THE ROLE OF WOMEN IN AGRICULTURAL PRODUCTION IN OVIA NORTH-EAST LOCAL GOVERNMENT AREA IN EDO STATE, NIGERIA

BY

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AGR2000010

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

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BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES, FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN, BENIN CITY

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CERTIFICATION

This is to certify that this project research work on the role of women in agricultural production in Ovia North-East Local Government Area, Edo State, Nigeria was carried out by **Salamat Omonigho AUDU** with Matriculation Number **AGR2000010** in the Department of Agricultural Economics and Extension services, University of Benin, Benin City, Edo state, Nigeria under my supervision.

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(PROJECT SUPERVISOR)	**(HEAD OF DEPARTMENT)**
DATE……	**DATE……**

DEDICATION

This work is dedicated to Almighty Allah who saw me through the journey B. Agric programme successfully, myself and to my loving parent, Mr. Rasak Audu and Mrs. Mulikat Audu for their love and financial support and my lovely siblings, friends and roommates for their love, support and encouragement at all times.

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ABSTRACT

Women's contributions to agricultural production are fundamental to achieving food security and economic development, particularly in Sub-Saharan Africa. However, their productivity is often constrained by a range of socio-economic and institutional barriers. Hence, this study aimed at assessing the roles of women in agricultural production in Ovia North-East Local Government Area of Edo State, Nigeria, with a specific focus on their socio-economic characteristics, types of agricultural activities, participation levels, and challenges faced. A multi-stage sampling technique was used to select 120 women farmers from four communities (Okada, Iguobazuwa, Uhen, and Oduna), of which 110 questionnaires were properly completed and analyzed. Data were collected using structured questionnaires and analyzed using descriptive statistics, chi-square tests, Pearson correlation, and multiple linear regression analysis.

The findings revealed that the majority of respondents were married (53.6%), within the active age range of 31-40 years (mean age: 36 years), and had secondary education (40.9%). Most women (46.4%) combined farming with trading as their primary occupation, with an average farming experience of 9 years and a household size of 5 persons. Crop farming was the predominant activity (77.3%), with maize (47.3%) and vegetables (45.5%) being the most cultivated crops. Women demonstrated substantial participation across the agricultural value chain, with 70% involved in planting activities and an average of 4 hours spent daily on farm operations. The majority (56.4%) exhibited moderate participation levels, while 81.8% engaged in marketing their produce, and 59% maintained autonomous decision-making authority over their agricultural enterprises.

However, severe constraints were identified, including lack of access to credit (mean = 3.25), gender discrimination (mean = 3.23), inadequate mechanized tools (mean = 2.81), high labour costs (mean = 2.74), and poor transportation and storage facilities (mean = 2.65). Statistical analyses revealed significant relationships between participation levels and key variables: land ownership ($\chi^2 = 11.106$, $p = 0.085$), age ($r = 0.241$, $p = 0.011$), farm experience ($r = 0.264$, $p = 0.005$), household size ($r = 0.212$, $p = 0.026$), and income ($r = 0.314$, $p = 0.001$). Regression analysis indicated that income was the most significant predictor of participation level ($\beta = 0.037$, $p = 0.001$), explaining 19.3% of the variance. Additionally, significant associations were found between participation levels and engagement in crop farming ($\chi^2 = 13.447$, $p = 0.001$) and livestock rearing ($\chi^2 = 66.403$, $p = 0.041$). The study concludes that women play critical roles in agriculture but face significant constraints. To enhance their productivity and empowerment, the study recommends policy interventions focused on improving access to affordable credit, promoting labour-saving technologies, strengthening women's land rights, and providing gender-sensitive extension services to bridge the existing gaps in knowledge and resource access.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Agriculture, when properly harnessed, can generate food security. The avenue through which the potentials of agriculture are unleashed to become beneficial to the wellbeing of the people is through food production (Ojo and Adebayo *et al.*, 2012). Food production involves the entire circle of agriculture from land preparation, planting and weeding to processing, and serving of food. It is a task that culminates in food security for a nation. Food security refers to a condition where all people have physical and economic access to sufficient, nutritious and safe food for a healthy and active life (Food and Agriculture Organization, 2012b).

The role of women in the society, generally dates back to history, when God created woman as a companion to man. In the case of Nigeria, women role cannot be undermined. During the pre-colonial period, Nigerian women played noticeable roles in agriculture which was then rudimentary and subsistence. The women farmed alongside their husbands and children. For example, in the Southern part of Nigeria, women took part in the production of palm oil, trading and processing. Specifically, women in Afikpo, involved themselves in clothing, weaving, dying, making of salt and garri processing. In the Northern Nigeria, though women were in purdah, they still perform their role of food processing (Dimandja, 2004). Women are indispensable members of the community that have participated actively in projects aimed at

developing community like roads construction, electrification, building of health clinics and schools, markets, and establishment of farm settlements among others that have contributed to community development (Musa, Tafida and Gloria *et al.,* 2009). In Nigeria, women are active participant in agricultural practices and household activities which have enhanced their contributions to household and community food security.

Women play a crucial role in agricultural production in Nigeria, contributing up to 80% of food production (Raji-Mustapha, 2013). In Edo State, female farmers demonstrate higher participation levels in agricultural development programs compared to their male counterparts (Uzokwe *et al.,* 2017). Women are involved in various farming activities, including land preparation, planting, crop management, harvesting, processing, and marketing. However, they face numerous challenges, such as health hazards from exposure to chemicals, extreme temperatures, and physical strain (Egharevba and Iweze, 2004). Despite their significant contributions, women's roles in agriculture are often overlooked, and they have minimal involvement in decision-making processes. To address these issues, initiatives like the women-in-agriculture program have been implemented, better access to farm inputs and credits, although barriers persist (Ogunlela *et al.,* 2009).

Women's contributions to agriculture extend beyond food production, encompassing employment generation, income provision, and raw material supply for industries (Udo *et al.,* 2024). Women are employers of labor and managers. The earliest Ekiti

women to engage in cash crops farming were widows, who after the death of their husbands took over their farms and managed them together with their children. Earlier, the tradition was that a deceased man's properties, including his wife (wives) and children were inherited by his relatives especially when the children were young (Ojo, 2002). However, they face numerous challenges, including limited access to land, credit, and advanced farm technologies (Ozoya, 2016). Despite these obstacles, empowering rural women farmers has shown potential to increase food production by up to 33% (Ozoya, 2016). To enhance women's agricultural productivity, recommendations include providing specialized microfinance loans, revitalizing farm settlements, and improving access to agricultural extension services and training (Udo *et al.,* 2024).

1.2 Statement of the Problem

Women are responsible for half of the world's food production and between 60 and 80 percent of the food in most developing countries. They account for 70% of agricultural workers and 80% of food producers (Ajani, 2009). Not only are women the mainstay of the agricultural food sector, labor force and food systems, they are also largely responsible for post-harvest activities. Their specialized knowledge about genetic resources also makes them essential custodians of biodiversity for food and agriculture. Despite the significance of women's role in agricultural development, evidence throughout developing countries shows that women's farming productivity and efficiency levels often remain very low (FAO, 2013). Poverty, precarious land tenure

and lack of expert support discourage women from investing in newer technologies or more sustainable practices such as crop rotation, fallow periods or reforestation (UNFPA, 2002).

There are empirical evidences that increased equality in access to economic assets has shown a significant raise in the productivity of female producers. This in turn helps improve household welfare through better bargaining power. These evidences concluded that increasing women's control over economic assets have strong and immediate effects on the welfare of the next generation and on the level and pace at which physical and human capital are accumulated. The evidences also demonstrated that although there are forms of structural discrimination against women in relation to access to credit networks; women borrowers have lower risk of default as a result of lower prevalence of corruption and bribes among women groups leading to higher repayment rates (World Bank, 2004 and Whitehead *et al.,* 2003).

FAO (2010) observed that over two-third of all women in Africa were employed in the agricultural sector and produce nearly 90% of food on the continent, responsible for growing, selling, buying and preparing food for their families. Yet, even as the pillar of food security, they are still marginalized in business relations and have minimal control over access to resources such as land, inputs, such as improved seeds, fertilizers, credit facilities and new techniques of agricultural productions. A combination of logical, cultural and economic factors, coupled with a lack of gender statistics in the agricultural sector, mean that agricultural programs are rarely designed

with women's needs in mind. As a result, African women farmers have no voice in the development of agricultural policies designed to improve their productivity.

Njoku and Adesope (2007) reported that livelihood activities for rural women involve many activities. They further stressed that pressure on the income and assets of rural farm families have forced them to engage in non-agricultural activities as a way of improving livelihood. They are suffering from instability of income, limited access to education, land, credit facilities and poor distribution networks which results to low yields and high wastage rate during harvesting, processing and storage therefore reducing available food supply and rural women's income.

However, considering the studies (Eze *et al.,* 2010 and Tologbonse *et al.,* 2013), assessment of roles of women in agricultural production in Ovia Area of Edo State is still a gap. Agriculture remains the mainstay of Edo economy. Edo women engage in farming, producing food crop such as plantain, maize, vegetables, cassava, and cocoyam. The shortage of data in study area necessitates the scientific research for this study. Indeed, it represents the gap in knowledge that the study intends to fill. The study addressed the following research questions:

i. what are the socio-economic characteristics of women involved in agricultural production in Ovia North-East, Edo State?
ii. what are the types of agricultural activities that women are involved in Ovia North-East, Edo State?

iii. what is the level of women's participation in agricultural production in Ovia North-East, Edo State?

iv. what are the challenges faced by women in agricultural production in Ovia North-East, Edo State?

1.3 Objectives of the Study

The aim of the study is to access the roles of women in agricultural production in Ovia North-East Local Government Area of Edo State and identify the challenges and opportunities for improving their participation and productivity. However, the specific objectives are to:

1. describe the socio-economic characteristics of women involved in agricultural production in the study area.
2. identify the types of agricultural activities that women are involved in the study area.
3. examine the level of participation of women in agricultural production in the study area.
4. identify the challenges faced by women in agricultural production in the study area.

1.4 Justification of the Study

Agriculture remains a cornerstone of Nigeria's economy, contributing significantly to employment, food security and GDP (National Bureau of Statistics, NBS, 2023). Within this sector, women play a crucial role in agricultural production in Nigeria,

contributing 60-90% of the total labor and producing up to 80% of the food consumed (Adenugba, 2013 and Effiong *et al.,* 2013). Their involvement in agriculture has been increasing, from 32% to 36%, while men's participation has declined from 68% to 64% (Mohammed and Abdulquadri, 2012). This shift is partly due to rural-urban migration of men seeking employment elsewhere (Adenugba, 2013 and Raji-Mustapha, 2013). Scholarly articles and research by Okojie *et al.,* (2015), Doss (2018) and Nwaru (2011) are among the few who had in one time worked on women and their roles in agriculture. This work will help build on their studies, identifying and addressing the key gaps in their works. Okojie *et al.,* (2015) noted that in Nigeria, rural women are responsible for 60-80% of food production, processing and marketing while Doss (2018) noted that cultural norms often restrict women's access to rely on leased or family-owned plots. Nwaru (2011) recognized that financial institutions often require collateral that women lack limiting their ability to invest in improved seeds, fertilizers and machinery.

While various studies have examined women's roles in agricultural production, few have focused on Edo State and even fewer on Ovia North-East. Most research has concentrated on Northern and South-western Nigeria, leaving a knowledge gap in the South-south region. This study will further examine how regional diversity, socio-economic characteristics and the level of participation will influence the roles of women in agricultural production in Ovia North-East. More so, the result obtained from this study will contribute to the literature by providing localized data that can

inform state and national agricultural policies. This can be used to empower women farmers which will lead to increased agricultural productivity, improved household nutrition and enhance economic resilience.

1.5. Hypotheses

H_{01}: There is no significant relationship between the socioeconomic characteristics and the level of participation of the respondents.

H_{02}: The socioeconomic characteristics of the respondents do not influence their level of participation.

H_{03}: There is no significant relationship between the different types of agricultural activities that the women are involved in and the level of participation.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Introduction

This section discussed the review of related literature, conceptual framework which was followed by the theoretical framework and empirical framework in order to further understand the subject under this study.

2.2. Review of Related Literature

The historical evidences prove that agricultural sector has the potentials to be the industrial and economic springboard from which a country's development can take off as its activities are usually concentrated in the less-developed rural areas where women represent the highest vulnerable groups with a critical need for (rural) transformation, redistribution, poverty alleviation and socio-economic development (Stewart *et al.,* 2000).

