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Gender Disparity in Agricultural Production: Implications for Sustainable Food Security in Imo State

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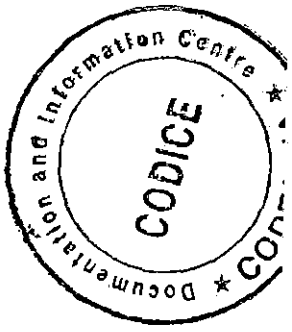
GENDER DISPARITY IN AGRICULTURAL PRODUCTION:

IMPLICATION FOR SUSTAINABLE FOOD SECURITY IN IMO STATE



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GENDER DISPARITY IN AGRICULTURAL PRODUCTION: IMPLICATIONS FOR SUSTAINABLE FOOD SECURITY IN IMO STATE

A DISSERTATION

Submitted to the Department of Sociology
Imo State UniversityOwerri
In partial fulfillment of the requirements for the award of Ph.D.degree in Sociology (Rural Sociology) of the Imo State University Owerri
By

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And

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DEDICATION

This research work is dedicated to God Almighty for His grace upon me and my lovely family for always being there for me.

CERTIFICATION

We certify that this dissertation report is the authentic record of work carried out by Winifred Nwabuaku Kanu (99/Ph.D/2109). School of Post Graduate Studies, Imo State University Owerri.

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ABSTRACT

This study investigated Gender disparity in agricultural production: Implications for sustainable food security in Imo State. It was a survey research which objectives include among others, to (i) examine the demographic profile of the population engaged in food crop production, (ii) to identify the socio-cultural factors that affect food crop production and by extension food security and (iii) examine the disparity in access to production resources between male and female farmers. Five hypotheses were tested. Among these are (i) there is no significant difference in access to production resources between male and female farmers, (ii) there is no significant difference in allocation of farm roles between male and female farmers and (iii) there is no significant difference in quantity of food crop produced by male and female farmers in Imo State. The main instrument for data collection was questionnaire. However, in-depth interview with key informants and Focus Group Discussions were also used. A proportionate random sampling technique was used to select the study locations. Finally a purposive sampling technique was employed to select 18 contact farmers from each circle. A total of 648 respondents were administered questionnaire. At the end a total of 519 questionnaires were adequately completed and returned. Data collected were analyzed with both descriptive and inferential statistics. The hypotheses were tested with inferential statistics (Chi-square, t-test and Spearman correlation model). The analyzed data showed that there were significant differences in roles and access to production resources as well as in the quantity of food crops produced by male and female farmers.Based on the findings, recommendations were made. These include: (i) the interests of both male and female farmers should be factored into planning and implementation of agricultural development policies as well as in delivering services aimed at improving food production, (ii) there isurgent need to address the issues of gender stereo-type, gender discrimination, and gender disparity in the agricultural sector.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Prior to the advent of industrialization and urbanization, agriculture was the main source of livelihood for man. All family members were therefore involved in agricultural production to provide their needs. Then women had, for the most part, been occupied with child rearing and other domestic chores that were compatible with the child rearing role, with the help of other unmarried family members. Such domestic roles included cooking, washing, cleaning, fetching of water and fire wood among others. On the other hand, men were mainly involved in extra-domestic and more challenging activities which included extensive farm work. This probably, engendered men's great social and geographical mobility, as well as their exclusive control over the means of production.

In recent times, the increasing involvement of men in non-agricultural jobs, as well as children's involvement in formal education, has changed the scenario. This development has brought women to the forefront of agriculture, especially food crop production. Despite the preponderance of men in the non-agricultural sector and the enormous contribution of women to agriculture, there exist lopsided

differences between men and women in allocation of roles and access to production resources in agricultural production.

In most societies of Sub-Saharan Africa, there are differences between women and men in rights, roles and opportunities in agricultural production (Jacques-Paul, 1996). Such differences include among others, differences in relation to land, labour, capital, extension services, possibilities for advancement in farm work, as well as differences in roles. For instance, farm inputs such as fertilizers are most times shared only among males. Access to land, labour and credit is also noted to be easier for males than females. Gender disparity in agricultural production is a critical issue in the effort to achieve food security.

Food security is the access by all people at all times to sufficient food for an active and healthy life (World Food Summit 1996; Nwajiuba,2007). Ekumankama (1999) rightly pointed out that a society can be said to be food-secure when its individual households are food-secure. There is a growing consensus that the prospect of achieving household food security lies on women who are traditionally involved in food crop production as well as in providing and managing household foods. Unfortunately, these women, especially those in the rural areas, do not have as much opportunities as their male counterparts to enhance their agricultural production potentials. This may impede their contributions to food security both in the households and the society at large.

Hill (1986) and Guyer (1987), as quoted by Akpata-Ohohe (1999), averred that the weakening of women's access to land, labour and credit potentially threatens the nutritional level not only of the rural household but also of a large proportion of the national population.

1.2 Statement of the Problem

Globally, it is acknowledged that one of the major problems confronting mankind in recent times is food crisis (Mohammed, Achem, Omisore and Abdulquadri,2009). This problem manifests in upward surge in food prices in most countries of the world (Ivanic and Martin, 2008). The former UN Secretary General, Kofi Anan, quoted by Okpanku (2002), stated that as many as 24,000 people die of hunger every day. At the World Food Summit, Nigeria was identified as one of the 82 low-income-food-deficit countries (Mathew-Njoku and Adesope, 2007). This may be attributed to the low production level of the people which in turn results in inadequate purchasing power and consumption of poor quality food.

In Imo State, agriculture remains the main source of livelihood for the majority of the population in rural areas. Over 80% of the population is estimated to be engaged in subsistence farming (ISPEDC, 2006). In recent times, the neglect of the agricultural sector, coupled with industrialization and rural-urban migration, has widened the gap between food supply and demand. This situation is made

worse by the migration of men, who are the major land owners, to the non-agricultural sector. Consequently, women are in recent times, major stakeholders in agriculture.

Studies by Nwankwo and Eboh (1998), and Mathews-Njoku, Adesope and Asiabaka (2007) confirmed that in Imo State, women are at the forefront of agricultural production. This is in addition to their domestic roles as home-makers. In spite of these developments, roles and production resources are sharply divided along gender line. In Imo State, it is commonly known that there is demarcation between what men and women do. For instance women are known to cook, clean the house, wash the cloths as well as care for children, and these roles are performed regularly. Men, on the other hand are known to provide maintenance services such as pruning trees and flowers around the house, mending damaged fence as well as roofs. However these services do not occur regularly. This explains why men, according to BNRCC (2010), "are often able to focus on a particular productive role, and play their multiple roles sequentially. Women, in contrast to men, must often play their roles simultaneously, and balance competing claims on time for each of them".

Similarly, farm roles are most times divided along gender line in Imo State.

For instance men often engage in such tasks as bush clearing, land cultivation and yam staking. On the other hand, women mostly engage in such tasks as planting, weeding and food processing among others.

Furthermore, most times, women depend on their male counterparts for access to production resources and also for instructions before they act. Women basically do not have independent right to some productive resources such as land, water, certain economic trees and assets to generate income. The denial of such rights means women have limited opportunity to increase their production potentials. Studies have revealed that the outputs of women farmers tend to be lower than that of men. This could be associated with the disparity in control of productive resources between men and women which is the crux of this research work.

IFPRI (1995) and Peterman, Behraman, and Quisumbing (2010) pointed out that gender disparity in agricultural production, results in less food being grown, less income being earned, higher levels of poverty, under-nutrition and insecurity. Similarly, Riley (1997) averred that societies that discriminate between men and women pay a significant prize in greater poverty, slower economic growth, and a low quality of life. Such disparity can therefore affect the quantity of food available to households and society at large.

In Imo State, there is evidence of food insecurity. For instance, a 4kg bucket of garri that was sold at N120 about 4 years ago is currently sold at N600. A 2kg tuber of yam that was sold at N150 is now being sold at N400. Much of this problem could be linked to inefficient use of resources emanating from gender disparity in the agricultural sector.

While a number of data (Okere, 1983; Nwankwo and Eboh 1998; Mathew-Njoku, 2007) reveal that there is differential allocation of roles and production resources by gender in Imo state, there is a wide gap in knowledge of the extent of these disparities. Furthermore, previous attempts (Nwaru, 2007; Okoye *et al*, 2009; Ironkwe, 2009) to quantify the differences between male and female farmers have failed to address its implications for achieving the food security objective. Also, a few of these studies have been conducted in Imo state but not in recent times.

In a nutshell, the main gaps in knowledge necessitating this study include those on the extant nature of disparity in roles between male and females, the extent of disparity in access to productive resources between male and female farmers. It is also important to ascertain how these have changed over time and variations within Imo State which is part of the large Igbo ethnic state. Also of importance is the implication of these disparities for achieving food security in the future.

1.3 Research questions

In the bid to fill these gaps in knowledge, the following questions were addressed;

(i). What is the socio-demographic profile of the population engaged in food crop production?

(ii). What are the socio-demographic factors that affect food crop production and by extension food security?

(iii). What are the types and quantities of food crops produced by the male and female farmers in Imo State?

(iv). What is the extant nature of disparity in allocation of roles (domestic and farm) between male and female farmers in Imo State.?

(v). What is the disparity in access to production resources (land, labour and capital) between male and female farmers in Imo state?

(vi). What are the challenges facing food crop production by sex in Imo State?

(vii). What is the level of contribution to household food on the basis of sex?

(viii). Are there variations in access to production resources between male and female farmers when compared by zones.

1.4 Objectives of the study

The broad objective of this study is to examine gender disparity in agricultural production and its implication for sustainable food security in Imo State.
Specifically the study objectives include to:

(i). examine the socio-demographic profile of the population engaged in food crop production.

(ii). identify the socio-demographic factors that affect food crop production and by extension food security.

(iii). identify the types and quantities of food crops produced by the male and female farmers in Imo State.

(iv). examine the extant nature of disparity in allocation of roles (domestic and farm) between male and female farmers in Imo State.

(v). examine the disparity in access to production resources (land, labour and capital) between male and female farmers in Imo state.

(vi). identify the challenges facing food crop production by sex in Imo State.

(vii). ascertain on the basis of sex, the level of contribution to household food.

(viii). examine variations in access to production resources between male and female farmers when compared by zone.

(ix). recommend, based on the findings, appropriate measures that can be taken to reduce gender disparity in agricultural production and promote greater food crop production and related food security.

1.5 Hypotheses

The following hypotheses were tested:

i. There is no significant difference in access to production resources (land, labour and capital) between male and female farmers.
ii. There is no significant difference in allocation of domestic roles between male and female farmers.
iii. There is no significant difference in allocation of farm roles between male and female farmers.
iv. There is no significant relationship between sex and quantity of food crop produced.
v. There is no significant difference in the quantity of food crop produced by the male and female farmers.

1.6 Significance of the study

This study has both academic and practical significance.

Academic Significance

Academically, it is hoped that this study will:

(i). Provide useful data for scholars on the dynamics of gender relations in agricultural production and the implications for achieving food security in Imo State.

(ii). Supply relevant and current data on the practices in agricultural production in the study area along gender line.

Generally it will serve as a reference material for students and other scholars who may be researching on such issues.

Practical significance

Practically, the study will provide timely, relevant and research-based information for extension agents, economic planners, policy makers and other stakeholders in the agricultural sector. This will contribute immensely to the formulation and execution of appropriate gender sensitive agricultural policies and programmes. Such policies and programmes will undoubtedly help in achieving the food security objective which is the first objective of the Millennium Development Goals across the globe.

1.7 Operationalization of concepts

This section is aimed at clarification of some concepts and variables used in this work. The definitions are however contextually based without losing sight of their universal meanings.

Access to production resources: This refers to the actual right to own and or to use production resources. In this context, attention was focused on the actual sources of the three main factors of production resources (land, labor and capital).

Agricultural production: This refers to the act of production as well as management of plants and animals that are useful to man. However for the purpose of this work, attention was on food crop production.

Blocks: These refer to entities designed by ADP administrators for effective extension service delivery. Blocks are further sub-divided into smaller units known as circles.

Capital: For the purpose of this work, this refers to the amount of liquid cash, in naira, available and invested in the farm by the farmers.

Challenges: This refers to the difficulties encountered by the farmers in food crop production.

Contribution to household food: This refers to the amount of household food responsibility undertaken by an individual.

Disparity in access to production resources: This refers to the differences in access to production resources on the basis of sex.

Disparity in roles: This refers to the differences in the work done by men and women both at home and in farm.

Extant nature of disparity: This refers to the existing nature of differences between male and female farmers. This is classified by the researcher as discriminatory where the differences are undesirable and complementary where there is equity. This takes cognizance of the particular tasks performed by male and female farmers at home and in the farm as well as what and how resources were actually accessed by them to produce food crops.

Freehold: This is used here to refer to indirect right to land. That is usufruct right.

Food security: This refers to accessibility of households to sufficient food for an active, healthy and productive life. In this work, quantity of food crop production is used as a proxy to food security.

Gender: This refers to socially ascribed roles, rights, responsibilities and opportunities between men and women in agriculture and particularly in food crop production. In this work, it refers to the act of allocating roles and production resources on the basis of sex.

Gender disparity: This refers to socially constructed differences between men and women in roles, rights, responsibilities, and opportunities that are felt to be undesirable. For the purpose of this work, this refers to the differences between

males and females in allocation of domestic roles, farm roles as well as in access to production resources-land, labour and capital.

Gender roles: In this context it refers to what men and women do both in the farm and at home.

Sustainable food security: This refers to accessibility of households to adequate food continuously for an active and healthy life without jeopardizing future supply.

Socio-demographic profile: This is the status of men and women in terms of sex, age, marital status, level of education, income, farm experience, household size etc.

Sex: This refers to the male and female farmers.

Variations in access to production resources: This refers to the differences that exist in access to production resources when compared across the three agricultural zones.

CHAPTER TWO

LITERATURE REVIEW

2.1.Empirical Literature

2.1.1Agriculture and human life: An overview

In the early stages of life, as human society grew from a simple to a more complex stage, man developed new techniques to conquer nature. Man in the early periods of humanity, lived a foraging life; a period of hunting and gathering. This however, gave way to horticulture and later agriculture which makes more intensive use of production resources such as land, labour and later capital (Kottak, 2004).The transition from food foraging to food producing has changed the very nature of human society. This has encouraged the development of new varieties of plant, animals, production techniques and technologies. Agriculture, which includes the production and management of plants and animals for use by man, is a welcome development. It provides mankind with food and raw materials for industries.

