than men, if given the opportunity and if they are able to bypass the constraints that may prevent them from participating in extension services, these includes day- to - day household chores and taking care of loved ones.

Family/ Household size: As shown in Table 1, 95 % of the farmers have a household size of 2-4, 5-6 and above 6 persons. This table shows the fact that women are are faced with responsibilities of people to feed and generation of income for family upkeep. Therefore, participation in cassava farming is very crucial to take care of these responsibilities. This increases the access to free labour from family members, as stated by Gabriella 2020, women are in charge of agricultural labour in the homestead. Through this advantage the mouth a woman has to feed the more access she may have to lands as stated by Gabriella 2020, where she stated that women are primarily in charge of farming both at subsistence and commercial level.

This statement may not be applicable to all women as larger household means the burden of larger household chores which may prevent or reduce women participation in cassava farming as stated by Tarvershimat *et al.*, 2020.

Primary Occupation: As shown in Table 1, 58.3% of the farmers fully participate in cassava farming while 41.7% of the farmers partly participate in cassava farming. As stated by Temidayo, 2020, women dominate cassava production in Nigeria. This may include the monoculture of cassava, intercropping or mixed farming. They may also be involved in the processing of cassava into value added products like garri, fufu, elubo, lafun tapioca, dried cassava chips and many others. They may also be involved in the marketing of the farm produce fresh or processed to gain income and also for family consumption. this is supported by Olanike and Joseph 2022, where they pointed out that women play essential role in cassava farming and are involved in the production, processing and marketing of cassava and cassava by products.

Women who partly participate in cassava farming may do so as a result of constraints they may face which includes: low accessibility to farm land, expensive farm input, expensive labour, household chores and many other reasons. This results to taking up other occupations that may be less stressful and demanding and use cassava farming as an additional source of income or strictly for family consumption. This supported by Olanike and Joseph, 2022 who states that women are inhibited from venturing into agriculture as a result of domestic roles given by society and other constraining factors.

Participation in cassava farming: As shown in Table 1, 62.5% of the farmers are shown to participate in the production aspect of cassava farming and 37.5% in other aspects of cassava farming. The high participation rate in cassava production is confirmed by Temidayo 2019 who points out that greater number of automated equipment are possessed and managed by men. He also pointed out that most women participate in small scale farming which is mostly used for household consumption or to be sold at local markets. This is also supported by Tavershima *et al.*, 2022 and Chibuzor 2020 as the processing of cassava is labour intensive depending on the end product to be achieved.

Years of experience in cassava farming: As shown in Table 1, 54.2% of the farmers are shown to plant between 1-5 years while 45.9% of the farmers are shown to have planted for 5 years and above. The high percentage of cassava experience of 1-5 years may indicate the participation of women farmers as a result of economic issues, family food consumption and income generation as supported by Awotona *et al.*, 2022 that cassava is a poverty alleviation crop and by Gabriella 2020 who states that women participate in cassava farming for household food security and because cassava is a low risk and low input crop. The remaining percentage may participate in cassava farming as it may be a major source of income for them as farmers.

Size of farmland: As shown in Table 1, 45.6% of the farmers are shown to have a farm size of less than 1 hectare of farmland which may indicate most likely their participation in subsistence farming. The remaining 54.2% of the farmers are shown

to have 1 hectare of farmland and above which indicates most likely their participation in commercial farming or maybe small scale as commercial farming may include 5 hectares of land and above. Therefore, this can be concluded that most the farmers are operating in small scale farming. This confirmed by Tarvershimat *et al.*, 2020 who con firms that most women farmers are small scale farmers. However, during data collection, some farmers indicated their participation in mixed farming which includes, maize, vegetables and other crops. This confirmed by Alakpa *et al.*, 2021 states that cassava is planted on small farms alongside other crops.

Annual income: As shown in Table 1, 41.6% of the farmers earn between 50,000-500,000 annual incomes while 48.4% of the farmers earn between 500,000 and above. This confirms the fact that women farmers participate in income generation as stated by Gabriella 2020 and IITA 2024

Farm method used: As shown in Table 1, 90.8 % of the farmers make use of labour while 9.2% of the farmers make use of machines. This supports the fact that the use of labour is cheaper than the use of machines and also the use of machines is for very large farms that are cultivated for commercial purposes. Also, commercial farming is said to be participated by men as women do not have access to capital to gat machines as supported by Temidayo, 2019 and Gabriella 2020. Also, as women participate in small scale farming it is cheaper for them to get access to affordable labour or they can use family labour. (Gabriella 2020)

Contact with an extension agent: As shown in Table 1, 45.8% of farmers have contact with an extension agent, fewer of them weekly, while the remaining are monthly or yearly. No percentage of farmers had contact with the agent daily. 52.5% of farmers notified that they never had any contact with an extension agent in their years of cassava farming. This confirm the statement by Gabriella 2020, that women farmers in Nigeria are often overlooked by agricultural services and extension programmes, discriminating women farmers, all focus is on the male farmers.