This scenario of agriculture losing its position in the economy led to the introduction of Agricultural Development Projects (ADPs) in the late 1970s by the Nigerian government. The ADPs were designed in response to a fall in agricultural productivity, and hence a concern to sustain domestic food supplies, as labor had moved out of agriculture into more remunerative activities. The ADPs are to provide agricultural investment and services, rural roads, village water supplies, and mainstreaming of women into agricultural activities. The government's adoption of the ADP concept put

the smallholder farm participation at the centre of the agricultural development strategy (Independent Evaluation Group – IEG, 2009).

African leaders called for greater investment in women in order to increase agricultural production and improve livelihoods, at a three-day Sharefair on Rural Women's Technologies to Improve Food Security, Nutrition and Productive Farming held in Nairobi, Kenya between October 15th and 16th, 2014. H. E. Rhoda Peace Tumusiime, Commissioner for Rural Economy and Agriculture, African Union Commission, UN Women's Regional Director for Eastern and Southern Africa, and other dignitaries attend the Exhibition Walk at the Sharefair Agricultural Technologies Exhibition Stands in Nairobi, Kenya. Held in Nairobi, Kenya to coincide with the International Day of Rural Women on 15 October and World Food Day on 16 October, 2014, the exhibition was organized jointly by UN Women, the Food and Agriculture Organization (FAO) and the International Fund for Agricultural Development (IFAD), in collaboration with the African Union Commission (AUC).

It highlighted opportunities to invest in technologies that support rural women, with approximately 100 technologies from 14 countries in the region displayed. Her Excellency Rhoda Peace Tumusiime, Commissioner for Rural Economy and Agriculture at the African Union, opened the event by noting that women contribute significantly to household investments, community resilience, national economic growth and the vibrancy of regional economies. "She said women play a predominant role in African agriculture. They stand out as pillars of economic growth, especially

when it comes to agriculture and agribusiness, which dominate rural economies throughout Africa", Ms. Tumusiime said. UN Women Regional Director for East and Southern Africa, Christine Musisi, challenged governments and financial institutions in the region to prioritize support for female farmers through policies, funding and programming — an investment she said will accelerate agricultural growth while addressing food security. Ms. Musisi noted that women are central to all aspects of agriculture and off-farm activities in their communities. Despite this, their efforts are often hampered by their lack of access to productive resources, technologies, services and markets. High-level policy discussions and panels with regional and national government officials, and other sector leaders, took place concurrently with the exhibitions. These highlighted efforts on gender-sensitive agricultural and nutrition policies; identification of promising technologies and addressing the constraints to scaling up innovations.

Agbalajobi (2010) in his study of women's participation and political process in Nigeria: problems and prospects, using qualitative method with the aim of examining the theoretical perspective of the discrimination and inequality suffered by women thereby limiting their participation in socio-economic and political activities. The study observed that the Nigerian women constitute about half of the population of the country and play vital roles as mother, farmers, producer, time manager, community organizer and social and political activists; and postulated that the society has not given recognition to women's roles due to cultural stereotype, abuse of religion,

traditional practices and patriarchal societal structures and as a result have become the target of violence of diverse forms. The study found Patriarchy, Virility deficiency – women's conception of politics, Lack of economic incentives (Financial backing), Discriminatory customs and laws, and Lack of affirmative action quota as factors responsible for women's low participation in issues. As a result, it is concluded that women participation in issues in Nigeria over the years is very low engendering the consciousness of even development. It thus recommended women empowerment programs and support of international organizations as ways to involve women in activities and to ensure the achievement of sustainable development drive of Nigeria.

It was also found that women were involved in all farm activities from land clearing to harvesting, processing and marketing of produce. They plant different crops, rear animals and keep poultry. The women farmers' constraints include mainly lack of land for farming, credit facilities, costly and late input delivery. The study concluded that women farmers have contributed immensely, to food production, processing and preservation of foods and recommended that serious attention should be paid to the constraints faced by Women farmers because they are the backbone of agricultural development and food security in Nigeria (Fabiyi *et al.,* 2007).

Chayal, Dhaka, and Suwalka (2010) in their study of the analysis of role performed by women in agriculture in India found that there is greater involvement of women in various agricultural operations. They concluded that policy intervention could enhance women participation in actual farm work to as high as 70%. In addition, they found

landholding, age, and family income greatly influence women participation in agriculture and recommended for effective policy intervention in order to boost women socio–economic structure. From the above reviews, the role and contribution of women participation in agriculture have been analyzed as well as their participation in other activities such like economic activities, politics, and administration but few research have considered the role of government intervention policies. This research is set to fill the gap by studying the roles of women in agricultural production in Ovia North-East, Edo State.

2.3. Conceptual Framework

2.3.1. Agriculture

Agriculture refers to the tilling of land for sustenance and commercial produces, fishing, forestry, hunting and all undertakings that transmit to taking out possessions of nature from the ground (Osabohien and Matthew *et al.,* 2019). According to Kilima *et al.,* (2013), a nation stands to benefit so much from agriculture. Agriculture reduces food consumption cost, curtails the frequencies of people migrating from the rural areas to the urban regions. It also increases non-farm economic growth, provides the local people with the opportunity to contribute to financial decision-making procedures, and makes available nutritional products for consumption.

Historically, the evolution of agriculture is targeted towards food supply, job creation and poverty elimination. By implication, it behooves nations to benefit from agriculture's various potentials to sustain lives and reduce poverty. Based on this

background, any country that neglects its agricultural sector is vying for poverty and food insecurity. Agriculture does not have a substitute in food supply and also plays a significant role in poverty lessening. The neglect of agriculture in Nigeria is why the decline in the annual agricultural contribution to GDP. Thus, agrarian progress and GDP progression influence the disparity, insufficiency, and dietary situation of a nation's entire populace (Kilima *et al.,* 2013).

Over 70% of the people living in abject poverty in Nigeria reside in the rural areas where agriculture is still at a microscopic scale (Olatomide and Omowumi, 2014) followed by numerous limitations inhibiting it from addressing the issue of poverty and food security. Thus, most poor people comprising small scale farmers live from hand to mouth due to their inability to turn out farm produce in commercial quantities. Gassner *et al.,* (2019) argue that a policy formulation that depends on the household farming as the medium to achieve the transformational change objective is not likely to succeed because most household farming is too insignificant to provide adequate food for the hungry masses. Besides, agriculture lacks the necessary incentives from the authorities in the country. As a result, the poor farmers struggle to make ends meet (Gassner *et al.,* 2019) with little or no motivation. Even with this, the agricultural sector in Nigeria has experienced positive growth in recent years. According to a study by Ajide *et al.,* (2020), Nigeria's agricultural value-added increased by 23% between 2000 and 2017. This growth can be attributed to government initiatives aimed at boosting the agricultural sector, such as the Agricultural Transformation Agenda.

Nigeria has also seen increased investment in agribusiness and the development of value chains, which has improved productivity, created employment opportunities, and stimulated economic growth.

In the United States, the agricultural sector has experienced steady growth over the years. According to a study by Smith *et al.,* (2018), the agricultural GDP in the United States increased by 35% between 2000 and 2016. This growth can be attributed to various factors such as technological advancements, improved farming practices, and increased demand for agricultural products. In the UK, the agricultural sector has also shown positive growth. According to the Office for National Statistics, between 2015 and 2020, the gross value added (GVA) of the agricultural sector increased by 6.8%, indicating a strengthening industry (ONS, 2021). This growth can be attributed to diversification and innovation in the sector. Japan is another developed economy that has witnessed notable agricultural sector growth. A study by Nakamoto *et al.,* (2017) indicates that the agricultural value-added in Japan increased by 20% between 2000 and 2015. This growth can be attributed to the government's support for agricultural development and modernization. Japan has implemented various policies to enhance agricultural productivity, such as providing subsidies for farm mechanization and promoting environmentally friendly farming practices. Moreover, there has been a shift towards high-value agricultural products, including fruits, vegetables, and specialty crops, which has contributed to the overall growth of the sector. The Japanese agricultural sector has also benefited from technological advancements, such

as the use of hydroponics and vertical farming, which have enabled year-round production and increased efficiency.

2.3.2 Role of women

Role is defined as a function, where it is identical to the behavior or behavior expected from individuals, both sexually (gender) or activities, which have several purposes, including: First, the public role; the role in this case is related to activities outside the home that identify the results in the form of income for the perpetrators. Second, the domestic role; this role relates to activities carried out at home. Unlike the public role, this domestic role does not generate income, but is limited to activities related to the household. Currently, women have two roles because considering the increase in their family, either in the form of increasing food, clothing, housing, or increasing that appear in their economy, health, peace and security in the family (Suratman, 2017).

The domestic sphere we know currently often related to the activity matters in the household. It is because the nearest person to the household activities is women. Moreover, this domestic sphere intended to be on the women. It is assessed as natural nature, according to the nature theory, that the human's basic nature is formed based on the several factors, one of those is biological factor. The women are assessed to be the nearest to this nature. (Wahid and Lancia, 2018) including in this domestic sphere is household chores, cleaning up, caring the children, caring the husband and managing the public role which is more masculine. The role of women in the domestic

sphere looks real, but in terms of appreciation is very minimal. Men who have access to outside work, receive wages or salaries. Meanwhile, women, who are active in the domestic sphere, often do not get their rights even though they have worked from morning until morning again. No wages are received even though they have worked in preparing all the needs of their husbands, children and family needs. Only the share from the husband is accepted, it must also be divided to meet the needs of all family members.

The stereotyping of women as domestic workers is still used today, especially in perpetuating patriarchal ideology. So that domestic workers are not considered as jobs, because economically they do not generate income. In fact, from the burden borne, women bear the burden of the family. In fact, women who work in the public sector are still burdened with taking care of domestic affairs because of the ideology that has been embedded in society's lives (Candraningrum, 2014). As a result, women have excess burdens while their ideals are buried because of the absence of appreciation. This is a tragic fate for women, not because of resistance or dislike for domestic work, but because women need time to rest, reflect and develop themselves. The gender discourse that has been rolling for a long time has indirectly changed the mindset of the society. This change is certainly a step of success, because a happy family is when all family members can contribute equally. However, the public role remains identical to the role of men as the patriarch (Wahid and Lancia, 2018).

In modern life, the role of women is needed in encouraging economic growth and development of the country. As well as in family life. Women are needed to support the stability and prosperity of the family if the family's needs are not met. Rural women, working outside is not a career development, but to find and provide for the family. Because what often happens is that the needs cannot be fulfilled only by relying on the husband's income. So that synergy is needed between husband and wife to meet their needs (Manembu, 2017).

2.3.3 Role of women in agricultural production

To achieve SDGs (Sustainable Development Goals) 5 & 8 by 2030, it is highly imperative to support women, promote new conceptual and developmental programs that could contribute to the implementation of new ideas by women with a view to diversifying income-generating activities and the provision of other services. Women produce over 40% of the world's food (Food and Agriculture Organization, FAO, 2018) and about 40% of the agricultural labor force across the globe (Doss, 2014). Furthermore, it has been observed from the literature that in Africa, women own fewer assets (including farmlands) than men (Ogbe and Edewor *et al.,* 2019). In most cases, the assets women are allowed to own are non-income-producing assets such as pans, cups, brooms and hoes. In some cases, women own animals, but their ownership is typically restricted to small ruminants and relatively low value as compared to men. For example, in rural areas, while men own drought and dairy cows, women own

small cattle, pigs, poultry, and so on. Even if women own dairy cattle, these are generally in smaller numbers as compared to men (Deere and Doss *et al.,* 2006).

Studies have shown that empowering women in agriculture can lead to improved agricultural productivity, increased food security, and poverty reduction (Kumar *et al.,* 2020). One key role that women play in the agricultural sector is as farmers and farm laborers. They actively engage in crop cultivation, livestock rearing, and other agricultural activities. By providing labor, knowledge, and skills, women contribute to the overall productivity and growth of the sector. Additionally, women's involvement in agricultural decision-making and farm management has been found to have positive effects on farm productivity and profitability (Doss, 2021). When women have access to resources, such as land, credit, and training, they can effectively contribute to agricultural sector growth. Furthermore, women often serve as knowledge custodians and bearers of traditional agricultural practices. They possess valuable indigenous knowledge and expertise in areas such as seed selection, crop diversity, and natural resource management. Recognizing and leveraging women's traditional knowledge can contribute to sustainable agricultural practices and biodiversity conservation (FAO, 2011).