All over the globe, the importance of agriculture in human society cannot be overemphasized. It contributed immensely to the development of 18th century Industrial Revolution in England (Aboyade, 1983). Similarly, successive

developments in Japan, Soviet Union, Egypt, and China were also attributed to the developments in agriculture.

In Nigeria, diverse studies Nnadi, Akwiwu and Onuh (1999); Umebali and Mgbada, 1999) identified agriculture as the main source of livelihood for the majority, source of raw materials for industries as well as a source of foreign exchange earnings for the nation. It provides employment opportunities for individuals and market for industrial products in the sense that farmers purchase industrial goods for both domestic use and production inputs.

In Imo State, agriculture remains the mainstay of the economy (ISPEDC, 2006). Previous studies, Okere, (1983); Mathew-Njoku, Adesopo and Asiabaka ,(2007) have shown that the majority of Imo populace depend on agriculture for livelihood and that majority of this population is engaged in subsistence farming.

2.1.2Agriculture/ Food production in Nigeria.

All over the world, agriculture is very important and provides the basic needs of food, shelter and clothing materials for human beings. Agriculture includes crop production, livestock management and forestry among others. Agricultural products include crops, livestocks and raw materials for industries. Mohammed *et al*(2009) opined that it is the bedrock and foundation of many developed nations. Most of the advanced countries of the world recognize agriculture as the

base of their technological development. Sustained industrial development in these countries had been achieved only after a strong agricultural base was in place (Anyanwu, 1998).

During the colonial period agricultural production was dominated by cash crop production for the industries of the Western countries (Ake, 1981). Export crop production constituted the main focus of the then agricultural activities. Consequently these export crops dominated agricultural production in Nigeria. For instance, the North was known for its groundnut pyramid, cocoa production dominated the South-West, while palm produce was predominant in South-Eastern Nigeria (Okoye, 1981).

After the country's independence, agricultural production was a carryover from the colonial period. Agricultural production (in the post-colonial period) was still characterized by increasing output of export crops to meet the demands of the rapidly expanding western industrial base as well as feeding the rapidly growing local urban needs (Okoye, 1981). Emphasis was thus laid on priorities set by the colonial masters, which benefited only the metropolis to the detriment of the colonies. This dismal situation was exacerbated by the period of oil boom in the 1970's. This period was marked by a total neglect of agriculture in pursuit of "petrodollars".

Adedipe (2006) noted that in Nigeria, prior to the period of industrialization and oil boom, agriculture played an important role in its economic development, as it employed about 70% of Nigerian labour force, accounted for over 70% of the non-oil exports and provided over 90% of the food requirement of the Nigerian population. However, recent studies, CBN (2003); Balogun, (2009); Ironkwe, Asumugha, Ekwe, and Okoye , (2009) show that there is a decline in agricultural productivity. Agricultural productivity has been on the decline in Nigeria over the years, to the extent that its contribution to Gross Domestic Product (GDP) declined from about 90% before independence to about 41% between 2001 and 2005 as revealed by (CBN, 2005). This trend manifests in recent upsurge in the prices of food, raw materials and also increased importation of foods.

In view of this scenario, various measures have been adopted by governments to solve the food problem which also includes massive importation of food. Unfortunately, this has only worsened the situation for local producers. Balogun, (2009:10) posited that the most important requirement for combating the soaring food problem is to adopt measures to significantly boost domestic food production at an annual growth rate that far exceeds population growth rates. This however will require, among other measures, efficient utilization of both human and material resources in Nigeria.

Consequently, emphases have been shifted to the improvement of agricultural production, particularly food crop production. In line with this, various measures, policies and programmes have been put in place in order to boost agricultural production, hence the development of such programmes like Fadama i, ii, and iii programmes, National Programme For Food Security (NPFFS) and Agricultural Development Programme (ADP) among numerous others. Despite all efforts made so far, evidence shows that agricultural productivity still remains low.

Ironically, in rural areas, where the bulk of agricultural production takes place, the majority of the people are identified to be poorly fed. Nevertheless, both rural men and women are largely involved in agricultural production, but with constraints which hinder their production potentials. Studies by IFPRI(2005) and Balogun (2009) identified constraints in access to and control over assets (such as land, labour, credit, technology, etc) to affect production and investment priorities of men and women farmers as well as affect productivity.

2.1.3Problems of agricultural/food production in Nigeria.

Agriculture is expected to provide adequate food supply given its resource potentials in Nigeria. Unfortunately, over the years agriculture has been beset by a number of long standing problems which impede its productivity and

contribution to national aggregate output (Eze, 2002). Its contribution to food production has declined tremendously (Okorji, 2002). Crop production in particular has been characterized by low production (Abdullahi, 2000), hence causing food scarcity. This has been attributed to a number of factors which can be classified as follows:

1 Socio-cultural factors: Agriculture is adversely affected by a number of socio-cultural factors. For instance, in most parts of the country particularly Igboland, the right to land has been an exclusive privilege of men (Uchendu, 1965). Women who constitute major key players lack access to land and other production resources. Olayide, Eweka, and Bello, (1980) observed that apart from the northern part of the country where women own at least half of the lands that are due to men, the land tenure system limits availability to the real farmers, the majority of whom are women. This usually results in small and uneconomic holdings which do not boost agricultural productivity (Igbozurike, 2003).

Akinbode and Afolabi (1993) observed that in some parts of Igboland, women need to gain the consent of their husbands before they join cooperative societies, open bank account and even receive common services. Okorji (2001) has pointed to the problem of sex-stereotyping of crops, farm operations as well as socio-cultural importance attached to certain crops as contributors to agricultural

problem. In addition, some potential agricultural lands also lie unused due to its attachment to some gods of the land and as evil forests.

Among the causative factors is inadequate funding of agriculture. Nigerian agriculture is being funded essentially by private savings. Majority of Nigerian farmers are poor and cannot save enough from their meager income to be able to hire labour and or purchase improved inputs such as pesticides, herbicides, fertilizers and seedlings among others. Eze (2002) was of the view that the slow pace of agricultural production was attributable to, among other factors, the poor financial status of rural farmers which explains the low investment levels and productivity of the people. This supports Olayide *et al* (1980) who stated that small scale farmers constitute 80-98% of all farm holdings in Nigeria.

Most times farmers do not have access to credit facilities. Credit is necessary for capital formation, diversified agricultural production and efficiency in agricultural resource use (Nwaru and Nnadozie, 2005). Ijere and Okorie (1998) added that credit in the hands of farmers will enable them to reap the economies of scale, discover new and better products, create demand where non-existed and provide utilities to satisfy a widening market. Furthermore, credit generates the optimism and determination to venture into new fields. It has the capacity to energize or motivate other factors of production, act as a catalyst that activates

the engine of growth and constitutes the power or key to unlock talents, abilities and opportunities (Boehji and Eidman, 1984). Furthermore Nwakor, Ifenkwe and Azoro (2010) observed that the major constraints to agricultural production include lack of inputs, lack of fund, and high cost of labour.

Related to the above mentioned problems are the allocation of inadequate funds, under-utilization and late release of agricultural funds for the implementation of agricultural policies and projects. Nwosu (1999) posited that the result of all these are that deadlines are never adhered to, targets are hardly met, programmes and projects drag on from year to year.

2. Technological factors: One of the major challenges to agriculture and food security in Nigeria is the underdevelopment of the agricultural sector. This is characterized by its subsistence nature involving the use of hoe and matchet. Okolocha (1993) opined that in Nigeria, the matchet has continued to be the principal tool of cultivation, the other major tool being the hoe. Another study by Mohammed *et al*, (2009) revealed that the factor contributing to such failures is under-utilization of agricultural potentials of the country. Korie (2007) pointed to inadequate use of improved technology as the cause of this abysmal scenario. For instance, agricultural production in Nigeria has been basically rain-fed and use of fertilizer is noted to be alarmingly low.

Studies (IFPRI, 1995; IAC, 2004) have shown that Nigerian agriculture still lacks appropriate agricultural facilities, such as tractors, ploughers, harvesters, silos among others. Moreover, farmers still rely heavily on traditional rain-fed method; hence food production in Nigeria is vulnerable to adverse conditions like climate change and drought. According to available literature, 90% of the food in Africa is grown under rain-fed agriculture (IAC, 2004). This has impact on yield and production level.

Lack of effective linkages between producers and users of agricultural products is another problem which faces agricultural production and food security (IFPRI, 1995). Due to poor feeder roads and inadequate rural road network, much loss is incurred in-between production and consumption. This is exacerbated by inadequate on-farm and off-farm storage facilities. Studies exemplified by Okolocha (1993) and Korie (2007), have also confirmed that Nigerian agriculture is bedeviled by low level of production technology. The premise is that the level of technology prevalent in a given society reflects its capacity to optimize the use of the natural and human resources in production. Hence, it is widely accepted that systematic application of improved technology to agricultural production is the key to increased productivity.

However, studies have shown that the provision of improved technology is not likely to yield positive results unless it is streamlined along gender line.

Increased productivity in Nigeria demands that appropriate technology should be adopted. Appropriate technology is one whose resources or use requirements are locally available (Meier, 1984) and which meets the needs of the people on a sustainable basis (Ayichi, 1995), cited by Nwaru (1999). In this sense, when introducing any new technology it becomes imperative to review the technology capacity of the real farmers. This is to ensure that it is suitable for their local environment both socially and economically to ensure massive adoption as well as minimize wastes.

3. Political factors: Over the years the problem of agriculture and food production has persisted, perhaps, as a result of poor policy implementation in the sector. Nwosu (1999) pointed out that inappropriate and irrelevant policies and programmes for agricultural development is the cause of failures in agricultural sector. He aptly pointed out that the root causes of this are corruption, political instability and uncertainty, among others.

Frequent changes in policies, occasioned by changes in government, lead to abortion of already existing policies, as each new government comes in with its own policies. Sometimes the government does not have the political will to follow enacted policies to their logical conclusions.

4. Environmental factors. The physical environment is another factor that challenges agriculture and thereby rendering efforts made to achieve food security ineffective. Agricultural production is threatened by such environmental factors as soil infertility, drought, climate variations, pests and diseases, soil erosion as well as ecological disaster like oil spillage (Asawalam and Chukwu, 1999). All these pose a great threat to agricultural productivity and food security. Kadurumba[1],Kadurumba[2], Mba, and Ogwulumba, (2010) averred that to enhance food security among the low income farm households in Imo State, the constraints to the development of agriculture must be addressed

2.1.4 The food security situation in Nigeria

Food security can be referred to as access by all people at all times to sufficient food for an active and healthy life (World Food summit, 1996, Nwajiuba, 2007). Food access depends on the ability of households to obtain food from purchase, current production or stocks, or through food transfers from relatives, members of the community, governments, or donors. Furthermore, households have sufficient access to food when they have adequate incomes or other resources to purchase or barter to obtain levels of appropriate foods needed to maintain consumption of an adequate nutrition level (USAID, 1992). This is also

influenced by the aggregate availability of food in the market, market prices, productive inputs and credit (USAID, 1992).

The issue of food security begins and ends at the household level (Hahn, 1989 in Ekumankama, 1999). This is to say that when the individual households are food secure, the nation is certainly food secure. On the other hand, it has been observed that countries associated with national food security have not been able to banish food insecurity at the household and individual levels (Kennedy and Haddad, 1992 quoted by Ekumankama 1999:317). According to a Federal Republic of Nigerian Report(1997), access to food is a problem even when supplies are adequate at the national level.

Over the years, the question of food security has constituted a major challenge for the government, citizens, organizations, policy makers and implementers in both developed and developing countries, including Sub-Saharan Africa. In Nigeria, there is problem of food insecurity and over 70% of the food insecure population lives in the rural areas (Mwaniki, 2003). Food insecurity in Nigeria is evidenced in the recent upsurge in food prices (Balogun, 2009). The rate of growth of food demand, estimated at 3.4% per annum far exceeds that of food supply which is estimated to be 2.2% per annum Lambo, (1987) quoted by Nwajiuba, (2007). FAO (2001) reported that less than 5% of Nigerians have

attained food security status, 65% are semi-food secure, while over 20% are still food insecure. In a similar vein, Sanusi, Badejo, and Yusuf (2007) opined that over 40% of the Nigerian population are severely food insecure.

In spite of the enormous agricultural production potentials, Nigeria, the most populous country in Africa and the eighth largest oil producing nation in the world, has been unable to adequately feed its over 140 million people despite its enormous agricultural production potentials (Balogun, 2009:7). Achieving food security in its totality continues to be a challenge not only for the developing nations but also for the developed world (Mwaniki, 2003:1). The situation in Sub-Saharan Africa, including Nigeria, is particularly threatening the achievement of food security. Nigeria, which was once a major exporter of agricultural commodities, now imports foods which it has the capacity to produce in large quantities (Balogun, 2009). For instance, in 2010 the import bill for rice alone was 1 billion U.S dollars, (Oneworld guide.net, accessed 7 Sept. 2011). Within Nigeria, the Southeast, which includes Imo State, relies on the North for most food items (Nwajiuba, 2007).

Coincidentally, the first objective of the Millennium Development Goals (MDGs) adopted by the United Nation's member countries, including Nigeria, is "to eradicate extreme poverty and hunger". In Nigeria, one of the objectives of

the late President Yar' adua's 7-point Agenda was to achieve food security. As part of the efforts to combat food problem and achieve food security, there has been emphasis on the use of high yielding crops and livestock breeds, use of modern farming techniques, implements and farm inputs. There has also been development of Programmes such as Special Programme for Food Security (SPFS), National Fadama Development Programme (NFDP), the Fertilizer Revolving Fund (FRF) and Root and Tuber Expansion Programme (RTEP), among others. In spite of these efforts the anticipated boost in agriculture and food production remains a mirage. Altieri, Rossett, and Trup (2000) stated that the problem of food insecurity may not really be due to inadequate resources but to a more complex issue of how the available resources are distributed and utilized. They added that misuse, under-use and over-use of resources are among the central factors underlying food crisis. Efficient use of resources therefore has been identified as one of the major steps to achieving increased productivity. This can only be achieved when equal opportunity to access resources is given to both males and females.

2.1.5 The concept of gender and gender disparity.

The term gender refers to socially constructed roles, learned behaviors and expectations associated with males and females, Oakley (1996), quoted in Nwagbara (2003).Gender is not synonymous with the word "women" nor is it

shorthand for women and men (Ezeilo 1990). It is an essential variable for analyzing the roles, rights, responsibilities, opportunities, incentives, benefits, costs and constraints associated with masculinity and feminity. Riquer (2007) posited that gender is a term used to emphasize that sex inequality is not caused by the anatomic and physiological differences that characterize men and women, but rather by the unequal and inequitable treatment socially accorded to them.