Table 4.1: Description of socio-economic characteristics

Age	Freq.	%	Mean	Std. Dev.
<30	3	2.5		
30 - 39	34	28.3	46.01	10.62
40 - 49	43	35.8		
50+	40	33.3		
Marital Status				
Single	9	7.5		
Married	91	75.8		
Divorced	6	5		
Separated	11	9.2		
Widowed	3	2.5		
Educational Qualification				
No formal education	11	9.2		
Primary education	40	33.3		
Secondary education	42	35		
Adult education	6	5		
Tertiary education	21	17.5		
Family/ Household size				
None	5	4.2		
2-4p	51	42.5		
5-6p	48	40		
Over 6	15	12.5		
Primary occupation?				
	1	0.8		
Farming	70	58.3		
Non-farming related	50	41.7		
Participation in cassava farming				
Production	75	62.5		
Processing	24	20		
Marketing	21	17.5		

Years of experience in cassava farming		
1-5 years	65	54.2
5-10 years	38	31.6
10 years and above	17	14.2
Size of your farmland		
Less than 1 hectare	55	45.8
1-5 hectares	51	42.5
5 hectares and above	14	11.7
Annual income		
50,000 - 200,000	19	15.8
200,001 - 500,000	43	35.8
500,001- 1,000,000	37	30.8
1,000,001 and above	21	17.5
Farm method used		
Labour	109	90.8
Mechanised	11	9.2
Contact with an extension agent.		
Daily		
Weekly	2	1.7
Monthly	16	13.3
Quarterly	21	17.5
Yearly	18	15
Never	63	52.5

Source: Field survey, 2025

Farm labour Usage

Figure 1 summarizes the results of data collection that studies the type of labour used by women farmers in their cassava farms. The data is categorized into three namely; family labour, paid labour and use of machines. It was observed that 50.8% of farmers used family labour, 41.7% used paid labour and 7.5% used machines. The women farmers that made use of family labour use it because the harvest is mainly for household consumption. The percentage that uses paid labour does so either for commercial purposes or because the woman farmer has other occupations to attend to. These points are all supported by Gabriella 2020. Also, during data collection, some women made it known that they made use of both family and paid labour in order to cut costs. The percentage that mainly machines do so because of a large hectare of land and they all require skilled labour to handle these machines which may fall under family or paid labour. Also, the low percentage of the use of machines to farm work buttress the fact that a high percentage of cassava women farmers operates on small scale farm and they have little access to capital to purchase machines to aid farm work as confirmed by Gabriella 2020, Olanike and Joseph 2022).