2.3.3.1. Women in crop production

Women contribute their quota in agricultural production despite the constraints. However, it is usually men who plough the fields and drive drought animals whereas women do the major share of sowing, weeding, applying fertilizer and pesticide,

harvesting and threshing, winnowing etc. similarly, men tend to do work of large-scale cash cropping, especially when it is highly mechanized, while women take care of household of production and small-scale cultivation of cash crops, requiring low of technology. Women make an essential contribution to producing staple crops e.g. (in South East Asia, it is women who provide up to 90% of the labor for rice cultivation) but they play a big role in growing secondary crops such as legumes and vegetables (World Bank 2008).

2.3.3.2. Women in livestock production

Women's role within a livestock production system varies from region to region while distribution of ownership of livestock between men and women is strongly connected to social, cultural and economic factors. Women are typically responsible for milking ewes, processing and selling milk products, providing feed/fodder and water, caring for newborn lambs/kids and sick animals. Young girls are also involved in the grazing of goats and sheep whereas married and young women are responsible for household activities (Lo, 2007). Charles *et al.,* (2008) opined that the importance of the role played by women in agricultural production is such that the widespread failure so far to reach women farmers through formal extension services has major repercussions for national output and food security as well as social justice. The importance of small ruminants is indicated by their various functional contributions (meat, milk, fibre, skin et cetera), socio-economic relevance and stability to farming systems (Rangnekar, 2006).

Rural women play a key role in livestock management and household activities. They are the majority of agricultural producers playing various roles in agricultural sector such as fisheries and livestock management (Mulugeta and Amsalu, 2014). Women make a significant contribution to food production particularly in the area of small livestock (Arshad *et al.,* 2013). Livestock production in the developing world is also one of the important economic activities. Their products are highly valued, especially when compared with crops. For instance, the average global price of a tonne of red meat is more than 10 times higher in value than that of soya bean, whereas that of milk is 70% higher (FAOSTAT, 2011). This makes milk and meat to rank as some of the agricultural commodities with the highest gross value of production (VOP) in the developing world (FAOSTAT, 2011).

In the last decade, livestock have represented between 17% and 47% of the total agricultural VOP in developing country regions which Nigeria is not an exception (FAOSTAT, 2011). Over the last 40 years, the value of livestock production has seen an average of 2.7% increase per year in sub-Saharan Africa (SSA), 3.4% in Central America and 4.1% in South East Asia. According to Herrero *et al.* (2012) livestock play multiple roles in supporting livelihoods, among which is as a source of household income. The roles of livestock in the developing world are many, spanning from the social to the economic, to the environmental. Women play important roles in agriculture, undertaking a wide range of activities relating to food production, processing and marketing; and beyond farming, they are involved in land and water

management: most often they are collectors of water, firewood and fodder. They have access to a store of local knowledge on the medicinal use of plants; they have been in the forefront of soil conservation programs; and it is women who perform most of the household labor devoted to animals (Hulela, 2010).

2.3.3.3. Women in fisheries

Women and men are involved in all nodes of the aquaculture value chain (Veliu *et al.,* 2009), but the value chain activities are highly gendered. Women are more involved in post-harvest activities, while men tend to dominate in fish farming activities (Adeoye *et al.,* 2020). Men dominate roles such as fingerlings providers, other input providers (e.g., fish feeds), fish producers, wholesalers, and exporters, which tend to be higher profit roles. Women are primarily engaged at present as fishmongers, processors, and retailers (WorldFish and BoP Innovation Center, 2018), which are generally lower-profit activities (Subasinghe *et al.,* 2021).

While men are mostly involved in the harvest sector of small-scale fisheries, women dominate the post-harvest activities, inclusive of hazardous fish value chain processes such as fish smoking (Shehu Latunji Akintola and Fakoya, 2017). In addition, women are also involved in pre-harvest activities and cooperative societies, especially those who undertake wholesale business, they are therefore able to finance fishermen by providing the needy fisherman with supply of fish inputs such as netting materials, engines and sometimes boats (Jenyo-Oni, 2007).

2.3.3.4. Women in forestry

Men and women have distinct roles to play in forestry operations in developing countries (FAO, 2015). In addition, they have differentiated interests in forest and tree goods and services, with the women's interests largely revolving around the supply of food and energy for their households, while men are mainly driven by commercial interests (Muthee *et al.,* 2021). Women are recognized to play a key role in the management of forests and forest products. They have traditional knowledge of forest rehabilitation activities, managing forestry products, and improved forest governance, including executing management plans (Stiem and Krause *et al.,* 2016). Although women are the major stakeholders in forest resources use and management, their engagement and decision-making level are inadequate (Leone, 2019), with their representation in formal forest user groups in Africa estimated at 18% (Stiem and Krause *et al.,* 2016). They disproportionately bear the costs of tree and forest management but realize only a part of the benefits and are typically enlisted in decision making when forest and tree resources are degraded or after conflict (Mwangi *et al.,* 2011).

Women rely on forests for half of their income thus requiring secure access and use rights to these resources (World Bank, 2016) and inclusion in implementing sustainable forest management (SFM) projects. Neglecting their role in forest decision-making can risk project outcomes, as women's specific livelihood needs and preferences are often overlooked (Marin and Kuriakose, 2017). Several studies

outlined the vital role women play when put at the center of whatever decisions are made about managing forest resources (Saguye *et al.,* 2011).

2.3.3.5. Women in vegetable gardening

Rural women are strong and hard-working to take up gardening as a business to help reduce poverty and extreme hunger. Oladokun and Nwabineli (2009) stated that vegetables such as okro, spinach, pepper, tomatoes and green leafy vegetables are grown in small portion of land which are sold later at harvest period to generate income for the youths as part of empowerment. In like manner, it can generate income for rural women who have been participating actively in agriculture. Green leafy vegetables are grown all year round and they are in constant demands in various homes. Ossai (2008) reported that gardening business is an entrepreneurial opportunity where vegetables like lettuce, aromatic pepper, green pepper, pumpkin, okro are cultivated to generate income and possible employment.

2.3.4. Challenges of women in agricultural production

Researchers have reported that over 50 percent of the foods grown worldwide are produced by women (FAO, 2011). Their contributions to agricultural production vary from one country to another, one region to another, in terms of crops grown and tasks performed. For instance, women in Asia contribute about 50 to 90 percent of the labor for rice cultivation. In both Egypt and Guinea, they provide about 53 percent each of the agricultural labor while in Nigeria, their contribution to labor force is about 50% particularly in subsistence food production as well as in all sub-sectors of agriculture,

such as crops, fisheries, livestock and agro-forestry (World Bank, 2003 and 2019). Small farms kept by women in Ghana provide about 80% of the total food production in the country (Ugwu, 2019). Furthermore, studies have shown that women in Nigeria play major roles in terms of activities performed on the farm. These activities include planting, weeding, applying fertilizers and pesticides, harvesting and threshing of the crops (Tunde, 2011). Post-harvest food processing, storage, transporting and marketing are also done by them, to the extent that certain crops are assigned as "female" crops in some areas.

In Nigeria, women are often marginalized to have limited access to economic, political and social resources compared to men, rendering them relatively poorer than their male counterparts (Adebayo, 2019). With little or no access to modern improved technologies, generally, women may not secure reasonable investments in capital, inputs and labor (Baba *et al.,* 2015). As in other countries, despite the realization of the importance of women in agriculture, their contributions to agriculture remain neglected in Nigeria. Nwankwo and Onyishi (2012) and Lone *et al.,* (2020) reiterate that Nigerian women in agriculture have continued to face such challenges as rural poverty, yet programs are not tailored to addressing them. Systemic gender biases exist in the form of (a) customs, beliefs and attitudes that confine women mostly to the domestic sphere, (b) women's economic and domestic workloads that impose severe time burdens on them, and (c) laws and customs that impede women's access to credit, production inputs, employment, education, or medical care (Baba *et al.,* 2015).

Ogunlela and Mukhtar (2009) contend that women contribute immensely to agricultural output; however, they have recently, and benefited from agricultural incentives and innovation due to economic suppression, social and traditional practices which weaken the constitutional provisions on gender equality. Ogunlela and Mukhtar (2009) suggest that gender discrimination, rather than ignorance, is the justification for the lack of female participation in agricultural programs and projects.

These challenges are seen to cut across other world countries Niranjan *et al.* (2020) and Honsberger (2015) suggest that male members of the society get more opportunities for education, access to information and exposure, as well as more access to off-farm work for income generation. The challenges faced by women in the sector have been identified by many scholars since they seem to have reduced women's farm productivity in the food supply chain. In the same line of thought, Adams (2017) suggests that the challenges facing women and what reduces their productivity are constraints resulting from unified extension systems, socio-cultural barriers. Mugede (2013) affirms that women experience limited access to productive resources. Drafor-Amenya and Puplampu (2013) suggest that women have limited access to land ownership and that this must be tackled through accelerated land development. Salma and Pushkar (2010) equally reiterate that women are less educated than their male counterparts and that more domestic workload restricts women's participatory ability in agricultural projects.

2.3.4.1. Lack of access to funding among women

Odoemelam *et al.* (2014) findings revealed that women in Nigeria are predominantly engaged in agriculture and take part in foremost tasks in agricultural activities such as planting, weeding and harvesting. To an extent, certain production of food crops is labelled as 'female crops' in some Nigerian communities. For example, in South Eastern Nigeria, yam harvest traditionally comes with respect associated with high quality for the male farmers. Their female counterparts are relegated with subsistence food crops such as cassava, melon and cocoyam. Regardless of their various contributions to food production, their access to needed agricultural investments and funding has been very low, owing to nuptial, religious, cultural, traditional and legal discrimination factors (National Population Commission (NPC) [Nigeria] and ICF, 2018). As cited by Odoemelam *et al.,* (2014) IFAD further buttressed that women, in particular, lacked direct access to land ownership and a large extent, the decisions of being property owners are inevitable.

National Population Commission (NPC) [Nigeria] and ICF (2018) data indicated that men are more likely to secure financial aid compared to women. Law- related principles and customary rules habitually confine women's access to own and control properties (such as land or livestock) that can be put forward as collateral. As such, women are deprived of being entitled to a resource that is key to accessing loans via collateral. Further, gender discrimination by financial institutions adds to the challenges women face in the sector. However, in recent times, some of the

government programs such as the National Accelerated Food Production Program (NAFPP), Operation Feed the Nation (OFN), Better Life Program (BLP) and Family Support Program (FSP) have faded out for several reasons including lack of funding and policy reversal (Sabo, 2007). Some of the vigorous agencies now in existence include the Agricultural Development Projects (ADPs), National Agricultural Research Systems (NARS), the International Institute of Tropical Agriculture (IITA) and other international agricultural research centers and large-scale planting material multiplication and distribution facilitated by the IFAD-assisted Cassava Multiplication Program (CMP) and activities of oil companies and church organizations. These institutions have made little or no impact in the agricultural activities of rural women in many parts of the country.

In order to surmount the challenges in the foregoing establishments, microfinance banks have been instituted to provide easy avenues for poor persons to access credit. However, the bureaucratic characteristics embedded in these institutions, high illiteracy level of the women, and cultural factors such as lack of autonomy, decision-making power, and participation in household and societal decision-making have defeated its purpose in the lives of rural women (Okojie *et al.,* 2009). In most cases, collateral is often required from these women usually in the form of land which they also lack access to and so their inability to provide such denies them access to such credit facilities. This in turn decreases their ability to produce sufficient quantity of food for consumption and sale. Such demand for collateral is stimulated by the

perceived short life cycle of women-run businesses, which do not often exceed a period of four years (Mutalima, 2008). On the other hand, where such collateral are provided through their husbands, the consequence is that their husbands in turn make the decision on how the fund is to be disbursed. This further ties the woman to the apron of her husband which eventually makes this fund to have no meaningful impact on her agricultural production and make loan repayment difficult (Murray and Boros, 2002). Drafor and Puplampu (2013) identify limited access to finance and farm inputs as the major challenges women face. The Sahel Capital and Advisory Limited (SCA) (2014) that women receive less than 10% of credit offered to small scale farmers in Nigeria due to limited access to collateral.

2.3.4.2. Lack of access to modern farm technologies

Farming is a multifaceted concept involving the entire process of cultivation: clearing the fields, planting, weeding, harvesting, marketing, provision of credits, transport, processing among others (Ojo, Bila and Iheanacho, 2015). Farming technology remains unsophisticated in Nigeria, especially among the smallholder farmers, who contribute the bulk of the food needed for the feeding of the nation's citizenry. Mechanized farming is common among private owners, who are only a handful and scattered across the whole nation. This situation makes clear the obvious insufficiency of food to cater for the teeming population (Akanji and Williams, 2002). According to Bob (2004), various expressions are often used to describe technology which is developed and utilized at the local level. Such terms include indigenous, alternative,

appropriate, adoptive, self-reliant, intermediate, and people's technology. Most peoples who use indigenous technology often belong to the groups that are traditionally marginalized; have low profile; and low social status. These include women, the landless and the rural poor.