In other words, gender is different from the biological term "sex" and, therefore, has socio-cultural connotations. Okau and Owoyemi (2008) posited that gender is the amount of masculinity and feminity found in a person. According to the Food and Agricultural Organization Report (1994), gender is the different socially and culturally constructed roles and relationships which exist between men and women across time, space, as well as among variables of age, caste, class and ethnicity among others.

Gender disparity, therefore, implies different roles that men and women play and also the rights, responsibilities, opportunities, benefits, costs and constraints attached to such roles. Such roles are dynamic in time and place. Differences by gender exist in all human societies, including Africa (Nwagbara 2003). However, in most cases they are skewed in favor of men, and women, especially those in rural areas of sub-Saharan Africa, bear the brunt (Ogbuagu, 2004).

Dauda (2004) concurred that gender disparity persists in favour of men in virtually all areas. Acholonu (2010) posited that in many societies and cultures, gender patterns and changes are mainly in favour of the male child.

2.1.6. Gender differences in agricultural production across cultures.

Available literature IFPRI, (1995); World Bank, (1995) have shown that gender disparities are common in African countries including Nigeria. For instance in Botswana, Lesotho, Namibia and Swaziland, women are under the permanent guardianship of their husbands and have no independent right to manage property (UNDP 1995).In Cameroon, it was reported that less than 10% of the registered land titles were under women (Oneworld guide.net, accessed September 9 2010). In Ethiopia, Guinea Bissau and Kenya, women are not given title to land even though they may have had customary use rights to land prior to registration programs (Jacobs 1991 in Achike 1998). In Lesotho and Swaziland, women cannot enter into contracts or receive bank loans without a male relative (IFPRI 1995).

The International Fund for Agricultural Development (IFAD), quoted in UN News Center, (2010) stated that "although female farmers are the primary contributors to the world's food production and security, they are frequently underestimated and overlooked in development strategies". This is an indication

that differences still exist between men and women across the globe. World Bank, (1989) and FAO, (1994) studies have shown that women are at the forefront of agricultural production in most African countries, Nigeria inclusive, but face various constraints. Mahmood (2000:15) opined that agriculture is the major source of income for over 80% of rural women as 60-80% of all agricultural labour in the country is provided by them. Similarly Bourdanne (1995) noted that women make up half the world's population, yet they receive one tenth of the world's income, provide two-third of the world's working hours and own only one hundredth of the world's property.

These show that in most countries of Sub-Saharan Africa, where agriculture is the mainstay of the economy Nwankwo, (2008), gender disparities in agricultural production still persist. This is in spite of the World Bank (1995) warning that if disparities between men's and women's statuses, access to resources, control of assets and decision making powers persist, sustainable and equitable development would be undermined. In agriculture, men are generally presumed to be chief actors in agricultural production and as such are often the main participants in recipients of agricultural support programmes (Isiocha *et al,* 2010). Contrarily, on the average, African women, like their counterparts in other parts of the world are found to do most work in the area of primary production, animal production and transportation of crops from farm to house, processing,

storage and marketing among others (Yusuf[1],Yusuf[2], and Yusuf[3]2009). However, in a study carried out in the Seychelles by Uzokwe,(2009) it was discovered that there were no gender specific roles, but men were found to be more involved in all food crop production activities except for food processing.

In Nigeria, women provide over 70% of the agricultural labour force, 50% of animal husbandry and related activities, as well as 60% of food processing activities (National Gender Policies, 2006). Studies by Nwankwo and Eboh (1998); Ojo, Esobhawan and Osasogie,(2008) have shown that both rural women and men are involved in agriculture but with differential access to production resources. They also play different roles. The aforementioned studies equally confirmed that women are more intensively involved in agriculture in spite of their disadvantaged position in access to production resources. In addition, within Nigeria, with the exception of the North where women are entitled to inherit half the parcel of land due to a man (Oluwasola 1998), most women who carry out food productions have no independent access to land (Nwagbara 2003). Men control the allocation of these resources and women have only the control of the portion allocated to them for family maintenance (Ikpe, 2004; Dauda, 2004).

Diverse studies by Ekaette and Olowu, (2002); Yusuf *et al*, (2009); Ironkwe *et al*, (2009); Osugiri, Ohajianya, Obasi, Eze, Onuoha, and Lemchi (2010) have revealed that women are the key players in all forms of agricultural practices such as food crop production, cash crop production, livestock keeping, fishery, agro-forestry, food processing as well as marketing among others. Forestry in the past was seen as a male dominated profession but in recent time active role is being played by women in terms of sustainable management of forest products as observed by Kareem *et al* (2009). In spite of this enormous contribution of women to agriculture they are denied access to land, technology, agricultural education services, and other production resources as observed by Dixon (1996). In Eastern part of Nigeria, previous studies showed that men were involved in tedious farm operations like bush clearing on the farm, bush burning, mound making and staking, but these have been taken over by women as a result of rural-urban drift (Yusuf et al 2009). According to Nwankwo (2006:58), the decline in available agricultural male labour made their rural female counterparts assume much responsibility in agriculture. This was equally confirmed by the works of Okere (1983) and Imoh (1998) who observed that in Imo State, women have been found to be more actively involved in agriculture and food production but

they rarely own the means of production especially land. Most times the impression is that women have adequate access to land because they are usually entitled to use their husbands' lands. But in most cases, this entitlement is limited and such right is not guaranteed when the male link is lost either through death, divorce or separation. Women particularly, those living in rural areas who play major roles in managing resources; soil, water, energy and forests, *etc* (Imoh 1998:113); do not have full control over productive resources. Obasi (2005) equally observed that in rural communities, women were engaged in limited economic activities, which were considered secondary to those of men. This, however, is an impediment to enhancing their (women) full potentials in agriculture.

Furthermore, availability of credit plays a pivotal role not only in mobilizing resources but also in using these resources to raise productivity. Unfortunately, women generally do not easily have access to credit; neither do they own land which they can use as collateral security to obtain loans. Most times they receive a disproportionately small share of credit from banking institutions. Those of them in agriculture therefore do not have sufficient funds to purchase improved seeds and to improve the land which they farm (Dauda, 2004:85). This also acts as a barrier to purchasing other improved technologies such as modern implements, fertilizers, herbicides, pesticides, storage facilities among others.

The modernization of agriculture through the application of technologies tends to be masculinized (Ekong and Olowu, 2002). This excludes women from the gains of modern technologies and hence leads to their low productivity. Saito and Spurling (1992) argued that despite the significant roles of female farmers, their level of productivity is constrained because agricultural technology has been designed on the assumption that farm managers are men.

According to FAO (1990), farm women are frequently overlooked as primary food producers and very few are involved as contact farmers. According to this report, extension services tend to be focused on improving export crops which are the domain of male farmers. In comparison to men, women do not have access to the training that would improve their knowledge and skills on food production and agriculture. Training with respect to food crops and small stocks where women farmers dominate receive less attention. Mathew-Njoku (2007) equally observed that women form an active force in agriculture and food production but are more restricted in ownership of means of production. Nwankwo (2008) opined that women and men are engaged in different domestic and agricultural activities with differential access to productive resources and decision making power. Some cash crops such as palm fruits, cocoa, cotton, kola nuts and yam are even classified as men's crops while food crops such as

cassava, cocoyam, maize, and vegetables are regarded as women's crops (World Bank 1986; Njoku, 2003).

Available literature as exemplified by Nwagbara (2003) has shown that excluding men or women from certain productive activities or even denying them access to resources reduces an economy's capacity to increase output. "Losses in output result from inefficiencies in the allocation of production resources between men and women", both within households and in public sectors (World Bank, 2001, cited in Nwagbara 2003:202). Studies (World Bank, 1995; Riley, 1997;) have also shown that societies that discriminate between men and women pay a significant price in greater poverty, slower economic growth, weaker government and a low quality of life.

2.1.7 The gender question in food crop production

Previously, it was obligatory for every member of a farm household to work in the farm. Consequently, men and women used to play complementary roles in food crop production. Haviland (2003) opined that the pre-industrial societies were characterized more by complementarities than sharp divisions. Men raise the crops and women transform them into food. The main crops cultivated were yam, cocoyam, cassava, maize, local beans, okro, melon, and other vegetables. Although the chief crop (yam) was mainly cultivated by men, women played

important role in its labour supply in addition to the production of their own crops. Women were mainly involved in planting, weeding, harvesting, as well as haulage, while men predominated in bush clearing, cultivation, staking and general supervision. Then, the family formed both production and consumption unit. But recently, with the increasing involvement of men in non-agricultural sector and children's involvement in formal education, this scenario has changed. Women have been reported to take the center stage in agriculture, and particularly in food crop production. Women form a significant proportion of the Nigerian population and as a result of industrialization and urbanization, which draw men to urban centers; they form the majority in the rural sector. According to the Census Report, (2006), women constitute 50-51% of the rural population, and agriculture, particularly food crop production is their major occupation. In the words of Synder (1990), cited by Dikwal and Jirgi (2001:26), women constitute a major proportion of the world population and are said to produce 80% of food and other agricultural products in Nigeria.

Women's contribution to agriculture is acknowledged to be propelled by the May 1995 Beijing Conference, where they were encouraged to embark on socio-economic activities and projects that would empower them. Since then, women have been at the forefront of agricultural development in Nigeria and other parts of Africa. According to FAO (1996) report, women produce 60-80% of food in most

developing countries and are responsible for half of the world food production. In a study carried out by Ironkwe (2009) among cassava farmers in Ebonyi state in Nigeria, female farmers were reported to dominate in most of the farm activities. Studies (Okereke, 2009) revealed that women were also overwhelmingly involved in rice production activities such as nursery preparation, weeding, harvesting and processing, while their contributions to land preparation and bird scaring was below average. Their contributions in food production range from land preparation, planting, transplanting, weeding, fertilizer application, harvesting, processing, transporting farm products, preservation, storage, marketing to utilization of the farm products as well as raising domestic animals including poultry, fishery and piggery as observed by Yusuf *et al*, (2009). Women were also reported to put in more hours than men in agricultural production (Mathew-Njoku *et al*, 2007). However, in a study carried out among Seychelles farmers, Uzokwe (2009) reported that there were no gender specific roles or gender stereotypes in food production.

In Imo state, Okere (1983) observed that both men and women took active part in the clearing, burning and cultivation of land. However he was of the view that the bulk of the work was performed by women, the only exception being the clearing of very thick bush, felling of trees or any form of climbing which were exclusively done by men. In a study carried out in Abakaliki, Okorji *et al*(1992)

quoted by Ebii (1998:86) observed that in absolute terms women contributed more than men in all aspects of three crop enterprises undertaken in the area.

2.1.8 Gender and access to production resources

Resources refer to useful information, material or services available to man. These may be broadly categorized as (i) natural resources and (ii) human resources. Natural resources refer to environmental factors such as land, climate, forestry, flora, fauna and water among others. While human resources refer to human wisdom, experience, skill, labour as well as entrepreneurship.

In every human society there is basically a nexus between available resources and the mode of production. It has been rightly observed that land, labour and capital are the principal resources in most rural societies of Africa. Studies by Christensen, Dommen, Horenstein, Pryor, Riley, Shapouri and Steiner (1992) and Barinyima (2002) pointed out that most rural societies of underdeveloped countries like Nigeria are still dependent on local environment and the resources these can offer for their subsistence which include land, labour and capital.

Land is considered to be the basic factor of production. Direct right to this production resource is mostly based on kinship, which mainly considers men. However there are other means through which individuals can have access to farmland which include purchase, lease, pledge, gift as well as freehold (Uchendu, 1965).

Labour is another important production resource of most rural societies. In the absence of or inadequate supply and use of machines, human labour is a vital aspect of agricultural production in rural areas of Imo State. Agriculture in this part of society is largely at subsistence level and therefore employs local techniques and technologies. Farm households' access to farm labour is largely through family labour, hired labour, exchange labour or a combination of two or more of these.

A third type of production resources that is common to rural farmers is capital. The importance of capital to rural crop farmers cannot be overemphasized. Capital acts as a catalyst to agricultural production. With adequate capital at hand, farmers can purchase the necessary farm inputs and improve farm practices (Nwaru and Nnadozie, 2005). There are various ways through which farmers can access capital. These include fund from personal savings, remittances from relative/friends, formal banking institutions (commercial banks and micro-finance banks) and informal banking institutions (Isusu and local money lenders), (Nwajiuba 1999).

2.1.9 Gender and contributions to household food security.

Household food security implies the ability to acquire enough food necessary for meeting household nutritional needs. The important role of women in food security cannot be under estimated. Women, have been significantly linked to food security because of the vital role they play in agricultural production. In Sub-Saharan Africa, it is widely acknowledged that women produce half of the food grown and in Nigeria they are responsible for the basic food crop cultivation (Okpanku, 2002). The prospect of achieving household food security lies largely on women. Ekumankama (1999:317) argues that the food security prospects of individual households depend largely on women who are traditionally responsible for food management in homes. Mutua (1997) averred that the total responsibility for food security and nutrition on a day-to-day basis rests on women, not only because it is not men's traditional role, but because men's priorities are removed from the family feeding system. Households with women heads contribute their whole income to household feeding more than households headed by men (IFPRI, 1995). It is also recorded that in most cases men contribute only half of their income towards family expenditure on food, clothing and repairs etc. Moreover income from staple food crops which are the domain of women is more likely to be spent on food while income from cash crops which are the domain of men is hardly spent on food (Kennedy and Hadad, 1992 in

Ekumankama, 1999). It could also be invested on such luxuries as acquisition of traditional titles and regalia. Women in Nigeria as well as other countries of Africa are responsible for the production of the total staple food in the region (World Bank 1989). In the words of Ekumankama (1999), they account for 70-80% of food production. In the same vein, FRN Report, (1997) confirmed that about 70% to 80% of the economically active population involved in food production in Nigeria is female. Consequently, any influence in the socio-economic status of women will affect the production of food crops (Ardayfio-Schandorf, 1997).

Conclusively, from the foregoing, the critical issue of achieving food security in the country lies in the ability to harness the potentials of women, especially rural women who constitute the majority of food producers. Their contribution to food security is likely to be hampered by their inadequate access to production resources. The potentials of these women can only be fully harnessed when conditions are favourable to them.

2.1.10 Factors that influence the attainment of household food security.

Food security has three main components which include availability, accessibility and adequacy. Availability has to do with the sufficient supply of food; accessibility implies the demand, while adequacy refers to sufficient

supply both in quantity and quality. A household is, therefore, said to be food secure when it has both physical and economic access to adequate food for all its members and when it is not at undue risk of losing such access (IFPRI,1995). Succinctly put, household-level food security is determined by both physical access to food and adequate purchasing power. This therefore implies that to ensure food access, an adequate amount of food must be within the physical reach of vulnerable households, whether through their own production, provision by friends/relatives or through purchase from the market.