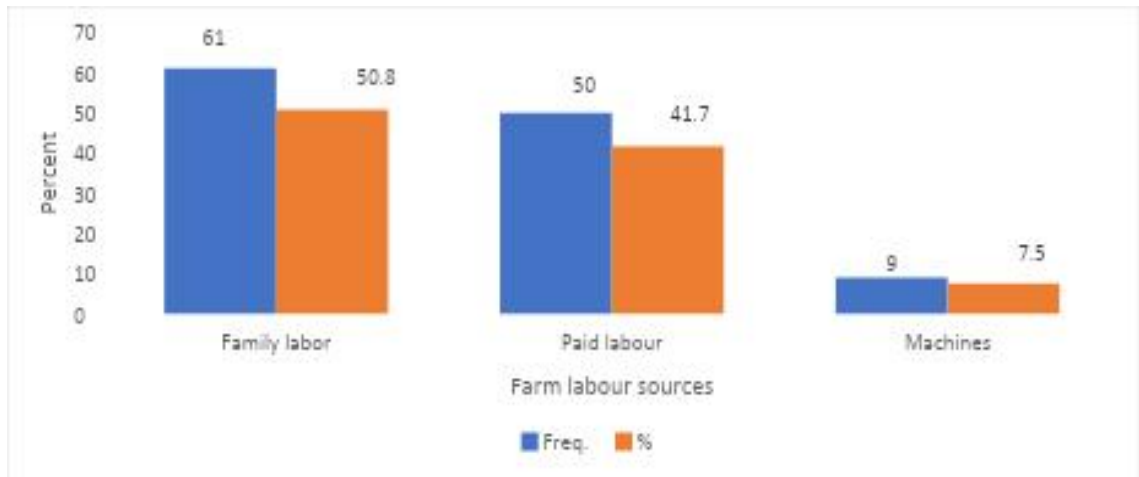


Figure 1: Farm labour usage
Source: Field Survey, 2025

4.2 Participation and level of participation in Cassava Farming

Table 2 shows that out of fifteen (15) areas of participation eight (8) areas were found to be well participated in and this includes; Land clearing (Mean=3.72), Planting (Mean=3.53), Weeding (Mean=3.99), Harvesting (Mean=3.98), Processing (Mean=3.75), Transportation (Mean=3.55), Processing to garri (Mean=3.48) and Storage (Mean=3.57). that seven (7) of the identified types of participation were found to be less participated by the farmers in the study area; Tillage (Mean=2.33), Transplanting (Mean=2.50), Irrigation (Mean=2.11), Fertilizer and pesticide application (2.17), Processing to starch (Mean=2.86) and Marketing (2.24). The following were not participated in as they were below the benchmark of (Mean=3). As supported by Olanike and Joseph, Women participate in land clearing, planting of cassava stem, harvesting, processing of cassava mostly into garri and fufu, transportation and storage because if closely studied it will be found out that they are actually traditional processes of farming used. Women farmers are said not to be able to access modern method and farm practices through the extension services as stated by Gabriella 2020.

Table 4.2: Participation and level of participation

Participation	Participation		Level of Participation	
	Freq.	%	Mean	Std. Dev.
Land clearing	105	87.5	3.72*	1.57
Tillage	95	79.2	2.33	1.63
Transplanting	88	73.3	2.50	1.44
Planting	109	90.8	3.53*	1.45
Irrigation	94	78.3	2.11	1.33
Weeding	110	91.7	3.99*	1.26
Fertilizer and pesticide application	98	81.7	2.17	1.47
Harvesting	111	92.5	3.98*	1.24
Processing	103	85.8	3.75*	1.47
Transportation	111	92.5	3.55*	1.26
Processing to garri	104	86.7	3.48*	1.55
Processing to fufu	100	83.3	3.17*	1.54
Processing to starch	82	68.3	2.86	1.47
Storage	100	83.3	3.57*	1.42
Marketing	108	90.0	2.24	1.34

Source: Field survey, 2025

***Mean \geq 3.0 = High participation**

4.3 Awareness and access to extension services

Table 3 shows that three (3) of the twelve (12) extension services were highly accessible by the farmers in the study area and these include; Access to profitable market (Mean=3.46), Access to loans, farm credit and other financial aids (Mean=3.50) and Access to ownership of land for farm use (Mean=3.08). The above extension services were deemed to be very accessible as they exceeded the benchmark (Mean=3.0). The remaining nine (9) extension services had a mean score below the benchmark and were considered not to be accessible. Access to loans, farm credit and other financial aid were considered more accessible than others because the women farmers could lend money from cooperatives, meetings and banks. Through their meetings and cooperatives, they may have information concerning grants or credits for women farmers from the state or federal government. Women have access to profitable market as they are part of cooperatives and meetings that will have members that want to purchase their farm produce fresh or processed. Also, in these meetings and cooperatives, prices of produce will be agreed upon and regulated to ensure that members of such cooperative will enjoy profitability in their businesses. Please take into consideration that this activity does not concern extension services and these activities are purely traditional, passed down from our early mothers where it is seen that women farmers support one another and this is agreed by Oluchi and Joseph 2021, who states that farmers source information from the sources that are readily and conveniently available like other

farmers, input dealers, produce buyers and non-governmental organizations (NGOs). Some married women may have access to land through their husband who may have land or purchase land for use and hand it over to his wife to utilize for agricultural purpose as stated by Gabriella who pointed that woman plays supportive roles in farming by being farmers' wives.