Women farmers need both local and modern technologies to achieve enhanced food productivity. According to International Institute for tropical Agriculture (IITA, 2005), several machines are made available by the Institute through the Integrated Cassava Project (ICP). This is expected to be of immense assistance to rural women farmers in Edo State because cassava is their major farm crop but literature has shown that these are absent among rural women farmers in the State (Ozoya, 2008). The need to occupy ourselves in the twenty-first century with rational, equitable and sustainable application of the natural resources that promote worldwide food supply, such as labor, land, clean water, oil and other agricultural inputs, is fast becoming widespread as the consequences are biting hard on both rural and urban dwellers. It is now clearly acceptable that neglect in this regard will engender starvation (Hodges, Buzby and Bennett, 2011). World population is expected to reach 9·1 billion by 2050 which requires a 70 per cent increase in food production (FAO, 2011).

According to a report by Edo ADP (2002), less than 5 per cent of Nigerians are food secure, 65 per cent are semi-food secure. Over 30 per cent of Nigerians are facing the problem of food insecurity. This underscores the necessity of evolving modern storage and processing techniques. This stark reality is mostly evident among rural women

who produce a considerable amount of food crops yet do not have adequate facilities for processing and storing such produce. Such capacity has been usurped by multinational companies due to their access and ownership of huge capital. According to a research conducted among women in Nigeria by Imonikebe (2010a), lack of post-harvest facilities was mentioned among the constraints to Rural Women Farmers' Involvement in Food Production in Nigeria. The study was aimed at identifying the problems faced by rural Nigerian women farmers engaged in food production and how those problems could be solved. The sample was made up of 3,500 persons from Ogun, Edo, Anambra Lagos, Osun, Delta, Ondo, Enugu and Oyo States of Nigeria. Findings revealed that the major problems encountered by the rural women farmers in Nigeria were poverty, illiteracy, lack of storage facilities, poor health status and poor yield.

2.3.4.3. Lack of training on agricultural extension service

Agricultural extension services are known to be important in serving as a cost-effective method of boosting the productivity and income of farmers (Adesiji, Kehinde and Omotesho, 2013; Galie, 2013). Though women play a central role in agriculture across Africa, including Nigeria, most of them are often bypassed in agricultural extension trainings (Rousan, 2005). Lack of training on extension services and mechanization was reported by Dave (2020) and Ng'ombe *et al.* (2020) as a serious challenge that women face in the sector. Agricultural extension services which are very important sources of modern knowledge and skills, especially for improved and increased productivity are exclusively designed for men and boys. They are trained in

insecticides and fertilizer application, seeds, marketing tools and methods (Nnanna, 2000). Adesiji *et al.* (2013) attribute the prevailing negligence of women farmers by extension agents to women's "limited control over assets and decisions and systemic biases that are evident in agricultural institution throughout Africa and much of the world". A major asset over which women lack control and ownership is land. IFAD (2007) notes that a significant portion of the income of the rural poor comes from farming, the report therefore recommended that democratizing access to and control over land and water resources is crucial for empowering women.

The origin of agricultural extension can be traced to the colonial era in Nigeria. It started with the promotion of export crops such as cocoa, rubber, timber, and cotton. It is not, therefore, surprising that this has not been successfully extended to advance the production of food crops. Extension services have undergone several approaches in Nigeria. These include the special commodity service, farm settlement scheme, River Basin Development Authority, the National Accelerated Food Program and the Operation Feed the Nation. In 1986, the Training and Visit extension system was introduced. However, these have failed to produce expected results. Women-In-Agriculture (WIA) in Nigeria is a branch of the Agricultural Development Projects (ADP). Report has shown that they have made important progress in different States of the Federation by incorporating gender in agricultural extension, modifying the ADP system midstream to provide for women farmers through the creation of

programs in the department of Extension Services of the affected States with a gender focus (Odurukwe *et al.,* 2006).

The WIA program designed avenues to improve agricultural extension services for women. Such avenues involve the retraining of existing agents in agriculture and extension methodologies as well as emphasizing women's activities. In addition, the WIA program is organized in such a manner that extension services in every state in Nigeria have female extension workers at all levels of operation from State capital to the villages (Odurukwe *et al.,* 2006). According to the study carried out by Odurukwe *et al.* (2006), on the Impacts of the women-in-agriculture (WIA) extension program on women's lives in Imo State, positive result was recorded from the adoption of this program by women, as these women are now able to improve in such areas as family food security and increased financial contribution to household needs. Impact in children's education has also recorded positive response. It, however, shows that the impact was more on rural women than their urban counterpart. In the same vein the study conducted by Sabo (2007) on the impact of WIA in Borno State showed a positive result.

2.3.4.4. Lack of access to land

Land occupies a paramount place among the resources available for human survival. The existence of humans is largely dependent on land as it constitutes the platform for which human activity and development occurs (Hussein and McKay, 2003). The dynamics surrounding land is vital to sustainable growth, good governance and the

well-being of individuals in society (Edewor, 2014). Such forces also determine the economic opportunities available and accessible by both the poor and the rich in society (Deininger, 2003). Globally, land is known to be a product of wealth either through investment on it such as houses or through lease or outright sale (Hussein and McKay, 2003). All these avenues attract wealth to a landlord. High value for land is even more situated in Africa, as many Africans consider land as possessing some spiritual connotations which make it a very sacred asset (Iruonagbe, 2009b).

Land policy is often what prescribes rights to land in a modern society. It stipulates who can access and own land, by what means, among others (Deininger, 2003). However, crisis often emerge in the implementation of such policies especially in developing countries. Such conflict is what has engendered the ongoing debate on the popular phrase 'the land question' among African researchers. Land struggle has remained an ongoing phenomenon for African countries, which usually emerge for many of these countries after independence as is the case in Kenya, Namibia, and Nigeria (Moyo, 2013). In the context of a traditional community, the land question often takes on a gender analysis. It interrogates the inequality of access and ownership of land by the male and female gender. According to Moyo (2008), the key land question here remains women's access to and control of land, which is inadequate and constrained by various customary and generally patriarchal social relations.

Land tenure is another problem hindering women in agriculture. According to the 2012 "Gender in Nigeria" report by the British Council, average land ownership by

women across the country was found to be significantly low at less than 10%; 4% in the North-East, and just over 10% in the South-East and South-South parts of the country respectively (Sahel Capital and Advisory, 2014). Women generally own less land by reason of traditional authority. This general lack of land ownership by women depresses their farm output levels as well as their chances of securing institutional credits that are mostly based on the presentation of land titles as collateral securities. Lack of access to land and security of land tenure affects female farmers' access to other crucial resources such as credit, technology, and farm input and extension services.

The constraints of land ownership that women farmers encounter vary from culture to culture and from country to country (Kabane, 2010). For instance, in Nigeria and other patriarchal societies, women are deprived of their independent rights to own land (Odoemelam, 2014). Across South Southern region and South Eastern Nigeria, ancestral land rights are only allotted to men, either sons or husbands. The traditions and beliefs of 'masculine gender entitlement' to ancestral land ownerships have excluded the rights of women, as a greater proportion of them have no or limited access or control over lands. Culturally, valuable goods in the household belong to the head of the household and men have the full ownership of property acquired by either women or men. For instance, the acquisition of landed properties by women from her earnings with the knowledge of the husband becomes the property of the household head, the husband. In line with the cultural traditions and customs of the land, the man

decides what the land should be used for irrespective of the earlier plans made by the woman for the land.

It is clear, therefore, that the explanation of the prevalence of women's denial of access and ownership of land in several countries of Africa is located within the larger framework of the structure and culture of the African society. The major forms and sources of this unequal land distribution and tenure problem emanate from the dominance of patriarchy and customary land tenure systems, and local authority structures (Moyo, 2008). Most African countries operate a patriarchal structure, which emphasizes male dominance over women, hence an unequal gender relation. This is what obtains in Nigeria. A typical Nigerian woman is socialized into a culture of female subordination. Such subordination is not only to her husband but also to the men in her family as well as to the members of her husband's family both male and female (Iruonagbe, 2010c).

In terms of culture, the custom of a community stipulates the use and ownership of the common property. The customary treatment of men and women in Nigeria is one that is detrimental to the wellbeing of women. Women experience discrimination imposed on them by customary laws, which often prevail upon traditional matters in a greater proportion than statutory laws (Iruonagbe, 2009a). It should be stated that women's access and ownership of land is essential for the attainment of food security for all people. Gender-based discrimination pattern in local land administration processes needs reforms. Issues of unequal land allocation procedures, ambiguous rules and

regulations surrounding land tenure and use rights, and inequitable systems of access to related resources are critical towards ensuring food security for the rich and the poor.

2.3.4.5. Lack of gender equality

Drucza and Peverib (2018) examined gender differential in agriculture in Pakistan with emphasis on the wheat sector of agricultural productivity. The study applied descriptive and exploratory methods. The results from the study showed that irrespective of women's involvement in the production of wheat in Pakistan, they were still looked down upon when compared with the male counterparts. In another study, Akter *et al.* (2017) employed the framework recommended by the Women's Empowerment in Agriculture Index (WEAI), 37 focus group discussions were conducted among 290 women farmers across Myanmar, Thailand, Indonesia and the Philippines. The results contradict the conventional notion of gender inequality. In all four countries, women appear to have equal access to productive resources such as land and inputs, and greater control over household income than men. In Nigeria, different findings were obtained by Obayelu *et al.,* (2019) who examined decision making of male and female households in Nigeria, using a survey of 1,747 farmers across 141 farming communities in Nigeria, using a multi-stage sampling technique. Findings showed that on average, the male had more educational qualification than the female. In the same vein, male-headed households owned more productive assets than female and earned a higher income. Also, female households spent more time taking

care of children, cooking and schooling than the male. It can, therefore, be concluded that a gender gap exists in agricultural labor participation, with the male playing dominant roles than the female, which is against the findings by Akter *et al.* (2017).

The study by Abraham *et al.* (2017) examined female labor force participation and their employment choice between the formal and informal sectors after several institutional and social reforms. The study made use of data from Ghana's 2010 population and housing census, and applied the multinomial logit regression technique. Results showed that female labor force participation has declined; and education, a development component remains as one of the most important factors predicting women's participation in the formal sector.

2.4. Theoretical Framework

As stated by Akintoye (2015) as in Mensah, Agyemang, Acquah, Babah and Dontoh (2020), the purpose of a theoretical framework is to provide the organization for the study, to test theories, to make research findings meaningful and generalizable, to establish orderly connections between observation and facts, to guide the researcher in the interpretations of the results, to predict and control situations and to stimulate research. This study is anchored on two theories. The first is the Gender and development theory (GAD), which calls for a balanced dimension to empowerment by explaining that the women's concerns can best be addressed by empowering both male and female through equal access to resources. The second theory, structural-

functionalist, demonstrates that empowerment of both male and female can only be achieved if the different institutions in the society perform their functions.

2.4.1. Gender and development theory

Gender and Development (GAD) theory is an offshoot of the liberal feminist theory (Aina, 2012). This theory is an aspect of the collective term 'Feminism'. Feminism represents a shared term for systems of belief and theories that pay special attention to women's rights and women's position in culture and society. Its origin is traceable to the women's rights movement instituted in the late 18th century. Having increased in number across many countries, these movements still agitate for complete social, economic and political equality for women and men. The position of feminists is that women have unequal position in society with men. They also operate from the perspective that the structure of society benefits men economically, politically, and socially to the detriment of women (Lengermann and Niebrugge, 2003).

The liberal feminist theory argues that the sexist patterning of the division of labor brought about gender inequality (Schaeffer, 2001). Risman (2004) mentioned three levels that pattern human behaviour-individual, cultural/interactional and institutional, which portray gender as a highly complex structure. From this perspective, gender is "a socially constructed stratification system" that defines its social effect with a stigma (Risman, 2004). Liberal feminism sees gender as a structure of stratified clusters that produce a society of gendered division of labor and sexist ideology of traditional facet.

The transition of Gender and Development (GAD) in Nigeria is traced to the origin of Women in Development (WID) and Women and Development (WAD) framework in the 1970s (Aina, 2012). The focus of these approaches was poverty and meeting of basic needs of women. WID policies were aimed at poverty alleviation with emphasis on women. However, little success was recorded by this framework as indicated by the increasing feminization of poverty. These systems of beliefs have neglected the needs of women, by creating a preventive environment in which they cannot choose or even create the circumstances under which they exist. Documentations of access to inheritance generally tend to favor men over women and women with children over childless women. Women are still limited by practices of discrimination, marginalisation and harassment within the public sphere of education, work, politics and public space (Enete and Amusa *et al.,* 2010). Women's lack of independent land rights relegated women farmers to be seeking a viable source of income in the face of rising hunger and poverty. In addition, gender inequality in agricultural production puts women farmers at tremendous economic risk and is one of the major factors that lead to the "feminisation of poverty" (Hays, 2003). Women in Development (WID) approach was criticized as treating women as a homogenous set (Momsen, 2004).