Attaining food security is conceived to be influenced by a number of different factors. These include income of households and high population growth (Unamma, 2001). According to Nwajiuba (2002), food taboos could also affect food security of households, because women tend to produce only those foods which they can eat. Mwaniki (2003) asserted that the key to attaining food security lies in increasing the agricultural profitability of smallholder farmers and creating rural off-farm employment opportunities. While adequate food supply at the national level is necessary to satisfy food demand, stable and sustainable access to food at the local level is more vital. This is because food insecurity is known to have occurred “in situations where food was available but not accessible because of erosion of people’s ability to obtain food from their own production, income, assets etc” (Franken and McCaston, 2011). According

to the World Bank (1989), household's access to resources (production and income) for food is a necessary condition for food security. According to USAID (2002) social, institutional and economic factors within a community or household can influence the quality and quantity of available foods and affordability.

2.2 Theoretical Review

2.2.1 Symbolic interactionist theory of gender.

George Herbert Mead (1863-1931), an American pragmatist, philosopher and social psychologist, is one of the major proponents of this theory (Haralambos *et al,* 2004). Symbolic interaction theory of Mead is a micro-level theory which centers on mind, self and society. Mead was of the view that the part is explained in terms of the whole. The social world leads to the development and understanding of the mind and self. For these theorists, the mind is not intracranial but emerges out of social experience. Behaviours are therefore not intrinsic rather they are response to external stimuli.

Mead placed particular importance on the study of language in analyzing the social world. In his view, language allows man to become a self-conscious being. Thus humans have been categorically classified as males and females. Behaviours and expectations are invariably tailored along this line. For the

symbolic interactionists all interactions between individuals involve an exchange of symbols. Another view of the interactionist is that human beings learn to respond appropriately in different situations. They take note of the context in which they find themselves in interpreting behaviours.

This school of thought explains the disparity that exists between genders as a social construct. That is to say that it is a product of social process which emerges out of the relationships or interactions between men and women. In other words, males and females in playing out roles expected of them, respond to the conventional models of the society. The distinctions between males and females are not intrinsic rather they are products of the social order. According to Ritzer (2008:491), the macro-structural patterning of gender inequality is intricately woven through interactions between women and men. Their social world is produced and created by them in interaction. Ikpe, (2003) rightly pointed out that gender inequality or equality depended more on the social group or class to which one belongs. This theory, therefore, postulates that behaviours are not intrinsic; rather they are consequences of social interaction. What one culture defines as masculine may be described by another as feminine, and actors respond in line with the societal definitions even though they possess their personal identity.

2.2.2. Patriarchal theory of gender

Patriarchal theory is indispensable for an analysis of gender inequality. Sylvia Warlby is one of the major proponents of this theory (Haralambos, Holborn and Heald, 2004; Giddens, 2004). Walby was of the view that gender inequality can be analyzed by six patriarchal structures that restrict women and help to maintain male dominance over women. These structures, according to her, restrict the choices that women can make. The structures include:

(a) Paid work, (b) Patriarchal relations within households, (c) Patriarchal culture, (d) Sexuality, (e) Male violence towards women, and (f) the State.

According to Goldberg (1973), patriarchy is inevitable and universal. Gender relations are built on the argument that male dominance is a cultural universal. According to this perspective, Biology provides the explanation for the universality of male dominance. This is more so since in all known cultures males have culturally legitimate right to sub-ordinate females, irrespective of women's informal influence. Male's competitive edge over women is due to the presence of testosterone which allows men occupy the high status, public positions (Hagedorn, 1983). On the other hand, women are more suited for motherhood and home making roles due to their own biological make-up.

2.2.3. Marxist theory of gender.

Karl Marx and his associates like Friedrich Engels, Lewis Coser, and Ralph Darendorf saw capitalism as the principal source of inequality between men and women (Hagedorn 1983). The main idea behind this theory is that females and males are tied to the economic structure in different ways. According to the Marxists, men and women belong to different categories which are usually defined by their relations to means of production.

In the earliest form of human society, there was no sharp division in agricultural production along gender line. These divisions came with capitalist mode of production (production and acquisition of wealth, emergence of private ownership of means of production). The disadvantaged position of women is linked to lack of ownership of means of production which renders them powerless.

2.2.4. The structural functionalist view of gender.

Some of the main proponents of structural functionalist theory include Emile Durkheim, Herbert Spencer, Talcot Parsons and Bales (Hagedorn 1983). These theorists argue that gender inequality rests fundamentally on biological compositions of men and women. They argue that the differences between men

and women emanate from the fact that women bear children and are primarily caretakers, whereas men are active in the public spheres.

They further argue that these differences contribute to the stability and survival of the social system. This distinction goes a long way towards explaining women's economic dependence on men. Men's public activities have traditionally given them privileged access to resources and symbols that enhance their power and provide disproportionate rewards (Hagedorn 1983). On the other hand, women's domestic activities are restricted, which make them dependent on men.

2.2.5.Feminist theory of gender

Feminist theorists contrast markedly with one another in their approach to the explanation of gender inequality. This school of thought is made up of four different groups, namely-Liberal, Socialist, Radical and Black Feminists.

(a). Liberal feminists: These theorists attribute gender inequality to social structures. They draw attention to many separate factors such as work place, educational institutions and media which contribute to inequality between men and women (Giddens, 2004). Consequently, the liberal feminists advocate for equal opportunities through legislation and other democratic means. They seek

to work through the existing system to bring about reforms in a gradual way (Giddens, 2004).

(b). The socialist/marxist feminists: This school of thought developed from the Marxist conflict theory (Giddens, 2004). They argue that material and economic factors are the key to inequality between men and women. They maintained that capitalism intensifies women subordination. Capitalism more than the previous modes of production, concentrates wealth in the hands of men. Men are the wage earners as well as the possessors and inheritors of property. The socialist feminists, therefore, call for an overthrow of the existing system (capitalism) to bring about the much needed equality between men and women. They call for the restructuring of the family to usher in a new system of collective means of carrying out domestic roles (Giddens, 2004).

(c). Radical feminists: Radical feminists see the family institution as the primary source of women's oppression in society. A radical Feminist like Firestone (1971) attributed gender inequality to reproductive processes, what she refers to as sexual oppression. Women are disadvantaged by their biology, menstruation, menopause, child birth and child nurture. At these periods, women are usually dependent on males for survival.

Other radical feminists, however, pointed to male violence against women as central to male superiority. Radical feminists do not believe in the gradual change and reforms, rather they call for a revolutionary change which entails the overthrow of patriarchal order to bring about equality between men and women.

(d). Black feminists: The Black Feminists opposed the generalization of theories about women's subordination. They argue that experiences are not the same for all women, and that there are ethnic variations in gender inequality.

The weakness of Feminist gender theory lies not only in the generalization and diverse views in the explanation of gender inequality but also in the lack of a fixed approach to providing solution to it.

2.2.6Cultural transmission theory

This theory according to Hagedorn (1983) could be mostly associated with the early anthropologists like Boaz (1942); Oakley, (1974); and Mead (1935). The proponents of this theory argue that although biological considerations may contribute to male domination, the cultural values are extremely important in the maintenance of gender inequality. Ortner (1974), as quoted in Scupen and Decorse (2001), pointed out that tribal (small scale) societies adhere to mythologies, beliefs and ideologies that justify male domination and female sub-

ordination. He argues that these mythologies, beliefs and ideologies reinforce sexism, prejudice and discrimination against people based on their sex.

The cultural transmission model sees cultural norms, beliefs and standards of behaviour and thinking as responsible for gender role differentiation. The proponents of this theory see gender roles as cultural rather than biologically determined. They argue that biological characteristics should not be a hindrance to women and men playing certain roles or exercising control over resources. This model argues that culture is the major determinant of what men and women should do or own. For instance, in most parts of African countries, it is noted that there is high incidence of gender partitioning of rights and roles. On the contrary, in Minangkabau of West Sumatra, Indonesia, according to Kottak (2004) “males and females are partners for the common good rather than competitors ruled by self-interest. Here women control land inheritance. Their idea that: one must nurture growth in humans, animals and plants so that society will be strong, yields a unique emphasis on the maternal in daily life.”Thus in Minankabau, matriarchy is the centre, origin and foundation of life, and must not be abused or discriminated upon. Kottak (2004)observed that gender roles vary with environment, economy, adaptive strategy and type of political system.

One of the proponents of cultural transmission theory, Oakley (1974), as quoted in Haralambos *et al* (2004), concluded that gender roles are culturally rather than biologically determined, since comparison between different cultures show that the behaviour and roles of men and women are highly variable. Oakley argues that whatever the biological differences between male and female are, it is the culture of a society that exerts most influence in the creation of masculine and feminine behaviors. Biological compositions are therefore insufficient to account for gender stereotypes and differences.

2.3.Theoretical framework

This work is anchored on the synergy of symbolic interaction theory and cultural transmission theory in explaining the issue at hand. These two theories provide a more comprehensive explanation for gender disparity in agricultural production. This is due mainly to their micro-level attributes. They are adequate in explaining the origin and maintenance of gender inequality in a small scale society like the one under study.

The cultural transmission theory looks at cultural norms, beliefs and standards of behavior and thinking in a particular society. It proposes that, individuals act based on the cultural norms of their society. These cultural norms are handed down from generation to generation through interaction. Symbolic interaction

theory on the other hand looks at the meaning attached by the actors involved in a relationship. Individuals interact and give meaning to their interactions. These meanings however are not inter-cranial, rather they are based on the cultural norms, beliefs and standards of society.

Gender may be a universal phenomenon but in practice it may vary among societies, within societies and among individuals. For instance, in most patriarchal societies it is widely acknowledged that there are clearly designated roles for men and women in marriage. However, in reality this situation can be negotiated and re-negotiated between husband and wife, and the outcomes of the negations will depend on the type of concessions and compromises they are willing to make to each other at any given point (Haralambos and Holbon, 2000). This implies that situations can be changed by the individual actors and that man is not a prisoner to social system.

Thus the theoretical framework provides a more comprehensive approach to the understanding of the disparity in roles and access to production resources on the basis of sex. The framework argues that these disparities can only be understood within the social context in which it exists.

2.4 Summary of Literature Review

Although there is a wide range of sociological literature on gender relations, some of them have theoretical underpinning and many dwelt more on gender and political issues. A number of empirical literature reviewed that studied gender and agricultural production focused on a number of other factors such as the land tenure system which fragments agricultural land, inadequate funding of agricultural sector, under-utilization/ over-utilization of agricultural resources, low level use of modern agricultural technologies/facilities, inadequate market for agricultural products, poor policy implementation and environmental degradation. A few of these studies have focused attention on the issue of disparity in allocation of roles and access to production resources in food crop production. This is to say that there is paucity of empirical data on differential allocation of roles and access to production resources in this locality. This study therefore focused on gender disparity in allocation of roles and access to production resources and the implication for food insecurity in Imo State.

Furthermore, various gender theories reviewed provided useful explanations for understanding gender; however none of these theories addressed the implication of gender differences on food production and by extension food security. This study is an attempt to close such existing gap in knowledge. The various literature reviewed are relevant and rich in their contents and contexts. However, the uniqueness of this research work lies in its scope, period of study and

approach to the study. The scope of this study was designed to cover gender differences among rural crop farmers in Imo State.

On a methodological note, throughout the reviewed studies, some studies mainly adopted a single approach (quantitative method) of data gathering. Others adopted theoretical approach which does not usually involve empirical work. Conversely this study is a survey study which combined both quantitative and qualitative approaches to investigate the phenomenon. This approach has been recognized as the best approach for studying culturally related issues.

A relatively homogenous group of ADP contact farmers were used. One group consisted of male farmers and another was made up of female farmers. The researcher found it more convenient to use this category of farmers with relatively uniform background characteristics. This is as a result of their level of experience and enlightenment through contact with extension workers. It is believed that this quality is an advantage over other farmers for instance in keeping farm records. The specific category of farmers used for the study seems to be the short fall of this study. This therefore suggests a further research with non-contact farmers. Furthermore, while this study investigated differences in access to production resources-land, labour and capital, one interesting, yet relatively unexplored factor of production is entrepreneurship. This was not included considering the fact that the population used comprised of

rural farmers who operate mainly on subsistence level. The researcher therefore suggests a need for further study that will embrace all factors of production.

2.5.Conceptual Framework

In the conceptual framework below, the researcher viewed food crop production as the dependent variable and the disparity between genders in agricultural production as the independent variable.