Table 4.3: Awareness and level of access to extension services

Awareness and level	Awareness		Access	
	Freq.	%	Mean	Std. Dev.
Improved resistant cassava varieties	91	75.8	2.33	1.40
Improved methods of cassava farming	85	70.8	2.08	1.33
Improved storage methods	81	67.5	1.90	1.20
Improved processing methods	74	61.7	2.07	1.41
Access to a profitable market	112	93.3	3.46*	1.13
Access to loans, farm credit and other financial aid	113	94.2	3.50*	1.30
Access to information on government policies, programmes and projects that benefit women farmers.	106	88.3	2.98	1.37
Access to ownership of land for farm uses	111	92.5	3.08*	1.36
Access to agrochemicals for pest and disease control in cassava farming	111	92.5	2.93	1.37
Access to fertilizers to improve yields in cassava farming	109	90.8	2.96	1.39
Access to training on the use of technologies	75	62.5	2.03	1.48
Access to training on farm management and accounting	62	51.7	1.91	1.44

Source: Field Survey, 2025

***Mean \geq 3.0 = High Access**

4.4 Perceived Benefits of Extension Services

Table 4 shows eight (8) of the perceived benefits which were found to be not beneficial by the farmers of the study area; They include: Improved resistant cassava varieties ($\bar{x} = 2.11$), Improved methods of cassava farming ($\bar{x} = 2.48$), Improved storage methods ($\bar{x} = 2.72$), Improved processing methods ($\bar{x} = 2.71$), Access to agrochemicals for pest and disease control ($\bar{x} = 2.27$), Access to fertilizers ($\bar{x} = 2.30$), Access to training on the use of technology ($\bar{x} = 2.73$) and Access to training on farm management and accounting ($\bar{x} = 2.99$). The above services were deemed inaccessible as they were under the benchmark of ($\bar{x} = 3.0$). The four remaining services are found to be highly beneficial and they fall above the benchmark ($\bar{x} = 3.0$). They include: Access to profitable market (Mean = 3.26), Access to loans and financial aid ($\bar{x} = 3.11$), Access to information on government policies ($\bar{x} = 3.88$), Access to ownership of land for farm use ($\bar{x} = 3.71$). These benefits are what the farmer identified that they enjoy through extension services that they have access to through committees and meetings. As agreed by Oluchi and Joseph 2021, who states that farmers source information from the sources that are readily and conveniently available like other farmers, input dealers, produce buyers and non-governmental organizations (NGOs).

Table 4.4: Perceived benefits of extension services

Benefits of extension services	Mean	Std. Dev.
Improved resistant cassava varieties	2.11	1.26
Improved methods of cassava farming	2.48	1.27
Improved storage methods	2.72	1.22
Improved processing methods	2.71	1.23
Access to a profitable market	3.26*	1.18
Access to loans and other financial aid	3.11*	1.05
Access to information on government policies, programmes and projects that benefit women farmers	3.88*	1.24
Access to ownership of land for farm uses	3.71*	1.20
Access to agrochemicals for pest and disease control in cassava farming	2.27	1.20
Access to fertilizers to improve yields in cassava farming	2.30	1.21
Access to training on the use of technologies	2.73	1.17
Access to training on farm management and accounting	2.99	1.22

Source: Field Survey, 2025

***Mean \geq 3.0 = Highly Beneficial**

4.5 Challenges faced during cassava farming

Table 5 shows that eight (8) out of fifteen (15) challenges were found to be ‘Not serious constraint’ by the farmers in the study area. This can be a result of factors like Age, Educational qualification, Primary occupation and most especially Social Change. The challenges that pose serious challenges during farming include; Mobility restrictions and transportation difficulties ($\bar{x} = 3.86$), High cost of input and storage facilities ($\bar{x} = 3.18$), Insufficient finance ($\bar{x} = 3.33$), Inadequate infrastructure ($\bar{x} = 3.68$), Expensive and inadequate farm labour ($\bar{x} = 3.98$), Insecurity ($\bar{x} = 3.55$) and Pest and disease attack (3.97). This is supported by this statement that small farmers face numerous challenges in agriculture, including high input costs, labor expenses, mechanization costs, limited access to extension services, funding shortages, inadequate supply of high-yielding cassava cuttings, poor farm road infrastructure, weather and climate impacts, production and price fluctuations, lack of price control, and issues with preservation and storage among many others (Akerele *et al.*, 2019).