GAD approach emphasizes the need to include men in empowerment initiatives for the expected result to be achieved. Studies have shown that husband's education and occupation are significantly related to women's access to productive inputs (Adesiji *et al.,* 2013). Men's support is essential to women's access to productive resources as

women usually face cultural barriers connected to their subservient positions in the community which men help them surmount. In the case of benefitting from projects, Porter and Zovighian (2014) posit that, men have two structural advantages compared to women with regard to accessing and using project information. The first advantage is that men are relatively more connected to power structures (through which project information is disseminated), and secondly, they tend to be more literate.

2.4.2. Structural-functionalist theory

The origin of the structural-functionalist theory is traceable to the early years of the twentieth century in America (Kalu *et al.,* 2011). It was initially popular as functionalism until the late twentieth century when its application began to wane (Turner *et al.,* 2014). Functionalism, which is a macro theory, is anchored on the premise that order in a social system is sustained if the various parts that make up the society perform their functions (CliffsNotes *et al.,* 2014). Structures are universal and persistent; it is referred to as patterns of inter-relations and functions are referred to as system stability and observe consequences of a system. Structural-Functionalism concentrates on the positive and negatives functions of social structures (Yilmaz, 2017). The structural-functionalist theory is an extension of the ideas of functionalist theorists. Functionalists assert that each organ of the body connects with other parts to construct the whole society. Hence, it is not an individual part working in isolation of other parts (Trenz, 2004).

All societies need such a system and this need brings into existence a system of stratification (Kerbo, 2006). In the opinion of DeRusso (2003), structural-functionalism looks at society through a macro level orientation by focusing on the social structures and institutions that make up the society, noting their respective and peculiar roles that shape the society. According to Oyekunle (2002), societies must have certain institutional arrangements to perform certain inevitable functions necessary for their operation. The theory assumes that a certain degree of order and stability is necessary for the survival of social system. Functionalists downplay the conflict in society between classes and believe that once norms and values are maintained, the society would be conflict free (Ritzer, 2012). Basically, the tenet of structural-functionalism is that society is made up of interconnected parts in terms of structures. The interdependence and interaction of the structures, in terms of the functions they perform, helps to ensure the smooth running of the society and to ensure its unity (Olumba, 2023).

This theory is relevant in this study as it helps to explain the importance of the institutions related to the proper functioning of rural areas. If the institutions perform their functions, then women will be able to access agricultural inputs and therefore, be able to boost food income significantly. This theory addresses the impact of social structures on the empowerment of women. The structures of interest in this study include the multilateral bodies such as the World Bank, the United Nations and the African Union; the Nigerian government at the three levels – Federal, State and the

Local; and the family. The willingness of these structures will culminate in women empowerment through provision of the required assistance and infrastructure. Assistance from family members such as children, husband and other relatives can alleviate the drudgery of women in Ovia North-East. Such assistance could include more access to farmland, farmland clearing, weeding, and transportation of food crops and processing of food produce.

2.5. Empirical Framework

Tologbonse, Jibrin, Auta and Damisa (2013) investigated the level of participation of women in agricultural programs in Lere and Birnin Gwari zones of Kaduna State and compared the performance in terms of output and income levels with those of non-participants. A multi-stage sampling method was used. Data were collected from 272 respondents made up of participants and non-participants in women in agriculture (WIA) program using structured questionnaire and oral interview schedule. Descriptive statistics, multiple regression, t-tests and Z-tests were employed to analyze the data. The result showed that the age of the majority of respondents fell between 31 and 50 years. Majority of the respondents were married, 75% and 83% for participants and non-participants respectively. Approximately, 71% and 56% of respondents from WIA and non-WIA participants had some levels of education. Regression analysis showed that age, marital status, and level of education were significantly related to the level of participation of 5% level of significance, while extension services and access to market were also significantly related to the level of participation at 10% level of

significance. The study recommended among others that functional literacy campaign for women farmers be taken to the rural areas where these women reside.

Sabo (2006) assessed the impact of the women in agriculture (WIA) program in Borno State, Nigeria. Primary data were collected using a structured questionnaire administered to 90 participants in WIA selected through a multi-stage sampling process. Although the WIA program has led to an increase in agricultural production and income level of the participants, correlation analysis showed a negative relationship between marital status and agricultural production level ($r = -0.26$; $p = 0.01$). The study recommended strategies to ensure their access to extension services, land resources, credit, and subsidized inputs. Also, the WIA program should include more income-generating activities and training for improved production. Odurukwe (2006) analyzed the impact of the WIA programme on the lives of women in Imo State, Nigeria, with the view of strengthening their subsistence agricultural production. Data were collected from 160 women from both urban and rural areas of the State. Data analysis was achieved using rankings, descriptive statistics and Ordinary Least Square regression models. The findings showed that processing packages (cassava into pancake and cassava flour; soybean into flour paste and soya-meal; cocoyam and cocoyam flour and tomato fruits into tomato paste) which recorded high awareness values but had low rates of adoption.

Maigida (2000) examined the relationships between socio-economic, perception and cultural characteristics of women participation in WIA programme and examined the

benefits they derived from the programme. The study was conducted in the Northern zone of Plateau Agricultural Development Programme (PADP) from March to April, 1997. Sixteen villages from four local government areas (Mangu, Bokkos, Barkin-Ladi and Jos North) of Plateau State were purposively selected because of the high concentration of women farmers who were growing maize and Irish potato which were the crops selected for the study and the high number of WIA staff in the zone. Data were collected from 181 randomly selected respondents using a questionnaire interview method and analyzed by descriptive statistics. Pearson Correlation, Stepwise regression and student "t" test. Pearson correlation analysis showed that six of the thirteen variables studied were significantly related with participation in WIA Programme. Perception of programme's rules and regulations, number of associations to which women belong, land ownership and extension contact (with co-efficient of 0.7793, 0.3999, -0.3116 and 0.3627 respectively) were significant at 1% level of significance. Formal education and wealth status (with co-efficient of 0.1804 and 0.2280 respectively) were found to be significant at 5%.

Common areas of interest exist among works carried out by other researchers (Maigida 2000, Salo 2006, Odurukwe 2006, Tologbonse 2013). The fact that they are all concerned with women in agriculture is one way which puts these authors together. Despite the similarities, there are areas of divergence. This study seeks to emphasize the specific roles of women in agricultural production in the study area using chi-square as a tool from which conclusions were drawn. It also seeks to examine the

challenges women farmers face in the area of study. In addition, this work covers a Local Government Area in Edo State, a political unit different from other regions. Thus, lack of comprehensive empirical record as regards the roles and effort of women in agriculture and the gap that exist between this study and other works is quite significant which this research attempts to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

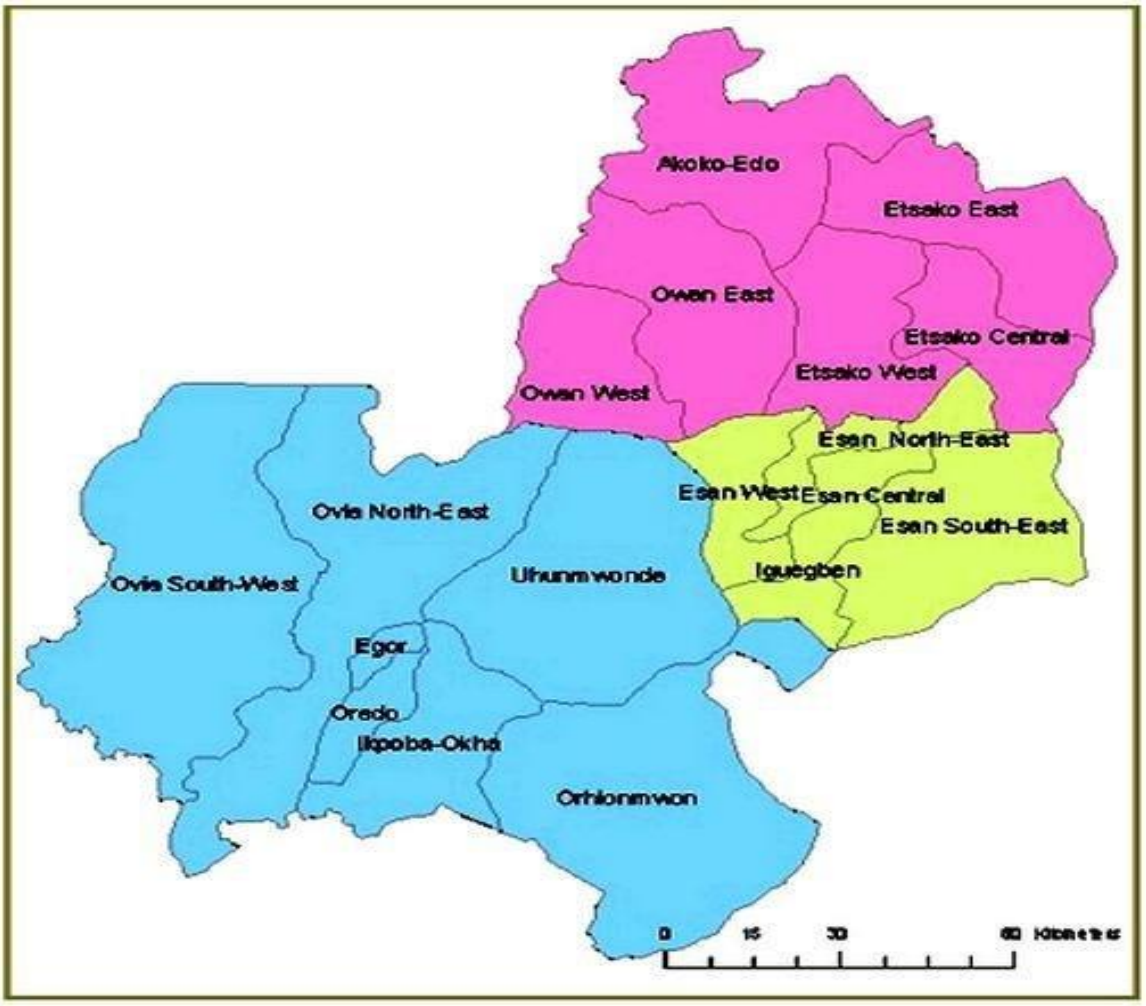

Figure 1: The map of Edo State indicating the 18 Local Government Areas

3.1 Study Area and Population of the Study

Edo State is one of the 36 states of the Federal Republic of Nigeria. Edo State was created on the 27th of August, 1991 as a result of the split of the defunct Bendel State into Edo and Delta States. Edo state is located in the heart of the tropical rain forest and it lies between longitude 5.15°E and 6°45"E of the Greenwich meridian line and latitude 5°45 and 7°30"N of the Equator. Edo state has a total land area of 19281.93 square kilometers. Politically, the state is divided into eighteen (18) local government areas. Edo state is a low-lying area except in the northern part where it is characterized by rolling hills rising to a peak of about 572 meters. Edo state has a tropical climate with two major seasons – the wet and dry seasons. Vegetation is deciduous within the low land rain forest belt of the south and forest savannah in the north. There are abundant natural resources in the state. Virtually all species of hardwood can be found such as iroko, obeche, mahogany among others. The state produces a significant proportion of the country's rubber and crepe. Other resources available include limestone, marble, lignite, clay, crude oil, gold, granite and many others (Omofonmwan, 2007).

With a population of over 4 million people (National Population Commission, 2023 estimates). The population living in poverty is estimated at 44.3 percent compared to the national average of 51.6 percent and a regional average of 38.3 percent in the south (World Bank, 2012c). It has an unemployment rate of 22.1 percent, compared to a national average of 15.3 percent and 12.8 percent for the southern region. Youth

unemployment is even higher, at 36.4 percent, compared to the national average of 23.9 percent and 22.4 percent in the south (World Bank, 2012c). High poverty levels, youth unemployment, dilapidated infrastructure, and flooding are the main developmental challenges facing the state. Edo State is hub of culture, education and commerce. The state is predominantly inhabited by the Edo (Bini), Esan, Afemai (Owan\Etsako) and Akoko-Edo people, each with distinct languages and traditions. Agriculture remains the mainstay of the state's economy, Edo people are mainly farmers, producing cash and food crop as cocoa, rubber, palm trees, vegetables, cotton, rice, etc. There are many small-scale industrial undertakings such as carving, saw milling, brewing and flour milling, etc. There are however potentials for high industrial growth.