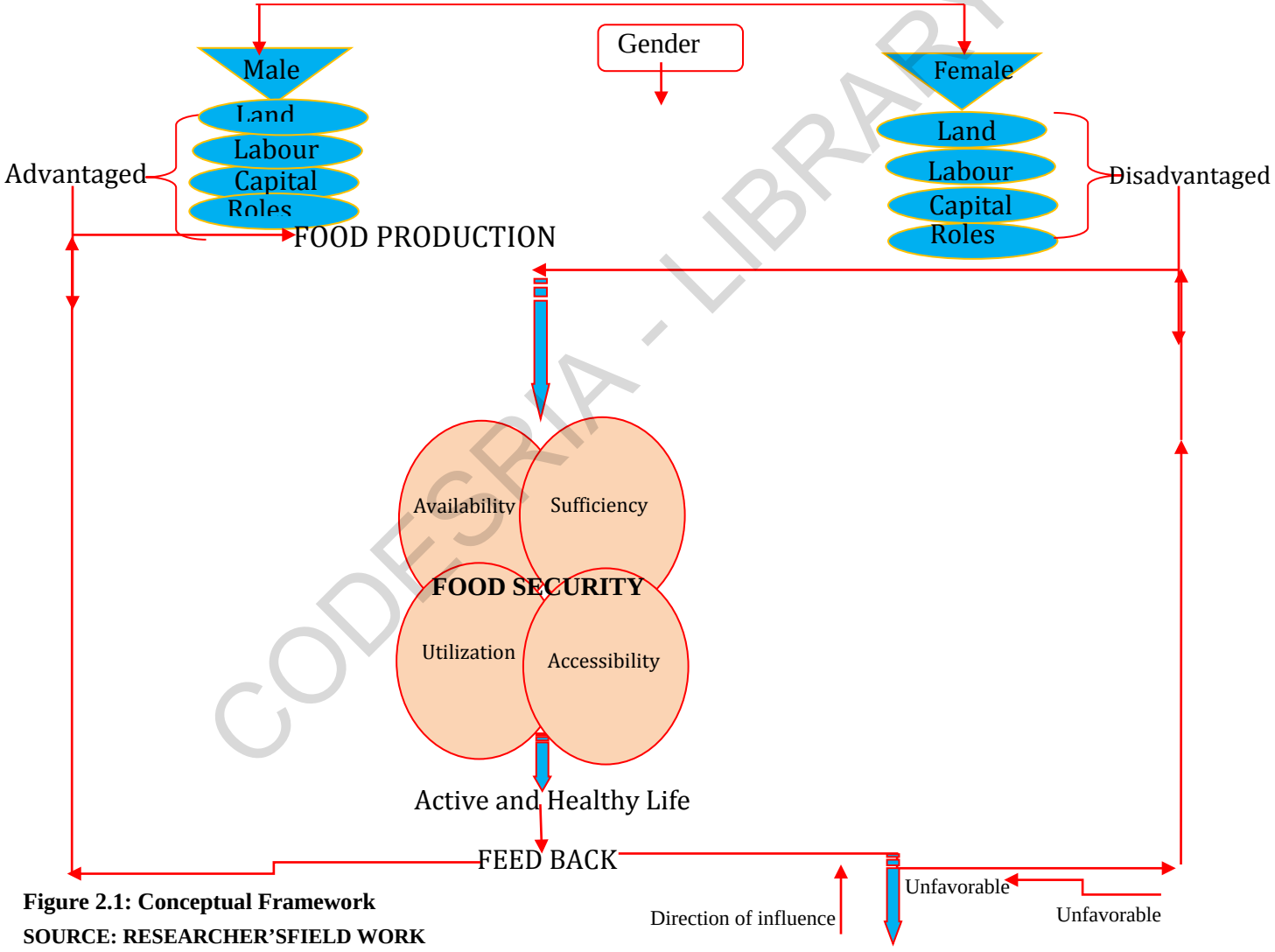


Figure 2.1: Conceptual Framework

SOURCE: RESEARCHER'SFIELD WORK

The main idea behind this framework is that the quantity of food produced can be affected by the disparity in roles and access to production resources by male and female farmers. The quantity of food produced by male and female farmers determines the extent of food security. Similarly, the food security situation affects the quality of life of the food producers which in turn affects the food production capacity of these local farmers.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Scope of the Study:

This study was carried out in Imo State which is one of the five states in the southeast of Nigeria. It lies between latitude 5^0 and 6^0 North and longitude 6^0 and 7^0 East (Okere, 1983). Imo State occupies a total land mass of 5,100sq km and has a population of 3,934,899 (NPC, 2006). It has 27 local government areas grouped into three agricultural zones viz Orlu, Owerri and Okigwe with a total of 303,333 farm families, according to Imo ADP Annual Report, (2010). However, the state is made up of a total of 38 blocks and 326 circles for effective extension service delivery (Imo ADP Annual Report, 2010).

Agriculture is the predominant occupation of the people. The major food crops include yam, cassava, cocoyam, maize, melon, okro, pumpkin and other vegetables. The dominant cash crops include oil palm, cocoa, cashew, kola, and coffee (ISPEDC, 2006). The farmers are mainly subsistence farmers with simple technologies based on matchet and hoe.

The study was limited to the differences in allocation of roles and access to production resources among rural crop farmers in Imo state. The study involved both male and female crop farmers in randomly selected agricultural blocks.

Data were also collected on the socio-demographic profile of the farmers which include age, marital status, family size, farm size, farming experience, level of education, religion, and spouse socio-economic status.

3.2 Research Design:

The study adopted survey research design. A survey design is used when measuring a broad array of characteristics of a population by administering a questionnaire to a sample of members of the population (Aham, 2000). The survey research was adopted because, according to Nwachukwu and Egbulonu (2000), it is suitable for carrying out several investigations of current practices at the same period of time. However, apart from the quantitative method of gathering data, the research also adopted qualitative method (In-depth interview and Focus Group Discussion as well as non-participant observation) to enrich the quantitative data.

3.3: Population

The target population for the study consisted of rural food crop farmers in Imo State. These were male and female farmers who were actively involved in food crop farming. The sample frame was ADP's list of contact farmers across the three agricultural zones, which is ideally estimated to be about 20864 farmers (6,259 males and 14,605 females). According to Imo State ADP record (2011),

Imo State has a total of 38 blocks and 326 circles designed for effective extension services delivery. Nnadi (2011) stated that one block ideally consists of about 7-8 circles, made up of about 64 contact farmers or more where necessary. However, he added that the number of contact farmers has been reduced due to shortage of extension staff. Nevertheless, this population includes not only food crop farmers but also cash crops, livestock, and forestry farmers.

Table 3.1: Population of Imo State farmers by L.G.A, Block and Circle.

AGRIC ZONE	L.G.A	BLOCK	CIRCLE
Owerri	11	18	139
Orlu	10	10	107
Okigwe	6	10	80
Total	27	38	326

Source: Imo State ADP Annual Report, 2011

3.4. Sample size and Sampling technique

The cluster sampling technique was adopted. Cluster sampling gives the advantage of collecting more information that can be used for generalization at lower cost (Simon, 1987). The clusters were Orlu, Owerri and Okigwe agricultural zones. From the clusters, a proportionate random sampling was used to select 6 blocks from Owerri zone, 3 blocks from Orlu zone and 3 blocks from

Okigwe zone. In each of the selected blocks, 3 circles were randomly selected. Each selected circle was further stratified into males and females.

Due to the large size of the population, the Creative Research (2007) formula was used to establish the sample size that would be used for effective distribution of the questionnaire. According to Creative Research (2007), this formula can be used when the population size is unknown. The formula in the implicit form is:

$$SS = Z^{2x}\frac{(P^x)(1-P)}{\pm C^2}$$

Where Z= value (e.g 1.96 for 95% confidence level)

P=% of picking a choice expressed as decimal (.5 used for sample needed)

C= confidence interval or sampling error (= ±4)

X=100%

Substituting

$$SS= \frac{(1.96)^{2x}(.5^x)(1-5)}{\pm 4^2}$$

This formula gave a total of 600. However the researcher added a total of 48 copies of questionnaire to ensure equal distribution across the three agricultural zones. With this, six hundred and forty eighth (648) contact farmers (324 males and 324 females) were purposively selected for the study. The selection was based on the fact that the farmers were active food crop farmers.

A total of five hundred and nineteen (519) contact farmers who adequately completed their questionnaire formed the sample size for this study. This sample size was considered adequate because according to Nwana (2007), a low sample percentage drawn from a population that exhibit little variability can still give reasonably reliable and valid results. The study area (made up of some rural communities in Imo State) is a homogenous society of Igbo indigenes.

Table 3.2: Population sample by Zones, Blocks, circles, contact farmers (male and female) in Imo State.

Agric Zone	**Block**		**Circle**		**Contact Farmers**		**No distributed**	**No returned**
	Total	Sample	Total	Sample	**M**	**F**		
Owerri	18	6	139	18	162	162	324	264
Orlu	10	3	107	9	81	81	162	165
Okigwe	10	3	80	9	81	81	162	162
Total	38	12	326	36	324	324	648	519

Source: Field survey 2012

3.5. Technique for data collection

The major instrument for collecting the primary data for the study was questionnaire. The questionnaire was administered in form of face-to-face interview for uniformity and clarity. A uniform set of structured questionnaire was administered to all the respondents. This was done with the help of trained research assistants (extension workers). A total of eight research assistants (4males and 4 females)who were trained for the purpose were used.

Qualitative method of data collection was also used to obtain useful information. Qualitative methods are best used to facilitate culturally anchored research that otherwise would be unsatisfactorily canvassed with quantitative methods. Against this background, In-depth interviews and Focus Group Discussions (FGDs) were also employed. In-depth interviews were conducted with some key informants such as (community/opinion leaders, family heads, and extension workers) for a detailed understanding of certain issues through persistent questions.

The key informants' interviews were first used to overcome challenges that might arise from the FGD and administration of the questionnaire. This technique gave the researcher the opportunity to explore necessary grounds on the issue at hand. The technique was of great importance in getting information

on the traditional practices in role allocation and resource distribution. One of these key informants (community leader, family head, or extension worker) was interviewed in each circle.

Focus Group Discussions were held with two different groups (males and females) in each block, making a total of 24 FGDs. Each FGD constituted a homogenous group of 6 persons. The homogeneity facilitated the easy flow of discussions among participants. The qualitative data provided an in-depth knowledge and information which was used to enrich the data obtained from the questionnaire.

In addition to the primary sources of data collection, the secondary sources were also used. These include Report Books, Journals, Text Books, and internet facility.

3.6. Validation of the research instrument

In order to validate the study instrument, the researcher first of all matched the items in the questionnaire with the stated objectives. This was to ensure that the objectives were all covered. Secondly the questionnaire and the interview guide were sent to the supervisors and some experts in research who critically scrutinized the items in the interview guide. Their criticisms and advice helped the researcher to modify the instruments. This exercise was to ensure that the instruments were suitable for the realization of the research objectives.

3.7. Reliability of research instrument

After the validation exercise the researcher conducted a pilot survey with the main research instrument. The questionnaire was administered on sixty (30 males and 30 females) farmers from a community (Umu Obom) in Ideato North Local Government Area of Imo State. A test re-test method was used to check the internal consistency of the main research instrument. The result obtained from the test showed a positive result of 0.83. The items in the questionnaire were then considered adequate as a measuring instrument. This exercise also helped the field assistants to be familiar with the instrument and to overcome possible misinterpretation of concepts prior to the main survey.

3.8 Method of data analysis

The data were analyzed with both simple descriptive and inferential statistics. Objectives i, iii, iv, v, vi, vii and viii were analysed by the use of simple descriptive statistics such as percentages, bar charts and pie charts. Objective ii was analysed by the use of multiple regression. The model measured the value of food crop production as a function of the exogenous variables. The model in implicit form $Y= f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, X_{14}, e)$

Y= Value of Food crop production (Naira)

X_1 = Age (years)

X_2 = Marital status (Dummy variable; married = 1, unmarried = 0)

X_3 = Religion (Dummy variable, non-traditional religion =1, traditional religion =0)

X_4 = Educational level (years spent in school)

X_5 = Income (Naira)

X_6 = Farming experience (years)

X_7 = Household size (number of persons)

X_8 = Farm size (Hectares)

X_9 = Membership of cooperative societies (Dummy variable; yes = 0, no = 0)

X_{10} = Other sources of income (amount in Naira)

X_{11} = Spouse level of education (grade obtained in school)

X_{12} = Spouse estimated income (Naira)

X_{13} = Source of land cultivated (Inheritance =1, others = 0)

X_{14} = Amount invested in farm (Naira)

Testing of hypotheses

The hypotheses were tested in the following ways:

Hypotheses i, ii, iii were tested with Chi-square(x^2). The formula in the implicit form is (x^2) $\sum_{i=1}^{k} \left(\frac{X_i - \mu_i}{\sigma_i} \right)^2$

∑=summation sign

ei=Expected Frequency

Oi=Observed Frequency

K=Constant

Hypothesis iv was tested with Spearman correlation model while hypothesis v was tested with t test using SPSS 17 package.

Analysis of the qualitative data placed emphasis on what was actually said by the key informants and FGD participants. The information was content-analyzed to draw out salient issues. There was also verbatim report of the views and perspectives of the discussants which was used to buttress the findings of quantitative data.

3.9 Problems encountered during the study

In the course of this research, the researchers encountered some problems which would have adversely affected the work. However these were well managed at last to avoid adverse effects on the work.

The most challenging limitation was the inability to get the respondents to fill in the questionnaire by themselves. This was due to the low literacy level of some of the farmers. To overcome such challenges the questionnaire was translated to the local language(Igbo) and the researchers equally adopted face-to-face method of filling the questionnaire. This helped to ensure uniformity and to

avoid possible misinterpretation of concepts among research assistants in recording of responses.

Another limitation encountered was the reluctance of some of the farmers to respond or to fill the questionnaire because they were skeptical about the purpose of the study. This field work coincided with the period when the State Government pronounced the fourth tier government in the State. This made some of the farmers think that it was another means of obtaining information that would be used to collect tax from the rural people. The researchers however were able to convince them that it was for academic purposes by showing them the letter from the Thesis supervisor. At last some obliged while some still refused to respond to some of the information required.

Another serious limitation was the absence of some of the farmers at the time of visit. The researchers had to repeat their visits several times to be able to meet the farmers at home. Moreover, in some cases the farmers were not ready to respond at the time of visit because either they were tired after the day's work or they were busy with other domestic chores. All these called for repetitions in collecting the data.

CHAPTER FOUR

DATAPRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This Section deals with the presentation, analysis and interpretation of data. The data for the study were collected between April and June 2012. A total of six hundred and forty eight (648) questionnaires were distributed equally to both male and female farmers and at the end a total of five hundred and nineteen (519) were completed and returned. This gave 80% return rate. About 13.5% of the questionnaires were discarded due to inadequacy of information and inconsistency in the information supplied.

Out of the five hundred and nineteen (519) respondents, two hundred and fifty seven (257) or 49.52% were females and two hundred and sixty two (262) or 50.48% were males. The statics are represented in table 4.1. below.

Table 4.1:The number of questionnaire distributed and number returned

Gender	**No. Distributed**	**No. Returned**	**Percentage**
Male	324	262	50.48
Female	324	257	49.52
Total	648	519	100

Source: **Field Survey 2012**

4.1 Socio-Demographic profile of relevant Respondents

This section highlights the socio-demographic profile of the respondents. This facilitates the assessment and understanding of those characteristics that can have positive or negative impact on farmers' productivity in food crop production.

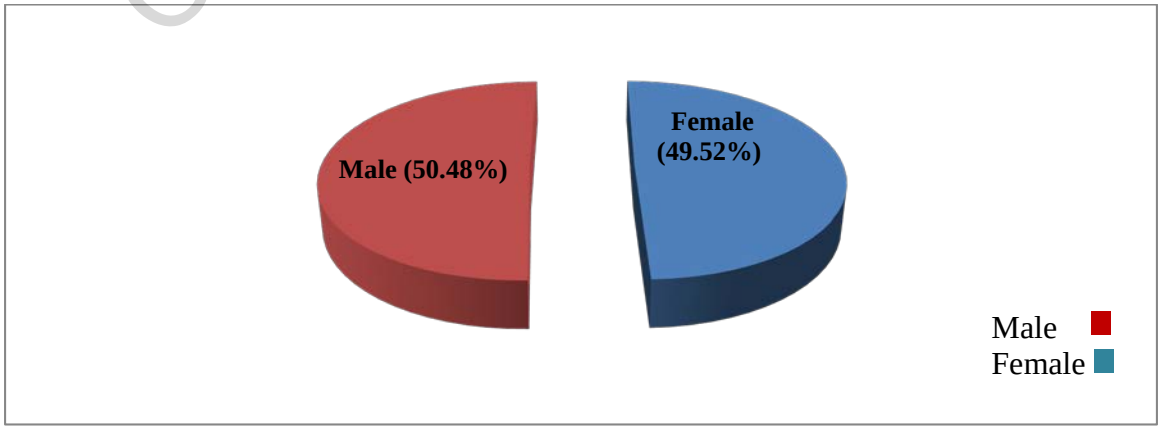
Table 4.2:Frequency distribution of sex of respondents

Gender	Frequency	Percentage
Male	262	50.48
Female	257	49.52
Total	519	100.00

Source: **Field Survey 2012**

Table 4.2 Shows that 50.48% of the respondents were males while 49.52% were females. This represents the number who validly completed and returned their questionnaires.