Table 4.5: Challenges faced during cassava farming

Constraints	Mean	Std. Dev.
Limited access to land ownership reduces participation in cassava farming.	2.71	1.26
Societal expectations and cultural belief limits one's involvement in arable crop farming	2.15	0.99
Challenges in accessing agricultural inputs and resources such as seeds, fertilizers and modern farming	2.23	1.35
Lack of education and training opportunities restricts one from adopting modern farming techniques.	2.49	1.34
Time constraints due to household chores and childcare reduce your involvement in farming	2.01	1.22
Mobility restrictions and transportation difficulties hinder access to markets and agricultural services.	3.86*	1.38
Lack of access to agricultural training extension services often does not adequately address your needs.	2.48	1.31
Limited market access and fair prices for one's produce.	2.71	1.42
High cost of input and storage facilities	3.18*	1.39
Insufficient financial support and access to credit for farming activities	3.33*	1.30
Inadequate infrastructure such as irrigation facilities.	3.68*	1.50
Limited accessibility to farm labour	2.15	1.39
Expensive and inadequate farm labor	3.98*	1.42
The problem of insecurity in the country.	3.55*	1.51
Pest and disease attack that reduces the quality and yield of cassava crops	3.97*	1.66

Source: Field Survey, 2025***Mean ≥ 3.0 = Serious constraints**

4.6 Hypothesis Testing

Relationship between socioeconomic characteristics and the perceived benefit of Extension services on-farm activities

The regression model presented in Table 6 examines the determinants of perceived benefits of agricultural extension services. The model includes several independent variables such as age, household size, experience, farm size, and annual income—and evaluates their statistical significance in predicting the perceived benefits of extension services. Specifically, it shows that farm Size (-6.430, $p < 0.01$) was negative but with a significant coefficient of -0.430 suggesting that as farm size increases, the perceived benefits of agricultural extension services decrease. This might indicate that larger-scale farmers rely less on extension services, possibly because they have better access to private advisory services, improved inputs, or more experience in farming practices. This is in line with the findings of Ayanwale and Alimi (2004), who found that smallholder farmers tend to benefit more from extension services than large-scale farmers due to their limited access to agricultural information. Also, farm annual income (3.235, $p < 0.05$) was positive and significant. This implies that higher-income farmers perceive greater benefits from extension services. This could be attributed to their ability to adopt new technologies and implement extension recommendations, as they have the financial capacity to invest in modern farming techniques. The finding aligns with findings from Gabarevo (2013), who highlighted that wealthier farmers tend to have a better appreciation of extension services due to their willingness to take risks associated with innovation.

The model has a low R^2 value (0.114), meaning only 11.4% of the variance in perceived benefits is explained by the included variables. This suggests that other unaccounted factors, such as education level, access to credit, and government policies, may play a significant role.

Table 4.6: Determinants of perceived benefits of extension

B	Unstandardized Coefficients		Standardized Coefficients	t	P-value	
	Std. Error	Beta	Beta			
(Constant)	36.402	5.818		6.257	0.000	
Age	0.088	0.120	0.086	0.734	0.464	
Household size	0.380	0.793	0.045	0.479	0.633	
Experience	-0.404	1.724	-0.028	-0.234	0.815	
Farm size	-6.430	1.759	-0.430	-	3.655**	0.000
Income (annual)	3.235	1.325	0.293	2.441*	0.016	

Source: Field survey, 2025.

R = 0.337; R-square = 0.114

***Sign. At 0.05 level; **sign at 0.01 level of significance**

Relationship between the socioeconomic characteristics of women cassava farmers and their participation in extension services

The regression model in Table 7 evaluates the determinants of participation in an agricultural or rural development program. The key independent variables include age, household size, experience, farm size, and annual income. Among these, two variables—farm size and annual income—are statistically significant, indicating their crucial influence on participation. Specifically, farm Size (-11.62, $p = 0.003$) was negative and statistically significant. This suggests that as farm size increases, participation in the program decreases. This implies that farmers with larger farm sizes are less likely to engage in agricultural interventions, extension services, or cooperative programs. One possible explanation is that large-scale farmers may have better access to private advisory services, mechanization, and alternative resources, reducing their reliance on government or development-driven programs. This finding aligns with Ayanwale and Alimi (2004), who noted that smallholder farmers are more likely to participate in agricultural extension services because they depend on these programs for information, improved inputs, and credit facilities. Furthermore, income (6.33, $p = 0.020$) was positive and significant and this suggests that farmers with higher incomes are more likely to participate in the program. This could be due to higher-income farmers having the financial capacity to take advantage of opportunities presented by agricultural development programs, such as adopting new technology, purchasing improved inputs, or engaging in networking activities. This result supports findings by Agbarevo (2013), who observed that wealthier farmers

were more proactive in seeking extension services and participating in cooperative societies because they had the means to implement recommendations.