Ovia North-East is one the 18 Local Government Areas (LGAs) in Edo State, Nigeria. It was created in 1996 from the old Ovia LGA, which was split into Ovia North-East and Ovia South-West. The administrative headquarters is located in Okada, a town famously known as the hometown of Sir Gabriel Igbinedion, the Esama of Benin Kingdom and founder of Igbinedion University. It is a part of Nigeria's South-South geopolitical zone. It consists of a number of settlements spread over the latitudes of 5° and 7° 40' N and 5° and 6° 30' E. The region covers an area of 2,301 km². It is a tropical rainforest area characterized by high rainfall, with an average annual precipitation of approximately 2,000 mm. As of the latest population estimates (2023-2024), Ovia North-East has an estimated population of over 250,000 people (National

Population Commission, NPC, 2023 projections). However, Nigeria's last official census was conducted in 2006, where Ovia North-East was recorded to have 153,849 inhabitants. Given the annual growth rate of 2.6%, the population is expected to have increased significantly. The presence of Igbinedion University and commercial activities in Okada has contributed to population growth due to migration. Having more than 10 communities involved in agricultural practices. Some of them include; Okada, Uhen, Utese, Okokhuo, Uhiere, Isiuwa, Ekiadolor, Oluku, Iguoshodin, Utoka and Oghese among others. The population of this study includes women involved in agricultural production in Ovia North-East.

3.2. Measurement of Variables

To further understand how different factors influence the role of women in agricultural production; this study examined key variables, categorizing them into dependent and independent variables. Below, the variables were explained and measured, ensuring clarity for analysis:

Dependent variable

Level of participation of women in agricultural production: this was measured using a participation index score ranging from 1 – 14. The following indices of participation were listed and measured as follows:

i. Hours spent daily on farming activities: this was measured as Less than 2 hours (1); 2–4 hours (2); 5–7 hours (3); Above 7 hours (4)

ii. Decisions authority: this was measure as Husband\male relative (1), Joint decision (2), and Self (3).

iii. Percentage of food supply from farming activities: Below 25% (1), 25-50% (2), 51-75% (3), and Above 75% (4)

iv. Do you sell your farm produce: Yes (1) and No (2)

v. Member of any farmers' association/cooperative: Yes (1) and No (0)

vi. Access to agricultural training/extension services: Yes (1) and No (0)

Different activities that the women are involved in: A list of agricultural activities was provided and the respondents were asked to indicate Yes (1) or No (0), if they were involved in the activities

Constraints affecting participation: This was measured using a list of various possible constraints with a 4-point Likert type rating scale of strongly disagree, disagree, uncertain, agree and strongly agree. This was coded as 1, 2, 3, 4 respectively.

Independent variable

Socio-economic characteristics were measured using descriptive statistical tools such as frequency counts, mean scores and percentages. They include;

1. **Age:** Respondents were asked to indicate their actual age in years.

2. **Monthly Income:** Respondents were asked to indicate their monthly income in naira.

3. **Marital Status:** Respondents were asked to indicate their marital status. The options single, married, divorced and widowed were coded in 1,2,3,4 respectively.

4. **Level of Education:** Respondents were asked to indicate their educational level. The options non-formal educations, primary, secondary and tertiary were coded in 1,2,3,4 respectively.

5. **Household Size:** Respondents were asked to indicate their household size using numerical values.

6. **Farming Experience:** Respondents were asked to indicate their years of experience using numerical values.

7. **Primary Occupation:** Respondents were asked to indicate their primary occupation. The options farming only, farming and trading, farming and civil service were coded in 1,2,3,4 respectively.

8. **Land Ownership:** Respondents were asked to indicate their ownership of land. The options land owner, rented, family land and no land were coded in 1,2,3,4 respectively.

3.3. Sample Size and Technique

In this study, multi-stage sampling technique was used. First, purposive sampling technique was used. A purposive sampling refers to the selection of units based on personal judgement rather than randomization. This judgemental sampling is in some way "representative" of the population of interest without sampling at random. One of the commonest uses of purposive sampling is in studies based on small numbers of areas or sites (for instance communities) to be included in the sample (Elder, 2009). The second stage involved the use of simple random sampling technique which was used to select thirty (30) women farmers from four selected communities. Thus, a total

of 120 women involved in agricultural production were drawn from four communities in Ovia North-East Local Government Area of Edo State, Nigeria.

i) Okada

ii) Iguobazuwa

iii) Uhen

iv) Oduna

3.4. Method of Data Collection

Primary data was collected for this study using a structured questionnaire. The questionnaire was designed based on the stated objectives of the study. It was the major research instrument.

3.5. Data Analysis

Hypothesis one: this was measured using two methods, Chi-square analysis and Pearson Correlation. The chi-square which is a non-parametric statistic was used to establish whether or not a significant relationship exists between socio-economic characteristics of the women and their level of participation in the study area.

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where;

X^2 = chi-square.

$\sum$ = summation.

O = observed frequency.

E = expected frequency.

The Pearson Correlation analysis is represented by:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

n = number of observations

r = correlation between x and y

x = independent variable

y = dependent variable

Hypothesis two: this was measured using multiple linear regression analysis. This was used to establish whether or not a significant influence exists between the socio-economic characteristics and the participation level of the women in the study area.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + U$

Where:

Y= Dependent variable (level of participation)

β_0 = The coefficient of the constant term

β_1-β_n = The coefficient of the independent variables (age, sex, household size e.t.c)

X_1-X_n = The independent variable

U = Error term

Hypothesis three: this was measured using chi-square test. The chi-square which is a non-parametric statistic was used to establish whether or not a significant relationship exists between the types of agricultural activities that the women are engaged in and the level of participation in the study area.

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where;

X^2 = chi-square.

$\sum$ = summation.

O = observed frequency.

E = expected frequency.

CHAPTER FOUR

RESULTS AND DISCUSSION

The analysis is done in subsections including; socio-economic status of respondents, agricultural activities of women farmers, roles performed by women on their farms, influence of socio-economic characteristics of women farmers in agricultural production and constraints encountered by women in agricultural production in the study area. Out of a total of 120 copies of questionnaires, only 110 copies were found properly filled and analyzable. The remaining ten were found to have variables with outliers, therefore, they were removed in order to have a normally distributed data for the analysis.

4.1 Socio-Economic Characteristics of Women in Agricultural in Ovia North-East LGA

The socio-economic characteristics of women farmers examined include age, marital status, educational level, major occupation, farm size, farming experience and land ownership. The findings are presented in Table 4.1.

Table 4.1: Distribution of respondents according to socioeconomic characteristics

Variables		Frequency (N)	Percentage (%)	Mean (Std. dev.)
Age	21-30	23	20.9	
	31-40	34	30.9	36 years
	41-50	28	25.5	(20.17)
	51-60	25	22.7	
Marital status	Single	23	20.9	
	Married	59	53.6	
	Widowed	20	18.2	
	Divorced	8	7.3	
Education	Non-formal	14	12.7	
	Primary	19	17.3	
	Secondary	45	40.9	
	Tertiary	32	29.1	
Primary occupation	Farming	37	33.6	
	Farming and Trading	51	46.4	
	Farming and Civil Service	22	20	
Farming Experience	< 5 years	23	20.9	
	5 – 10 years	42	38.2	9 years (4.68)
	11 – 15 years	28	25.5	
	> 15 years	17	15.5	
Household size	1 – 3	31	28.2	
	4 – 6	61	55.5	5 persons
	7 – 9	17	15.5	(2.00)
	> 10	1	0.9	
Land ownership	Land owner	40	36.4	
	Rented	27	24.5	
	Family land	33	30.0	
	No land	10	9.1	
Monthly income	< 10,000	8	7.3	
	10,000 – 30,000	31	28.2	39,455
	31,000 – 50,000	29	26.4	
	> 50,000	42	38.2	
Labour source	Self	23	20.9	
	With spouse	6	5.5	
	Hired labour	51	46.4	
	Use of machines	7	6.4	
	Communal	17	15.5	

Source: Field data, 2025.

4.1.1 Age

From the Table, 20.9% of the respondents were between the ages of 21-30 years, 30.9% were between the ages of 31-40 years and another 25.5% respondents were between the ages of 41-50 years while 22.7% are 51-60 years. It shows that majority of the respondents were within 31-40 years of age representing 30.9% with age mean of 36 years. The mean age of 36 years derived in this study implies that majority of the respondents are very much in their productive and active age which can be an asset for adopting new technologies but may also correlate with less established access to resources, a well-documented barrier that limits the productivity of women farmers (World Bank, 2009).

4.1.2 Marital status

Respondents 53.6% were married, 18.2% other respondents stating that they were widowed. 7.3% were divorced. Here also in the Table, 20.9% respondents indicated that they were single women. It was revealed that single respondents go into farming to generate income to support other business activities which is of interest to them. The divorced have obviously settled into farming as main means of livelihood. They depend solely on their farms to sustain their family. The widowed women depend on farming to support themselves and their children. This shows that majority of the respondents were married. The analysis reveals that women farmers are pillars of support for their families, playing a critical role in ensuring household food security. This finding aligns with contemporary research, such as that from the Food and

Agriculture Organization (FAO, 2011) which emphasizes that women are central to agricultural systems and are key to securing the food and nutrition needs of their households and communities.

4.1.3 Educational status

The literacy of women farmers is quite encouraging considering the sum of primary, secondary and tertiary education. However, 40.9% and 29.1% have secondary and tertiary above. Non-formal education and primary education account for 12.7% and 17.3% respectively. This implies that the populations used in this study are literate with a high tendency to as well provide the study with fairly accurate information about the roles of women in farming activities. This is acceptable on the ground that education has a significant positive effect on agricultural productivity, primarily by improving farmer's capacity to process information, adopt new technologies and allocate resources more efficiently (Assa *et al.,* 2022).

4.1.4 Primary occupation

Here also on Table 4.1, it was revealed that 33.6% respondents engage only in farming, 46.4% engage in farming and trading while 20% are involved in farming and civil service. This reveals a multifaceted economic profile for women in this population where women are not just producers but also actively involved in the local value chain, selling agricultural products to mitigate risk and increase household income. This aligns with the report from World Bank (2022) which explains why diversification is

necessary for women due to their constraints which pushes them into multiple, often informal, livelihood strategies.

4.1.5 Farming experience

The years of experience of respondents in agricultural practice as presented in Table 4.1 shows that 20.9% respondents have been farmers for less than 5 years. Here also, 38.2% and 25.5% respectively have been engaging in agricultural production between 5 to 15 years while another 15.5% stated that they have been into farming activities for over 15 years and above. It shows that majority of the respondents had 5-10 years of experience representing 38.2% having a mean experience of 9 years. This distribution indicates a dynamic sector with a steady influx of new women farmers which is positive for sector vitality (AGRA, 2023).

4.1.6 Household size

From the Table presented above, 28.2% respondents had 1-3 persons as their household size. Here also, 55.5% and 15.5% respectively had between 4 to 9 persons while 0.9% had above 10 members. It shows that majority (55.5%) of the respondents in the study area had a household between 4-6 persons having a mean of 5 persons. This aligns with the findings of Sallawu *et al.* (2022) who reported that 42.77 of the respondents fall within 5-8 members.

4.1.7 Land ownership

It was also revealed from the table presented that 36.4% of the respondents owned their land, 24.5% rented the land that is used for agricultural production, 30.0% were

using their family land for agricultural production while 9.1% had no land. This point to a situation where women's land access is predominantly mediated through relationships and temporary arrangements rather than through outright ownership which has profound implications for their economic empowerment. This finding aligns with contemporary research, such as that from the Food and Agriculture Organization (FAO, 2021) which emphasizes that when women have secure land rights, agricultural productivity, household food security and child welfare, all improve.

4.1.8 Monthly income

Here also on Table 4.1, it was revealed that 7.3% respondents earn less than 10,000 naira from sales of their farm produce. Another 28.2% and 26.4% revealed that they earn between 10,000-30,000 and 31,000-50,000 naira while 38.2% earn more than 50,000 naira. From the results, this indicates that majority (38.2%) of the respondents earned more than 50,000 naira with an average amount of 39,455 naira. This underscores that financial capital is a primary enabler, allowing women to invest in and intensify their agricultural activities by overcoming other resource barriers (Agarwal, 2018).