Figure 4.1: Pie chart representation of sex of respondents



Age is one the socio-demographic factors that influence the productivity of farmers. This is an important determinant of productivity in farming, largely because of the tedious nature of farming in the rural areas of this locality.

Table 4.3: Distribution of Respondents by Age

Age (Years)	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
30 – 45	8 (3.05%)	33 (12.84%)	41(7.90%)
46 - 55	110 (41.98%)	133 (51.75%)	243(46.82%)
56 – 65	106 (40.46%)	80 (31.13%)	186 (35.84%)
66 – 80	38 (14.50%)	11 (4.28%)	49(9.44 %)
Total	262 (100%)	257 (100%)	519 (100%)

Mean age for male = 57.32 years; Mean age for female = 53.07 years

Source: Field Survey 2012

Table 4.3 above shows that, the highest numbers of male, 41.98%, and female, 51.75%, farmers were found in the age bracket of 46-55 years. A good number of the male farmers, 40.46%, were also found in the age bracket of 56-65 years while only, 31.13%, of the female farmers were found in this age bracket. The mean age for the male farmers was 57.32 years while the mean age for the female farmers was 53.07 years. This an indication that older persons rather than the youths were mostly involved in food crop production in this area. However

the majority of both male and female farmers were still in their economic active age. This is likely to favour food production because farmers within this age range are quite experienced and could translate their experience to efficiency and increased productivity as opined by Espig (1992).

Another important socio-demographic characteristic that can affect productivity is marital status. This is so because in relation to the pattern of land tenure system in Igboland, farmland is largely controlled by adult males, majority of whom are married. Access of the married women to farmland in terms of size and quality can therefore be influenced by their relationship with their husband. On the other hand the unmarried are likely to be more disadvantaged in access to land which is a major production resource in food crop production.

Table4.4: Distribution of respondents by marital Status

Marital Status	**Sex of Respondent**		**Total**
	Male Frequency	**Female Frequency**	
Married	235(89.69%)	213 (82.88%)	448(86.32%)
Widow/Widower	21(8.78%)	34(13.23%)	55(10.60%)
Divorced/Separated	4(1.53%)	5(1.95%)	9 (1.73%)
Single	2 (0.76%)	5(1.95%)	7(1.35%)
Total	262 (100%)	257	519(100%)

Source: Field Survey 2012

The result in table 4.4 shows that majority, 86.32%, of the male and female respondents were married. However, the male farmers were more, 89.69%,than the females,82.88%, in this category. Only a few of the respondents,13.68%,were without partners. They were found in the following categories: widow/widower 10.60%, divorce/separated 1.73%and single1.35%. This finding agrees with the finding of Ajero and Ibeawuchi's (2007)study of crop farmers, in which majority of farmers were married. This was expected to have positive impact on food crop production because of the advantage of labour supply from family members; married persons are more likely to pool their resources(land, labour and capital) together to maximize output than single persons. However, the researcher observed that marital status had positive relationship with food crop production for only the male farmers. This is a reflection of inadequate control over production resources by the female farmers; coupled with the many roles the female farmers performed which invariably reduce their productivity.

Figure 4.2: Chart representation of marital status of respondents

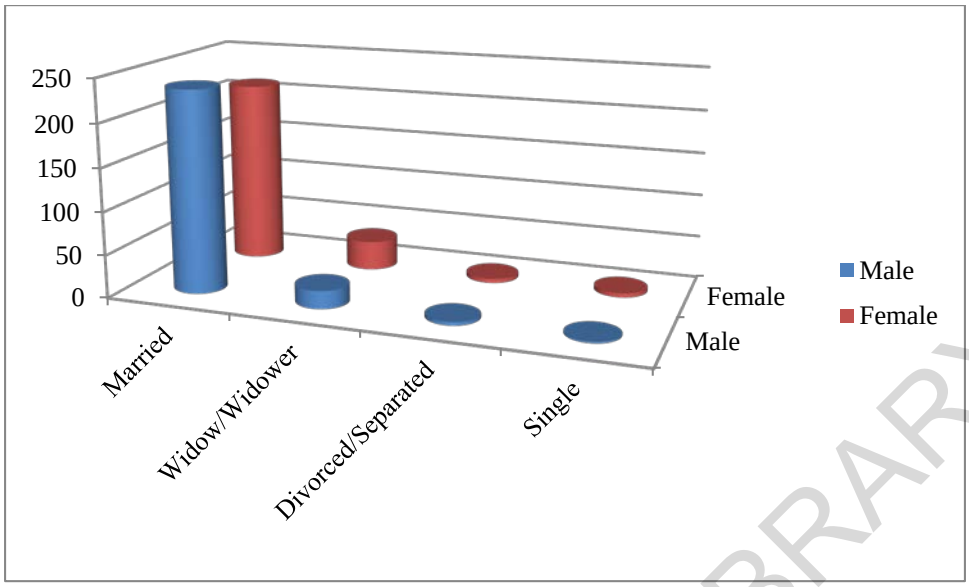


Table 4.5: Distribution of Respondents according to their Religion

Religion	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
Christianity	247(94.3%)	252(98.1%)	499(96.2%)
African Traditional Religion	15(5.7%)	5 (2%)	20(3.9%)
Total	262 (100%)	257 (100%)	519(100%)

Source: Field Survey 2012

Table 4.5 shows that majority 96.2% of the respondents were Christians, while the remaining 3.9% were in the traditional religion. However, more males 5.7% than females 2% belonged to African Traditional Religion. The implication is that those that practice African Traditional Religion are more likely to conform

to traditional norms and practices in food production. Traditional norms and practices are widely believed to be unfavorable to productivity.

The educational status of the respondents is also considered as another determinant of farmer's productivity. This is because educated persons are more exposed and enlightened. As a result they are more likely to access information, adopt innovations as well as enhance their income status through various other reasonable means.

Table 4.6: Distribution of respondents by level of education

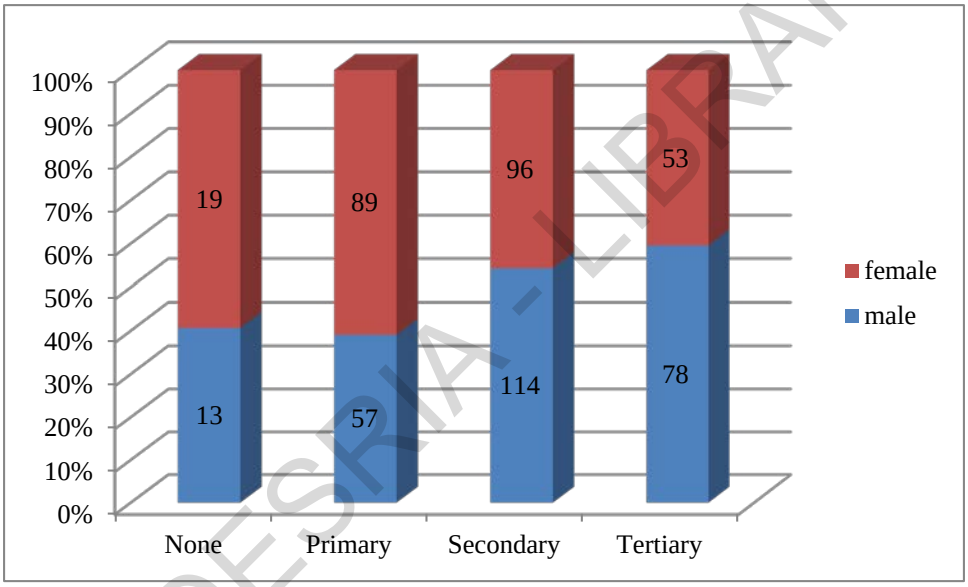
Educational Level	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
None	13 (4.96%)	19 (7.39%)	32 (6.17%)
Primary	57 (21.76%)	89 (34.63%)	146 (28.13%)
Secondary	114 (43.51%)	96 (37.35%)	210 (40.46%)
Tertiary	78 (29.77%)	53(20.62%)	130 (25.05%)
Total	262 (100%)	257 (100%)	519 (100%)

Source:Field Survey 2012

Table 4.6 shows variations in educational level of male and female farmers. Majority, 40.46%, of the respondents attended secondary school while a few, 6.17%, had no formal education. Furthermore, while a few, 29.77%,of the males attended tertiary education a lesser number, 20.62%, of the females got to this level of education. Generally the educational attainment of the male farmers was

higher than that of the females. Literacy was acknowledged by Asiabaka (2002) to play a major role in adoption of agricultural innovations. Formal education can facilitate farmers use of information, increase their knowledge and ability to understand new farm techniques.

Figure 4.3: Bar Chart Representing the Level of Education of the Male and Female Farmers



Non-farm occupation is another vital factor considered here. This is because according to studies (Nwajiuba, 2012), 100% of rural inhabitants have diversified non-farm economic activities. This is largely because income from farm alone is usually not adequate enough for family upkeep.

Table 4.7: Distribution of Respondents by non-farm occupations.

Occupation	Sex of Respondent		
	Male Frequency	Female Frequency	Total
Trading	44(16.8%)	148(57.8%)	192(37%)
Retired civil servants	32(12.2%)	21(8.17%)	53(10.2%)
Artisans	121(46.2%)	31(12.1%)	152(29.3%)
Pastors	3(1.2%)	1(0.4%)	4(0.8%)
Livestock management	40 (15.3%)	25(9.7%)	65 (12.5%)
Food processing	3(1.15%)	16(6.23%)	19(3.66%)
No response	19(7.25%)	15(5.84%)	34(6.55%)
Total	262(100%)	257(100%)	519 (100%)

Source: Field Survey 2012

Table 4.7 shows that trading was the major non-farm occupation engaged in by 37% of the farmers. Specifically, quite a good number, 46.2%, of the male farmers were artisans which include transporters, electricians, welders, and carpenters etc. On the other hand majority, 57.6%, of the female farmers were traders. Some of the farmers were retired civil servants, 10.2%, livestock managers who constituted about 12.5%, food processors, 3.7%, and an insignificant number, 0.8%, were pastors. This result is in consonance with the view of Nwajiuba (2012) who stated that most farmers engage in non-farm activities to supplement their income from farming, because farm income is usually inadequate to sustain a household.

Information on income from non-farm occupation was also collected. This was considered necessary because the level of income from non-farm job can positively or negatively affect the capital input of farmers in food crop production.

Table 4.8: Distribution of respondents according to annual income from non-farm job

Income (N)	Sex of Respondent		
	Male Frequency	Female Frequency	Total
Less than N30,000	197(75.2%)	239(93.%)	436(84.0%)
30,000 – 60,000	63(24.1%)	16(6.2%)	79(15.2%)
Greater than 60, 000	2(0.8%)	2(0,8%)	4(0.8%)
Total	262(100%)	257(100%)	519(100%)

Average income for males = N41, 986.26; Average income for females = N 28,964.59

Source: Field Survey 2012

The result in table 4.8 above shows variations in the annual income of the farmers from non-farm occupation. More female, 93%, than male, 75.2%, farmers were in the lowest income earning occupation of less than N30,000 per annum, while more males, 24.1%, than females,6.2%, earned between N30, 000 and N60,000. An insignificant number of both male and female farmers earned more than N60,000. Generally the situation was worse for the female farmers, as the male farmers earned more than the females. This has a negative implication for food production, because majority of the farmers, especially the females, were low income earners. According to Asiabaka (2009), added income from non-farm occupation increases the ability to purchase necessary farm inputs, but

the researcher observed that this was possible only where the additional was substantial enough.

Table 4.9: Distribution of the Respondents by Farm Experience.

Experience (Years)	Sex of Respondent		
	Male Frequency	Female Frequency	Total
1 – 10	34(13%)	42(16.3%)	76(14.6%)
11 - 20	113(43.1%)	111(43.2%)	224(43.2%)
21 – 30	82(31.3%)	79(30.7%)	161(31.0%)
31 – 40	28(10.7%)	19(7.4%)	47(9.1%)
41- 60	5(1.9%)	6(2.3%)	11(2.1%)
Total	262(100%)	257(100%)	519(100%)

Mean experience for male = 20.97 years; Mean experience for female = 20.22 years

Source: Field Survey 2012

Table 4.9 shows that, 43.2% of the farmers had farming experience of 11 – 20 years. Specifically the average farming experience for the male farmers was 20.97 years and that of the female farmers was 20.22 years. This shows that both male and female farmers had considerable years of farming experience. According to Espig (1992), experience in farming increases the level of efficiency which translates to increased productivity. However, it was observed that farming experience had positive relationship with food production for only the female farmers. This is a reflection of the fact that women are more actively involved and therefore have more knowledge of food crop farming than their male counterparts.

Table 4.10: Distribution of respondents by Household size

Household size (persons)	Sex of Respondent		
	Male Frequency	Female Frequency	Total
1 – 5	144(55%)	145(56.4%)	289(55.7%)
6 - 10	108(41.2%)	111(43.2%)	219(42.2%)
11 – 15	10(3.8%)	1(0.4%)	11(2.1%)
Total	262(100%)	257(100%)	519(100%)

Mean household size for male = 5.58 persons; Mean household size for female = 5.38 persons

Source: Field Survey 2012

Table 4.10 shows little variation in the household size of both groups. From the result the average household sizes for both male and female farmers were 5.58 and 5.38 persons respectively. However, 43.2% of the female farmers had larger household size of6-10 persons while 41.2% of the male farmers belonged to the same category of household size. Only very few, 2.1%, of both male and female farmers had household size of 11-15. However more males, 3.8%, than females, 0.4%, belonged to this category. The implication is that households with a larger pool of labour are likely to be more intensively involved in food crop production given that they have more labour supply. However, it was observed that farmers with smaller household size produced more food crops than those with larger household size and this was the same for both male and female farmers.