Table 7: Determinants of participation

	Unstandardized Coefficients	Standardized Coefficients			
	B	Std. Error	Beta	t	P-value
(Constant)	78.23	13.10		5.97	0.000
Age in years	0.17	0.25	0.09	0.71	0.481
Household size	0.46	1.61	0.03	0.29	0.776
Experience	-0.17	3.50	-0.01	-0.05	0.962
Farm size	-11.62	3.77	-0.39	-3.09	0.003
Income (annual)	6.33	2.69	0.29	2.35	0.020

Source: Field Survey, 2025

R = 0.336; R-square = 0.134

***Sign. At 0.05 level; **sign at 0.01 level of significance**

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The findings from this study indicates that there is a high participation of women farmers in cassava farming in Ovia North East Local Government Area, Edo state. The majority of people engaged in cassava farming are between the ages of 40 - 60 years which is an indication of strength utility and responsibility of family in the engagement of cassava farming. The results also showed that majority of the people (85.8%) are educated from primary school and above which indicates literacy. The encourages the participation of women cassava farmers in extension services which will lead adoption of modern methods that will aid high productivity in cassava farming.

5.2 Conclusion

The involvement of women in cassava farming is vital for food security and economic stability in Nigeria. However, their contributions remain undervalued due to societal norms and limited access to resources. Effective agricultural extension services can bridge these gaps, yet current systems often overlook women's roles. The study underscores the importance of recognizing and supporting women in agriculture to leverage their potential in cassava production, which is critical for rural livelihoods and national food security.

5.3 Recommendations

1. **Enhance Access to Extension Services:** Develop targeted extension programs that address the specific needs and challenges faced by women farmers, including training on modern agricultural techniques and financial literacy.
2. **Improve Access to Resources:** Facilitate women's access to land ownership, credit facilities, and agricultural inputs to enable them to expand their farming operations.
3. **Promote Gender Equality in Agriculture:** Encourage policies that recognize women as primary farmers and provide equal opportunities for training and resources, challenging the traditional perceptions that limit women's participation in agriculture.
4. **Strengthen Women's Cooperatives:** Support the formation and strengthening of women's cooperatives to enhance their bargaining power, access to markets, and sharing of resources.
5. **Increase Awareness Campaigns:** Implement awareness campaigns to educate communities about the important roles women play in agriculture and the need for their empowerment.

By adopting these recommendations, stakeholders can create an enabling environment for women farmers, fostering greater participation and productivity in

cassava farming, ultimately contributing to poverty alleviation and food security in Nigeria.

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

Dear Madam,

I am a final year student of the above named Department. I am conducting research on **PARTICIPATION OF WOMEN FARMERS IN CASSAVA FARMING AND EXTENSION SERVICES OVIA NORTH EAST LOCAL GOVERNMENT AREA, EDO STATE, NIGERIA.** I would like you to kindly answer the following questions as correctly as possible, as your honest and sincere response will aid the validity of this study. This research is strictly for academic purposes only and will be treated that way.

Thanks for your anticipated cooperation.

Benedicta Edem ARCHIBONG (Miss)

Please Tick (✓) the appropriate option and provide answer in the blank space

SECTION A: Socio-Economic Characteristics

1. Community: a. Ekosodin () b. Utekon () c. Ekiadolor () d. Ugbogiobo ()
2. Age: _____
3. Marital Status: a. Single () b. Married () c. Divorced () d. Separated () e. Widowed ()
4. Educational qualification: a. No formal education () b. Primary education () c. Secondary education () d. Adult education () d. tertiary education ()
5. Family/ Household size: a. None () b. 2-4 () c. 5-6 () d. Over 6 ()
6. What is your primary occupation? _____
7. How do you participate in cassava farming? a. Production () b. Processing () c. Marketing ()
8. What are your years of experience in cassava farming? a. 1-5 years () b. 5-10 years () c. 10 years and above ()
9. What is the size of your farmland a. less than 1 hectare () b. 1-5 hectares () c. 5 hectares and above ()
10. Annual income: a. 50,000 - 200,000 () b. 200,000 - 500,000 () c. 500,000- 1,000,000 () d. 1,000,000 and above ()
11. Farm method used: a. Labor () b. Mechanised()
12. Contact with extension agent: a. Daily () b. Weekly () c. Monthly () d. Quarterly () e. Yearly e. Never ()

Section B: Participation and level of participation in Cassava Farming

1. What farming labor do you use? a. Family labor () b. Paid labour () c. Machines () others specify _____
2. Please tick (✓) appropriately, 'Yes' or 'No' to indicate your participation on cassava farming. Indicate your level of participation with the following scale:- 'Very high', 'High', 'Moderate', 'Low' and 'Very low'.