4.1.9 Labour source

Several means are being employed by women farmers to ensure that they perform their roles in agricultural production. From the analysis, 20.9% revealed that they perform their duties themselves. Many other respondents indicated that their husbands help them out in the farm representing 5.5%. Here also, 46.4% revealed that they

perform their duties themselves but owing to the fact they engage in taking care of children and other productive activities like fetching firewood, water and preparing food at home, women farmers engaged other individuals to help them out in the farm. Here also in Table 4.1, 6.4% of the women farmers use machines and 15.5% indicated that community members help them out on the farm. Women managers often face a gendered burden of high labour costs because they have less access to credit and resources needed to acquire labour saving technologies, which reduces their overall profitability (World Bank, 2009).

4.2 Agricultural Activities and Production Profile of Respondents

This examines the various activities that the women are engaged in. The result is presented in Table 4.2.1. Carrying out agricultural activities on the farm entails the cultivation and rearing of numerous crops and livestock for either subsistence or commercial purposes.

Table 4.2.1 Types of agricultural activities respondents are engaged in

Agricultural Activities	Frequency (N)	Percentage (%)
Crop farming	85	77.3
Livestock	47	42.7
Poultry	48	43.6
Fisheries	13	11.8
Agro-processing	24	21.8

***Multiple responses.**

Source: Field data, 2025.

4.2.1.1 Agricultural activities

From the Table 4.2.1 shown above, 77.3% showed that majority of the respondents were involved in crop farming, 42.7% and 43.6% were involved in livestock rearing and poultry respectively while 11.8% reared fishes and 21.8% were involved in agro-processing. Crop farming (77.3%) is the most common, followed closely by poultry (43.6%) and livestock rearing (42.7%). This multi-activity approach spreads risk and utilizes different resources which are common livelihood strategy for smallholder households (Ellis and Mdoe, 2003).

Table 4.2.2: Crops cultivated and Livestock reared by the respondents

		Frequency (N)	Percentage (%)
Crops	Cassava	43	39.1
	Yam	34	30.9
	Maize	52	47.3
	Vegetables	50	45.5
	Plantain	34	30.9
	Others (Cocoa and forestry products)	4	3.6
Livestock	Goat	36	32.7
	Sheep	11	10.0
	Pig	14	12.7
	Cattle	11	10.0

*** Multiple responses**

Source: Field data, 2025.

4.2.2.1 Crops cultivated

The Table 4.2.2 above shows the crops and livestock cultivated and reared by the women farmers engaged in agricultural activities. Respondents identified the types of crops they plant on their farms. From the Table, 39.1% stated that they planted cassava on their farms and 30.9% stated that they planted yam. From the table also, 47.3% revealed that they planted maize while 45.5%, 30.9% and 3.6% further revealed that they plant vegetables, plantains, cocoa and forestry products on their farms. It could be deduced here that women in Ovia North-East LGA plant more of maize. In terms of specific enterprises, maize (47.3%) and vegetables (45.5%) are the most cultivated crops. This dominance reflects a dual focus on a staple cereal for household food security and high-value vegetables for market sales, a pattern consistently observed in smallholder systems in Sub-Saharan Africa (Liverpool-Tasie *et al.,* 2017).

4.2.2.2 Livestock reared

Also, respondents identified the types of livestock they rear. From the Table, 32.7% stated that they rear goats and 10.0% stated that they reared sheep. 12.7% and 10.0% further revealed that they reared pig and cattle respectively. Among livestock, goats (32.7%) are the most reared, which aligns with their global reputation as a key asset for smallholders and women due to their manageability, low cost and role as a vital source of income and food (Peacock, 2005).

4.3 Participation and Level of Participation of Women in Agricultural Production

Table 4.3 is to show the different level of participation of women farmers in the involvement of the activities of agricultural production in Ovia North-East L.G.A. The study area is characterized by similar geomorphologic features. For example, climate, soil, vegetation, relief and drainage. In this regard women farmers enjoy similar fate in agriculture production.

Table 4.3.1: Farming activities performed by respondents

Activities	Frequency (N)	Percentage (%)
Land preparation	38	34.5
Planting	77	70.0
Weeding	57	51.8
Application of pesticides	39	35.5
Transportation/sales	63	57.3
Marketing/distribution	59	53.6
Harvesting/processing	62	56.4
Others		

Source: Field data, 2025.

Table 4.3.1.1 Hours spent on farming activities daily

Hours	Frequency (N)	Percentage (%)	Mean	Std. Deviation
< 2	19	17.3		
2 – 4	34	30.9		
			4 (3.927)	1.831
4 – 6	44	40.0		
> 6	13	11.8		

Source: Field data, 2025.

4.3.1 Farming activities performed by respondents

There are varieties of roles performed by the women in agricultural production in the study area. Women are actively involved across the entire agricultural value chain. These roles are examined and the results are presented in Table 4.3.1, 34.5% of the respondents engaged in land preparation, 70.0% and 51.8% engaged in planting and weeding while 35.5% and 57.3% engaged in application of pesticides and the transportation of their sales. 53.6% and 56.4% engaged in marketing or distribution and the harvesting or processing of their sales. This show that majority of the respondents engaged in planting with 70.0% than any other farming activity. This contradicts the common stereotype of women being confined to post-harvest processing and demonstrates their central role in both production and commercialization (FAO, 2011).

4.3.1.1 Time committed to farm activities by respondents

Also, from the analysis presented in Table 4.3.1 showing the number of hours spent on the farming activities daily, 17.3% spent less than 2 hours on the farm, 30.9% spent 2-4 hours on their farms while 40.0% spent 4-6 hours on their farms and 11.8% spent more than 6 hours on their farms. It could be surmised here that majority of the respondents spend an average of 4 hours daily on farming, with 40% spending 4-6 hours. This substantial time investment must be understood in the context of “double burden” carried by women in agri-food systems, who simultaneously manage demanding household chores and childcare responsibilities (FAO, 2023).

Table 4.3.2 Distribution of respondents by decision making authority

	Frequency (N)	Percentage (%)
Self	59	13.4
Joint decision	42	9.5
Husband/Male relative	9	2.0

Source: Field data, 2025.

4.3.2 Decision-making Authority

From the analysis, majority of the respondents as revealed in Table 4.3.2 indicated that they, that is, 13.4% take the major decision on how to secure, plant and market their farm produce while about 9.5% and 2.0% revealed that it was a joint decision, that is, the husband or male relative helped with such decision. The data above suggests that a majority of the respondents make farming decision independently. This autonomy in decision-making is a key dimension of women's empowerment and is critically linked to improved agricultural outcomes, as women with decision-making power can direct resources and labour in ways that align with their knowledge and household priorities (Quisumbing *et al.,* 2023).

Table 4.3.3: Other indices of participation

Item		Frequency (N)	Percentage (%)
Percentage of food supply	Below 25%	24	21.8
that comes from farming	25 – 50 %	38	34.5
	51 – 75 %	33	30.0
	> 75 %	15	13.6
Do you sell your farm	Yes	90	81.8
produce	No	20	18.2
Member of any farmers	Yes	64	58.2
association	No	46	41.8
Access to agricultural	Yes	52	47.3
training or Ext services	No	58	52.7

Source: Field data, 2025.

4.3.3 Other indices of participation

The indices presented reveal a comprehensive picture of the women's integration into the agricultural sector. The fact that the vast majority (81.8%) sell their farm produce indicates a strong market orientation, moving beyond subsistence and into commercial spheres, which is a key indicator of advanced agricultural participation (Farnworth *et al.,* 2020). Furthermore, institutional support plays a crucial role; membership in farmer's associations (58.2%) provides a platform for collective action, though the nearly equal split in access to formal agricultural training highlights a significant area for improvement in extension service delivery (Ragasa *et al.,* 2013).

Table 4.3.4: Participation level of respondents

Categories	Frequency (N)	Percentage (%)
Low	38	34.5
Moderate	62	56.4
High	10	9.1

Source: Field data, 2025.

4.3.4 Participation level of the respondents

The classification of women into low, moderate and high participation levels is grounded in the understanding that involvement in agriculture is multi-faceted. This approach aligns with established empowerment metrics, such as the Women's Empowerment in Agriculture Index (WEAI) which aggregates influence across production, resources, income and leadership (Alkire *et al.,* 2013). The prevalence of a moderate participation level (56.4%) suggests that while women are central actors, systemic barriers likely prevent a larger proportion from achieving a high level of control and autonomy in their agricultural enterprises.

4.4 Constraints Faced by Respondents

Using a mean score threshold greater than 2.5 to identify severe constraints, the most significant challenges faced by the respondents are; Lack of access to credit loan, the most severe constraint, limiting their ability to invest in inputs, technology and expansion. Gender discrimination, a major social barrier affecting their access to resources, land and markets. Lack of mechanized tools, contributes to high labour demands and inefficiency. High cost of labour, heightened by the reliance on hired labour. Poor transportation and storage facilities, leads to post-harvest losses and reduced market access.

The analysis reveals several severe constraints (mean > 2.5) that significantly hinder women's agricultural productivity. The most pressing is the lack of access to credit (mean = 3.25), a fundamental barrier that limits investment and forces women to rely

on costly hired labour (mean = 2.74) (World Bank, 2023). This financial constraint is compounded by a pervasive gender discrimination (mean = 3.23) and limited access to land (mean = 2.49), which are deep-rooted structural issues that restrict women's rights and economic agency (FAO, 2023). Furthermore, a critical inefficiency is caused by the lack of mechanized tools (mean = 2.81) and poor transportation and storage facilities (mean = 2.65), a gendered technology gap that increases drudgery and post-harvest losses (Theis *et al.,* 2018). Underpinning all these challenges are societal expectations and time constraints from unpaid care work, which creates a 'double burden' that limits the time and energy women can devote to their agricultural enterprises (Njuki *et al.,* 2022).

Table 4.4.1: Constraints faced by respondents

S\N	Constraints	Mean	Std. Deviation
1.	Lack of access to credit loan	3.25	1.042
2.	Limited access to lands	2.49	1.232
3.	Poor access to improved seeds	2.33	0.978
4.	Lack of mechanized tools	2.81	1.223
5.	High cost of labour	2.74	1.163
6.	Poor transportation and storage facilities	2.65	1.087
7.	Gender discrimination	3.23	0.964

Mean > 2.5 = Severe constraints.
Source: Field data, 2025.

4.5 Test of Hypotheses

4.5.1 Hypothesis 1: There is no significant relationship between women's socio-economic characteristics and their participation level.

The hypothesis was tested using two methods, the chi-square analysis and Pearson correlation analysis. Chi-square analysis showing the association between selected socioeconomic characteristics of respondents and the level of participation.

The Chi-square analysis shows that land ownership has a significant relationship with participation level. This implies that women who own or have secure access to land tend to have different (likely higher) levels of participation. Marital status, education and primary occupation were not significantly associated. This result showed a significant relationship leading to the rejection of the null hypothesis. This aligns with theoretical frameworks that posit secure access to key assets like land is a fundamental factor shaping the level and nature of women's agricultural participation (Quisumbing and Pandolfelli, 2010).

Table 4.5.1: The hypothesis was tested using two methods, the chi-square analysis and Pearson correlation analysis

Variable	Chi-square	Df	C	P-value
Marital status	7.3	6	0.249	0.294
Education level	4.221	6	0.647	0.647
Primary occupation	7.966	6	0.260	0.241
Land ownership	11.106	6	0.303	0.085*

*Significant at $P \leq 0.01$; Df = Degree of freedom; C = Contingency value
Source: Field survey, 2025.

Pearson Correlation analysis showing the relationship between selected socioeconomic characteristics and level of participation

The Pearson Correlation reveals that Age, Farm Experience, Household Size and Income all have a significant positive relationship with participation level. This means that as these variables increase, the level of participation also tends to increase. The results showed strong positive relationships leading to a rejection of the null hypothesis. This confirms that greater accumulation of human capital (age, experience) and financial capital (income) is strongly linked to more intensive agricultural involvement, a finding consistent with the broader literature (Doss, 2018).

Table 4.5.1: Pearson Correlation analysis showing the relationship between selected socioeconomic characteristics and level of participation

Variables	R-value	P-value	Decision
Age	0.241	0.011*	S
Farm Experience	0.264	0.005**	S
Household size	0.212	0.026**	S
Income	0.314	0.001**	S

** Significant at P ≤ 0.01 (2 tailed); * Significant at P ≤ 0.05 (2 tailed); NS = Not significant; S = Significant

Source: Field Survey, 2025.