Land is considered to be the major factor of production in Igbo society. The size of farmland cultivated by a farmer largely determines the quantity of output that can be realized, all things being equal. The larger the size of farmland: the greater its output. The analysis of the result is shown in the table below.

Table 4.11. Distribution of respondents by total farm size cultivated:

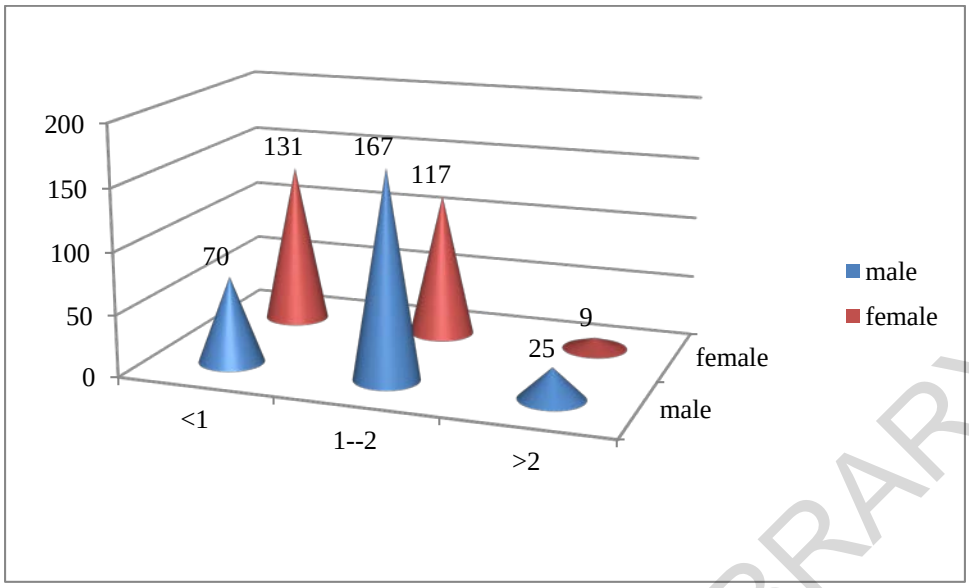
Farm size (Ha)	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total (%)**
Less than 1	70(26.7%)	131(51%)	201(38.7%)
1 – 2	167(63.7%)	117(45.5%)	284(54.7%)
Greater than 2	25(9.5%)	9(3.5%)	34(6.6%)
Total	262(100%)	257(100%)	519(100%)

Mean farm size for male = 1.19 Ha; Mean farm size for female = 0.87 Ha
Source: **Field Survey 2012**

The result in table 4.11 above shows that generally the farmers cultivated small farm size; however the situation was worse for the female farmers. From the result, the average farm size for the male farmers was 1.19 hectares while that of the female farmers was 0.87 hectare. This finding agrees with the World Bank Report (2012) that on average, men's land holdings are larger than that of women.

Previous studies, (Ohajianya and Onyenweaku, 2001; Nwaru 2003; and Nwaru, 2007) reported a positive relationship between farm size and output.

Figure 4. 4: A Chart Representing Farm Size of the Respondents



Investigation into the socio-economic profile of the respondents also considered some aspects of their spouses' socio-economic status. This is widely believed to have some level of influence on the productivity of the respondents. Their educational level, occupation, and monthly income are the attributes of interest.

Table 4.12: Distribution of Respondents by Spouses'Level of Education

Spouse Educational Level	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
None	42(17.9%)	50(23.5%)	92(20.5%)
Primary	69(29.4)	59(27.7%)	128(28.6%)
Secondary	78(33.2%)	98(46.0%)	176(39.3%)
Tertiary	46(19.6%)	6(2.8%)	52(11.6%)
Total	235(100%)	213(100%)	448(100%)

Source: Field Survey 2012

NB:**The result includes only those with partners.**

The results in table 4.12 above shows that majority of the farmers'spouses79.5%were educated, though they were at different levels of education. Only very few, 20.5%, were illiterates. Nweke (2008) opined that spouse educational qualification is important in determining the farmers' productivity. Educated spouses are more likely to be more resourceful than illiterate ones. It was therefore expected that those with educated spouse would be more productive than those with illiterate spouse *ceteri paribus.* However, it was observed that spouse level of education had no significant relationship with food crop production.

Figure 4.5: A Chart Representing spouse Level of education

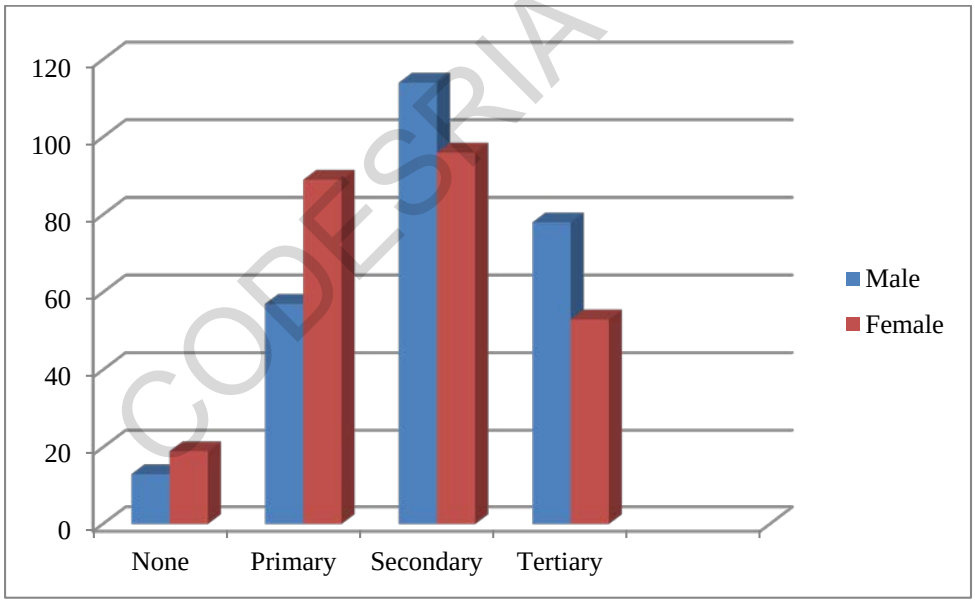


Table 4.13. Distribution of Respondents by Spouse Occupation

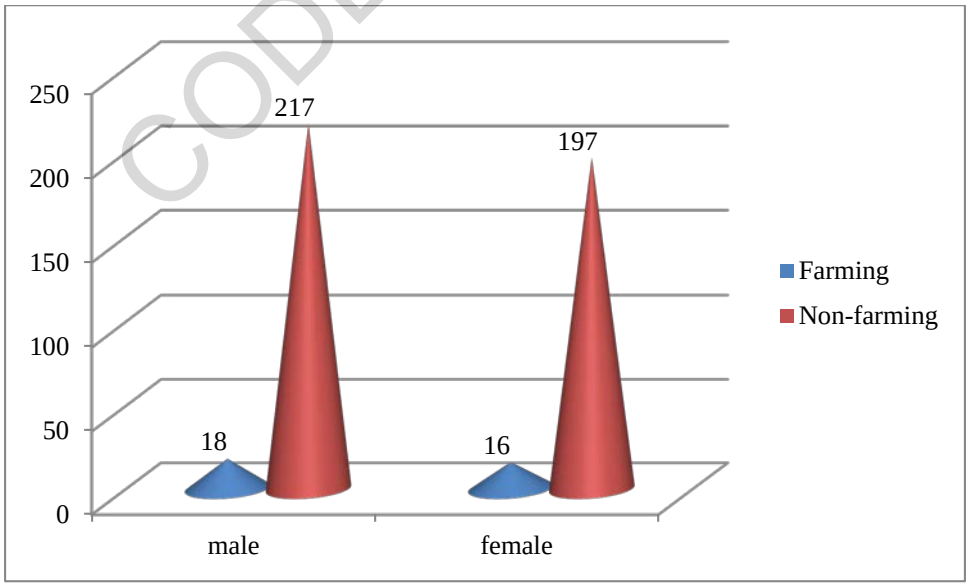
Spouse Occupation	Sex of Respondent		
	Male Frequency(%)	Female Frequency(%)	Percentage
Farming	18(7.7%)	16(7.5%)	34(7.6%)
Non-Farming	217 (92.3%)	197 (92.5%)	485(92.4%)
Total	235(100%)	213(100%)	448(100%)

Source: Field Survey 2012

***NB:* This result includes only those who have partners.**

Probing further into the spouse status, the occupations of the spouses were considered. From the table above, only few of both male and female spouses 7.6% were farmers while majority, 92.4% were non-farmers. The implication is that those who have spouses that are farmers are more likely to pool their resources together to increase their output.

Figure 4.6: A Chart Representing Spouses' Occupation



The monthly income of the spouses was also considered as one of the factors that could affect farmers' productivity. This assumption is based on the fact that the income status of the spouse is likely to influence the farmers' level of financial contribution to household needs and thereby reducing/increasing his/her financial burden. This will in turn determine the farmer's investment ability. The table representing the statistics is presented below.

Table 4.14: Distribution of Respondents by spouse monthly income

Spouse Income (N)	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
Less than N30,000	203(86.4%)	193(90.6%)	396(88.4%)
30,000 – 60,000	26(11.1%)	19(8.9%)	45(10.0%)
Greater than 60, 000	6(2.6%)	1(0.5%)	7(1.6%)
Total	235(100%)	213(100%)	448(100%)

Average spouse income for males = N 30,345.81; Average spouse income for females = N 26,380.14

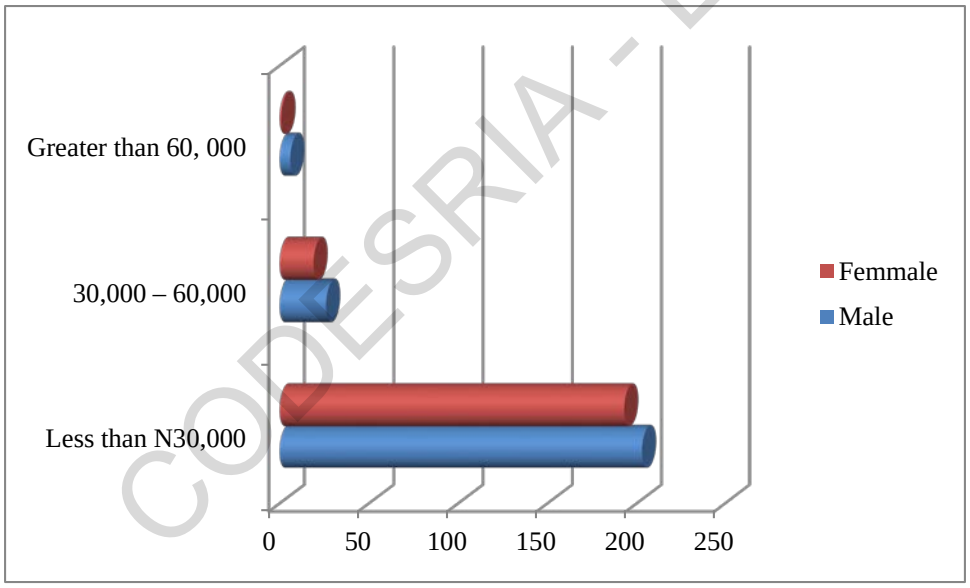
***Source:*Field Survey 2012**

***NB:* This Result includes only those with partners**

An examination of table 4.14 above shows that there was little variation on the income capacity of the farmers' spouses. A good number 88.4% of the

respondents' spouses were low income earners. 10.0% earnedbetweenN30, 000 and N60,000. An insignificant number, 6% and 1% of male and female spouses respectively, earned more than N60,000.This has a negative implication for the farmers' productivity. Those whose spouse earned higher were expected to produce more food than those whose spouse earned lower. However, it was revealed that spouse' income had positive sign but no significant effect on the output of both male and female farmers. This is a reflection of the fact that majority of the spouses were low income earners.

Figure 4.7: A Chart Representing Spouses' Income



Membership of cooperative society is considered to be another effective means to enhance farmers' productivity. Membership of cooperative society is more likely to enhance famers' access to some productive resources such as credit facility, shared labour and shared knowledge on better farm practices.

Table 4.15:Distribution of Respondents by Membership of Cooperative Society

Membership to Cooperative Society	Sex of Respondent		
	Male Frequency	Female Frequency	Total (%)
Yes	112(42.8%)	103(40.1%)	215(41.4%)
No	150(57.3%)	154(59.9%)	304(58.6%)
Total	262(100%)	257(100%)	519(100%).00

Source: **Field Survey 2012**

Table 4.15above shows that generally there was low level of participation of the farmers in cooperative society. However, more males 42.8% than females 40.1% belonged to cooperative society. The implication is that those who belong to cooperatives are more likely to pool their wealth of experience and other resources together to improve their productivity. Members of cooperative society were therefore expected to be more productive than non-members. However, the study revealed that membership of cooperative society had positive relationship with food crop production for only the male farmers. This reflects the fact that the male farmers optimized the benefits of cooperatives more than the female farmers, given that the males had more control over production resources. This equally accounts for the reason while more males than females belonged to cooperatives.

Further investigation through the in-depth interview and Focus Group discussions held at different locations revealed that inability to make monetary

contributions was one of the major reasons for not participating in cooperatives. This was stressed more by the female participants. According to the female participants in the Focus Group Discussion,

If one doesn't have enough money one cannot belong to such groups because they make weekly or monthly contributions

.

Among the males, fear of security of their contributions is the main deterrent. The male participants added that

sometimes it is difficult to recover the loan given to some members. Some dubious people might borrow money and disappear.

4.2 Farm Related Characteristics

Among the farm related characteristics studied was source of farmland. Source of farmland was considered an important determinant of farmers' productivity. Studies have shown that direct right on farmland is better than usufruct right. Moreover it is acknowledged that land improvement and conservation is associated more with directly owned farmland. Moreover the source of farmland can influence the type of crops cultivated. Secure and direct right to farmland is therefore usually considered to be more beneficial than insecure and indirect right to farmland.