	Activities	Yes	No	Very high	High	Moderate	Low	Very Low
1.	Land clearing							
2.	Tillage							
3.	Transplanting							
4.	Planting							
5.	Irrigation							
6.	Weeding							
7.	Fertilizer and pesticide application							
8.	Harvesting							
9.	Processing							
10.	Transportation							
11.	Processing to garri							
12.	Processing to fufu							
13.	Processing to starch							
14.	Storage							
15.	Marketing							

SECTION C: Awareness and access to extension services

Please tick (✓) appropriately, ‘Yes’ or ‘No’ to indicate you are aware of extension services. Using the scale, ‘Not accessible’, ‘Less accessible’, ‘Moderate’, ‘Accessible’, ‘Highly accessible’, to indicate the level of access to extension services.

S/No	Extension services	Awareness		Access				
		Yes	No	Not accessible	Less accessible	Moderate	Accessible	Highly accessible
1.	Improved resistant cassava varieties							
2.	Improved methods of cassava farming							
3.	Improved storage methods							
4.	Improved processing methods							
5.	Access to profitable market							
6.	Access to loans, farm credit and other financial							

	aid							
7.	Access to information on government policies and programmes and projects that benefits women farmers.							
8.	Access to ownership of land for farm uses							
9.	Access to agro chemicals for pest and disease control in cassava farming							
10.	Access to fertilizers to improve yields in cassava farming							
11.	Access to trainings on use of technologies							
12.	Access to trainings on farm management and accounting							

Section D: Benefits of extension services

1. Please tick (✓) appropriately the following options to indicate the benefits you gained from access to extension services. Using the scale, 'Highly beneficial', 'Beneficial', 'Moderate', 'Less beneficial' and 'Not beneficial', indicate how extension services are beneficial to your cassava farming activities.

S/No	Benefits of extension services	Highly beneficial	Beneficial	Moderate	Less beneficial	Not beneficial
1.	Improved and resistant cassava varieties					
2.	Improved methods of cassava farming					
3.	Improved storage methods					
4.	Improved processing methods					
5.	Access to profitable market					
6.	Access to loans and other financial aid					
7.	Access to information on government policies, programmes and projects that benefits women farmers					

8.	Access to ownership of land for farm uses					
9.	Access to agrochemicals for pest and disease control in cassava farming					
10.	Access to fertilizers to improve yields in cassava farming					
11.	Access to training on use of technologies					
12.	Access to trainings on farm management and accounting					

Section E: Challenges faced during cassava farming

1. Do you have any challenges concerning your cassava farming? Yes () No ()
2. Please tick (✓) appropriately the challenges based on your involvement in arable crop farming. Using the scale 'Very Serious', 'Serious', 'Moderate', 'Less Serious' and 'Not Serious', indicate how any of these challenges affect your participation in cassava farming.

S/No	Constraints	Very serious	Serious	Moderate	Less Serious	Not Serious
1.	Limited access to land ownership reduces participation in cassava farming.					
2.	Societal expectations and cultural belief limits one's involvement in arable crop farming					
3.	Challenges in accessing agricultural inputs and resources such as seeds, fertilizers and modern farming					

4.	Lack of education and training opportunities restricts one from adopting modern farming techniques.					
5.	Time constraints due to household chores and childcare reduce your involvement in farming					
6.	Mobility restrictions and transportation difficulties hinder access to markets and agricultural services.					
7.	Lack of access to agricultural training extension services often do not adequately address your needs.					
8.	Limited access to market and fair prices for one's produces.					
9.	High cost of input and storage facilities					
10.	Insufficient financial support and access to credit for farming activities					
11.	Inadequate infrastructure such as irrigation facilities.					
12.	Limited accessibility to farm labour					
13.	Expensive and inadequate farm labor					
14.	Problem of insecurity in the country.					
15.	Pest and disease attack that reduces quality and yield of cassava crops					