Hypothesis 2: The socioeconomic characteristics of the respondents do not influence their level of participation

The regression result presented on Table 4.5.2 reveals R-squared of 0.193, implying that 19.3% of the total variation in the level of participation could be explained by the independent variables included in the equation. Among all socio-economic variables, income is the only significant predictor ($p = 0.001$). The regression model's significance and the unique predictive power of income led to the rejection of this hypothesis. This underscores the paramount role of financial capital in empowering women to participate more intensively in agriculture, a finding consistent with broader evidence (Doss, 2018).

Table 4.5.2: Multiple Linear Regression analysis showing the influence of socioeconomic characteristics on Participation index among the respondents

Variables	Beta	Std. Error	Beta	t-value	p-value
Age (years)	-0.011	0.009	-0.109	-1.160	0.249
Educational level	-0.39	0.228	-0.019	-0.173	0.863
Farm experience	0.037	0.050	0.086	0.752	.454
Household size	0.101	0.095	0.103	1.070	0.287
Income (‘000)	0.037			3.291	0.001**

**S at $P \leq 0.01$; $F(7, 102) = 3.495$; $p = 0.002$; $R^2 = 0.193$; Adjusted $R^2 = 0.138$.
Source: Field data, 2025.

Hypothesis 3: There is no significant association between types of agricultural activities the respondents are engaged in and their level of participation

There is a significant association between the type of agricultural activity and the participation level for crop farming ($p = 0.001$) and livestock rearing ($p = 0.041$). This means that being engaged in these specific activities is linked to a particular level of participation, unlike poultry, fisheries or agro-processing. This significant result led to the rejection of the hypothesis. This suggests that the core, resources-intensive nature of these activities is inherently linked to different thresholds and level of women farmers involvement compared to other agricultural ventures (Ragasa and Mazunda, 2018).

Table 4.5.3: Chi-square analysis showing the association between the types of agricultural activities engaged in and the level of participation of the respondents

Variable	Chi-square	Df	C	P-value
Crop farming	13.447	2	0.330	0.001**
Livestock	66.403	2	0.235	0.041**
Poultry	2.493	2	0.149	0.288
Fisheries	3.652	2	0.179	0.161
Agro-processing	2.221	2	0.329	0.141

**Significant at $P \leq 0.05$; Df = Degree of freedom; C = Contingency value.
Source: Field data, 2025.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This Chapter gives a summary of the research findings, conclusions and recommendations of the study, the summary briefly gives a description of Chapter one, Two, Three, Four and Five while the conclusion is a concise statement that embodies the main points of the study. Lastly, the recommendation proffered solutions to the problems discussed in the findings.

5.2 Summary of Findings

The aim of the study was to assess the roles of women in agricultural production in Ovia North-East Local Government Area of Edo State. The objectives were to describe the socio-economic characteristics of women involved in agricultural production in the study area, identify the types of agricultural activities that women were involved in the study area, examine the level of participation of women in agricultural production in the study area and identify the challenges faced by women in agricultural production in the study area. The test of hypotheses was also carried out to check the relationship between the socioeconomic characteristics and the level of participation of the respondents, the influence of socioeconomic characteristics of the respondents on their level of participation and the relationship between the different types of agricultural activities that the women were involved in and their level of participation.

From the socio-economic characteristics, the typical women farmers in the study area were in their productive years, with a mean age of 36 years, and likely married (53.6%). A substantial proportion of respondents were literate, with 70% having secondary education or higher, indicating a good capacity to adopt new information and technologies. Economically, these women were not solely dependent on farming; they practiced livelihood diversification as a risk-management strategy, with a majority (66.4%) combining farming with trading or civil service. The average farming experience was 9 years, and they managed households with a mean size of 5 persons. Critically, only 36.4% own the land they farm, with a significant portion relying on family land (30%) or rented land (24.5%), highlighting insecure land tenure. The average monthly income from farming was ₦39,455, with a majority (38.2%) earning above ₦50,000, underscoring that agriculture was a significant source of livelihood.

As regards to the agricultural profile of the respondents, the women were predominantly engaged in crop farming (77.3%), with maize (47.3%) and vegetables (45.5%) being the most cultivated crops. This reflects a strategic focus on a staple cereal for household food security and high-value vegetables for market sales. In animal husbandry, poultry (43.6%) and livestock rearing (42.7%) are common, with goats (32.7%) being the most reared animal due to their manageability and role as a vital asset. A smaller segment is involved in agro-processing (21.8%), adding value to raw produce.

In terms of participation and decision-making, contradicting common stereotypes, women were actively involved across the entire agricultural value chain. Their involvement is highest in planting (70%), followed by transportation/sales (57.3%), harvesting/processing (56.4%), and weeding (51.8%). They commit a substantial amount of time to these activities, with 40% spending 4-6 hours daily on farming, a burden carried alongside domestic responsibilities. A key finding was their high level of autonomy, with the majority (59%) indicating they make major farming decisions independently. Furthermore, 81.8% sell their farm produce, indicating a strong commercial, rather than purely subsistence, orientation. Over half (58.2%) were members of farmers' associations, which facilitates collective action, though access to formal agricultural training was nearly split down the middle (47.3% had access).

Analysis of the factors that significantly hinder women's agricultural productivity revealed that lack of access to credit, gender discrimination, lack of mechanized tools, high cost of labour and poor transportation and storage were the major constraints faced by these women.

The Chi-square analysis shows that land ownership has a significant relationship with participation level. This result showed a significant relationship leading to the rejection of the null hypothesis. However, the Pearson Correlation reveals that Age, Farm Experience, Household Size and Income all have a significant positive relationship with participation level, the results also showed strong positive relationship leading to a rejection of the null hypothesis.

The Multiple Regression Analysis showed a positive and significant relationship between the influence of socio-economic characteristics and the respondent level of participation, income ($p \leq 0.001$) emerged as the single most significant predictor of participation level in the regression analysis, highlighting the paramount importance of financial capital. Moreover, the co-efficient of determination ($R^2 = 0.193$) suggested that income explains only 19.3% of the total variation. The Chi-square analysis revealed that there is a significant association between the type of agricultural activity and the participation level for crop farming ($p = 0.001$) and livestock rearing ($p = 0.041$).

5.3 Conclusion

Based on the findings, women in Ovia North-East Local Government Area are far from being peripheral actors in agriculture, they are its central pillars. They are educated, experienced, commercially driven, and demonstrate significant autonomy in their operations. It was also concluded that women play important roles in ensuring food security. They act as shock absorbers, producers and keepers of the household food. They grow crops, keep animals and spend time to keep the family economic boat afloat. They are into seed sowing, weeding, harvesting, processing, storage, marketing of food produce for the health of the family and the community at large. Despite their lack of access to large land, limited education, credit problems, they still work assiduously for the well-being of the household.

However, this potential remains underutilized due to joint deeply entrenched barriers. The triple challenge of limited financial capital (credit), insecure physical capital (land, tools), and debilitating social capital (gender discrimination) creates a cycle of constraint that limits productivity and perpetuates a high drudgery burden. Following the objectives of the study and the results obtained, the study arrived generally at the conclusion that women participation in farming activities is positive and contributes positively to agricultural production and socio-economic development of Ovia North-East Local Government Area. The findings unequivocally show that empowering these women is not merely a social justice issue but an economic imperative. This assertion notwithstanding, their roles could be enhanced if the constraints they face are addressed by all stakeholders.

5.4 Recommendations

Based on the findings and conclusions, the following recommendations should be made to improve the farming activities of the women in the study area.

1. Financial institutions and government programs should develop and aggressively promote soft-loan schemes and credit facilities with minimal collateral requirements, specifically targeted at women farmers and their cooperatives.
2. Government and traditional authorities should collaborate to implement and enforce laws and policies that protect and promote women's land rights, including rights to inherit and own land.

3. Prioritize the rehabilitation and construction of rural feeder roads to facilitate the transportation of goods to markets.
4. Provide institutional support to strengthen existing women's farmer groups and cooperatives, enhancing their capacity for bulk input purchasing, collective marketing, and negotiating better prices.
5. Increase the number of female extension agents and train all agents on gender-responsive approaches to ensure they effectively meet the needs of women farmers.
6. Provide training and subsidies for the adoption of labor-saving technologies for both farm production and domestic tasks to alleviate the “double burden.”

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APPENDIX: QUESTIONNAIRE
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN, BENIN CITY, NIGERIA

Dear Madam,

I am an undergraduate student of the above named institution and department and I am undertaking a B. Agric research work on **"The Role of Women In Agricultural Production In Ovia North-East Local Government Area, Edo State, Nigeria".** This questionnaire is designed to draw out information on the above topic and study area. The information you provide will be handled with strict confidentiality and the findings will be used solely for academic purpose. Your response will be highly appreciated.

AUDU Salamat Omonigho
Researcher

A. Socioeconomic characteristics

1. Age: (a) Below 20 [ ] (b) 20-30 [ ] (c) 31-40 [ ] (d) 41-50 [ ] (e) 51 and above [ ]

2. Marital Status: (a) Single [ ] (b) Married [ ] (c) Widowed [ ] (d) Divorced [ ]

3. Educational Level: (a) No formal education [ ] (b) Primary [ ] (c) Secondary [ ] (d)Tertiary [ ]

4. Household Size: (a) 1-3 members [ ] (b) 4-6 members [ ] (c) 7-9 members [ ] (d) 10 and above members [ ]

5. Primary Occupation: (a) Farming only [ ] (b) Farming and Trading [ ] (c) Farming and Civil Service [ ] (d) Others, specify ……

6. Years of Farming Experience: (a) Less than 5 years [ ] (b) 5-10 years [ ] (c) 11-15 years [ ] (d) Above 15 years [ ]

7. Land Ownership: (a) Land-owner [] (b) Rented [ ] (c) Family land [ ] (d) No land [ ]

8. Monthly Income (₦): (a) Below 10,000 [] (b) 10,000-30,000 [] (c) 31,000-50,000 [ ] (d) Above 50,000 [ ]

B. Types of agricultural production activities.

1. Which of these agricultural activities are you involved in? (Multiple responses allowed) (a) Crop farming [ ] (b) Livestock rearing [ ] (c) Poultry [ ] (d) Fisheries [ ] (e) Agro-processing [ ]
2. If crop farming, what crops do you cultivate? (Multiple responses allowed) (a) Cassava [ ] (b) Yam [ ] (c) Maize [ ] (d) Vegetables [ ] (e) Plantain [ ] (f) Others specify ……
3. If livestock, which do you rear? (a) Goat [ ] (b) Sheep [ ] (c) Pigs [ ] (d) Cattle [ ] (e) Others, specify……..
4. Do you process agricultural products? (a) Yes [ ] (b) No [ ]
5. What are the roles you perform in your farms? (Multiple responses allowed) (a) Land preparation (slashing, felling, burning) [ ] (b) Planting [ ] (c) Weeding [ ] (d) Application of pesticides\fertilizers [ ] (e) Transporting/sales of farm produce [ ] (f) Marketing/distribution of farm produce [ ] (g) Harvesting/processing [ ] (h) Others specify ……

6. How do you perform these roles? (a) Paid labor [ ] (b) Alone [ ] (c) Use of machines [ ] (d) With spouse [ ] (e) The whole household [ ] (f) Communal labor [ ]

C. Participation in agricultural production.

1. How many hours do you spend daily on farming activities? (a) Less than 2 hours [ ] (b) 2-4 hours [ ] (c) 5-7 hours [ ] (d) Above 7 hours [ ]
2. Who makes decisions about what to plant/rear? (a) By yourself [ ] (b) Husband\male relative [ ] (c) Joint decision [ ] (d) Others ……..
3. What percentage of your household's total food supply comes from your farming activities? (a) Below 25% [ ] (b) 25-50% [ ] (c) 51-75% [ ] (d) Above 75% [ ]
4. Do you sell your farm produce? (a) Yes [ ] (b) No [ ]
5. If Yes, where? (a) Local market [ ] (b) Middlemen [ ] (c) Cooperative sales [ ] (d) Others, specify …..
6. Are you a member of any farmers' association/cooperative? (a) Yes (b) No
7. Do you have access to agricultural training/extension services (a) Yes (b) No [ ]

D: Challenges faced by women in agriculture.

Ranked in order of severity: 1 = Most severe, 2 = Severe, 3 = Moderately severe, 4 = Least severe).

S/No	Constraints	VS	S	MS	LS
1.	Lack of access to credit loan				
2.	Limited access to land reduces participation in agricultural production				
3.	Poor access to improved seeds				
4.	Lack of mechanized tools				
5.	High cost of labour				
6.	Poor transportation and storage facilities				
7.	Gender discrimination				
8.	Lack of access to agricultural training extension services				
9.	Societal expectations and cultural belief				
10.	Time constraints due to household chores and childcare				

Other major challenges not listed above? (Specify)

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