Table 4.16: Distribution of Respondents by Sources of Farmland

Method of land acquisition	Sex of Respondent	
	Male Frequency(%)	Female Frequency(%)
Inheritance	173(66.0%)	18(7%)
Lease	29(11.1%)	66(25.7%)
Borrow	17(6.5%)	54(21.0%)
Freehold	27(10.3%)	88(34.2%)
Purchase	20(7.6%)	21(8.2%)

Note:Multiple Response

Source: Field Survey 2012

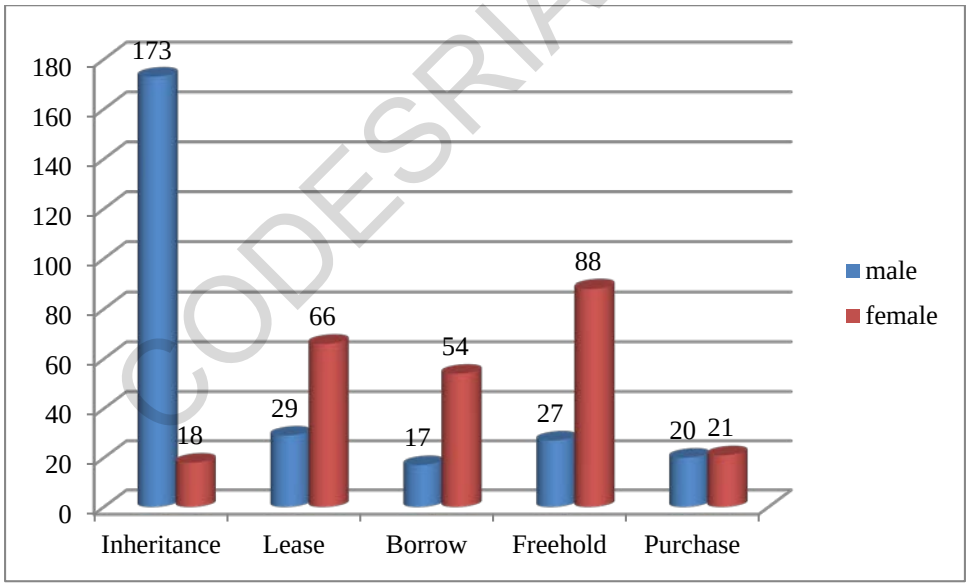
From table 4.16 above, it can be seen that gender disparity is clearly stressed in the sources of farm land. The table shows that majority of the male farmers 66.0% obtained their farmland through inheritance, while majority of the females, 25.7%, got their farmland through freehold (dependent/usufruct right). Few, 11.1%, males farmed on leased land, contrasting with 25.7%of the females who farmed on leased land. More females, 21.0%, than males, 6.5%,farmed on borrowed land. However morefemales,8.2% than males7.6% purchased land. Generally the male farmers were better off than the female farmers because more males 73.7% than females 15.2% had direct right to their farmland. In relation to the cultural milieu of Igbo society, women rarely have inheritance right, but any woman who is financially buoyant can purchase land. The participants in the In-depth interview and FGD elucidated more on this, they generally agreed that;

In Igbo land women do not inherit land but those who are in marriage can use their husband's land and those who have enough money can purchase their own land, but purchasing land is difficult because it is too costly.

This has great implications for those who are out of marriage in one way or the other and this is not likely to favour food production. This is because according to Ekumankama (2009) more women than men are involved in food crop production. The implication is that with constraint in access to farmland, women's numerical strength will not yield any positive result in food crop production. This has negative implication for food security.

The result is represented in the figure 2 below.

Figure 4.8: A Chart Representing Source of Farmland



The result in table 4.17 below shows the dynamics in the main source of capital (fund) invested in farming by the male and female farmers. Credit facility is an

important catalyst for enhancing farmers' productivity. Access to any form of credit facility or loan (formal or informal) will increase investment potential of farmers thus increasing productivity.

Table 4.17: Distribution of Respondents by Sources of Capital

Source of Capital	**Sex of Respondent**	
	Male Frequency (%)	**Female Frequency (%)**
Personal savings	179 (68.3%)	155(60.3%)
Money Lender	10(3.8%)	12 (4.7%)
Relative/Friend	19(7.3%)	27(10.5%)
Bank Loan	25(9.3%)	5(2%)
Isusu	36(13.7%)	65(25.3%)

Note: **Multiple responses**
Source**: Field Survey 2012**

The result in table 4.17 above shows that 68.3 % of the males used personal savings and60.3% of the females belonged to this category. Generally, access to formal credit institution is low, however more males 9.3% than females2% were able to access bank loan. On the other hand more females, 4.7%, than males,3.8%, borrowed money from local money lender. More females 10.5% than males,7.3%,used the money sent to them by relatives/friends. A larger number of females,25.3%, than males,13.7%,accessed money through Isusu (an informal credit institution). The result is in line with the World Bank report (2010) that women generally have lesser access to bank loan than men, even for the same activities.

However, further probing through the FGD and IDI revealed that ignorance, lack of collateral and lack of husband's support were the main reasons for the inability to access formal credit among the female farmers. This was elucidated more by some participants in the FGD held at various locations.

A female participant added that

It is usually not easy for women to access bank loan because we have nothing to present, besides most times men do not permit their wives to borrow money from bank because they (men) will be asked to present collateral on their (women) behalf.

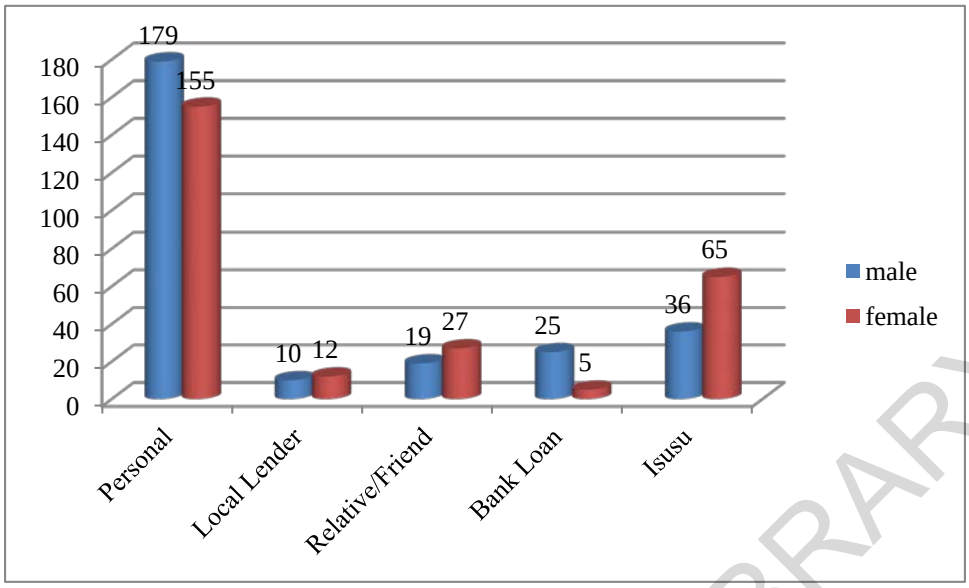
On the part of the male farmers, delay as a result of the bureaucratic processes involved as well as inability to pay back discouraged them. The male participants in FGD stressed that

accessing bank loan is difficult because a lot of processes are involved in it. Before you are through with the processes involved, one farming season would have gone.

Some simply added that

It is risky because you might not be able to pay back because of family responsibility.

Figure 4.9: A Chart Representing Sources of Capital



Another important factor of production is labour. This is considered important because of the dominant system of farming in this locality, which is highly labour intensive, un-mechanized and therefore tedious. Consequently, the source of farm labour can positively or negatively affect farmers' productivity. The analysis is presented below.

Table 4.18: Distribution of Respondents by sources of labour.

Source of labour	**Sex of Respondent**	
	Male Frequency	**Female Frequency**
Family Labour	47(17.9%)	64(24.9%)
Hired Labour	50(19.1%)	27(10.5%)
Exchange Labour	1(0.4%)	3(1.2%)
Family and Hired labor	164(62.6%)	163(63.4%)
Total	**262(100%)**	**257(100%)**

Source: **Field survey 2012**

From table 4.18 above, the farmers varied slightly in access to farm labour. While majority of male,62.6%, and female,63.4%, farmers combined family and hired labour, more females,24.9%,than males, 17.9%, used family labour. On the other hand more males, 19.1%, than females,10.5%, hired labour and an insignificant number of males,0.4%, and females, 1.2%, used exchanged labor.

Probing further for the combination of family and hired labour, the reason was linked to the high cost of labour and shortage of family labour due to engagement of children in school activities. This was acknowledged by both male and female farmers in the FGDs held. One of the female participants stressed that;

The cost of labour is too high, labour is usually hired for those tasks that are tedious like land clearing and tilling. These are the ones that usually give body pain.

Another female participant added;

labour is very expensive, I personally do most of the farm work and sometimes my children help me especially on weekends or sometimes when they are on holidays .

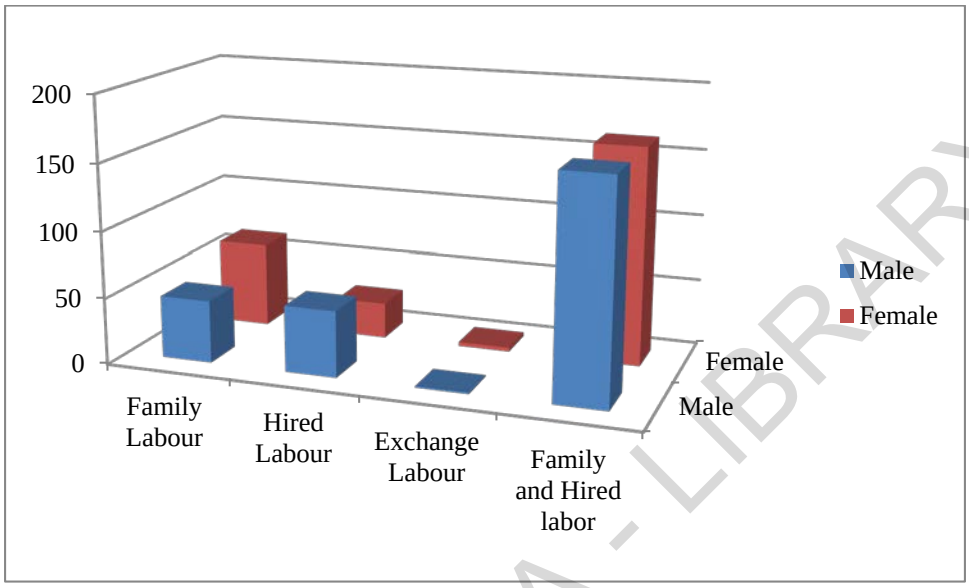
One of the male participants added,

I work with members of my family because the cost of hiring farm labor is high; however i do not always depend on my family for labor because they are not always available due to other engagements. I hire labour when they are not available to assist me.

Sequel to the high cost of labour, the farmers make suboptimal decision and this was stressed more by the female participants in the FGD:

Sometimes I hire labour to do some farm works but when I don't have enough money to hire labour, I cultivate a small portion of land that I can handle and also try to avoid growing those crops that require much labor.

Figure 4.10: A Chart Representing Source of Labour derived from the author's field survey



Another important indicator of farmers' productivity is the amount of capital invested in the farm. The amount of capital invested determines to a large extent output level.

Table 4.19: Distribution of Respondents According to Total Amount Invested in Farming in the previous year.

Amount of Capital invested (N)	**Sex of Respondent**		
	Male Frequency	**Female Frequency**	**Total**
Less than N50,000	54(20.61%)	119(46.30%)	173(33.33%)
50,000 – 100,000	168(64.12%)	129(50.19%)	297(57.23%)
Greater than 100, 000	40(15.27%)	9(3.50%)	49(9.44%)
Total	262(100%)	257(100%)	519(100%)

Average capital invested for males = N 75,529.77; Average capital invested for females = N 54,374.722

Table 4.19: shows that the average capital invested by the male farmers was N75529.77, while the average amount invested by the female farmers was N54374.22. This shows that the male farmers invested more than the female farmers farming last year. This could be attributed to the better access of the male farmers to sources of income. The male farmers are therefore expected to produce more food crop than their female counterpart since they invested more.

This issue was further highlighted by the women during the FGDs at various locations.

They stressed

that men have more access to and control over means of generating income that can be used for farming. A man can decide to lease part of his farmland to raise money or can generate income by sales from livestock and cash crops like palm fruits, kolanut ,coconut and breadfruits which are scarcely within the control of women.

4.3aSocio-demographic Factors that Affect Food Crop Production for Female Farmers

In order to determine the socio-demographic factors that actually affected food crop production among female farmers, a multiple regression analysis was done in four functional forms (linear, semi log, double log, and exponential forms). Based on the statistical significance of the coefficients and the goodness of fit, the semi log function was chosen as the lead equation. The semi log function

was chosen because it has the highest number of significant variables (six variables), it has the highest R^2 (0.636) value and a highly significant F-ratio value (7.472). The adjusted (R^{-2}) was found to be 0.613 (61.3%). This is an indication that 61.3% of the variation in food production was explained by the explanatory variables (socio-demographic factors). The f-ratio which determines the overall significance of the regression is highly significant at 1% level. This explains the significance of the goodness of fit of this model suggesting that the model has a high explanatory power.

Table 4.20 Multiple Regression Estimates of factors that affect food crop production among the Female farmers

Model				T	Sig.
Variable	Coefficients	Std. Error	B	Prob Level
(Constant)	-422260.646	261318.289	-1.616	.108
Age	-13123.782	49743.415	-.264	.792
Marital status	-58170.949*	35344.336	-1.667	.100
Religion	-127527.281	77689.506	-1.641	.103
Education	-27132.413*	14519.912	-1.869	.064
Income	-8557.827	9656.720	-.886	.377
Farming experience	198732.87***	13392.730	14.840	.000
Household size	-36460.873**	17684.731	-2.062	.041
Farm size	12561.025**	5977.377	2.101	.037
Membership to cooperative	-7721.181	12212.567	-.632	.528
Spouse education	5043.973	16586.596	.304	.761
Spouse income	7954.864	8265.147	.962	.337
Spouse occupation	25615.123	22572.154	1.135	.258
Source of land	-18980.630	12372.147	-1.534	.127
Amount invested	85430.989***	12765.025	6.693	.000

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F-ratio
1	.797	.636	.613	75784.52969	1.982	7.472***

Computer Output of the Result of the analysis derived from the field data
*****Significant at1% level**
****Significant at 5% level**
***Significant at 10% level**

Marital Status of female farmers (X_2) was found to be negatively related to food production. This relationship is statistically significant at 10% level.

This implies that married women farmers produced less food than their unmarried counterparts. This contradicts the *a priori* expectation. The reason for this could be that the unmarried women farmers were mainly younger women who were able bodied, stronger, more active, and had less family responsibilities, while the married ones may have passed their active age or were less productive due to family responsibilities .

The educational level of the female farmers (X_4) was found to be significant and negatively related to food crop production. This relationship is statistically significant at the 10% level.

This implies that the less educated women farmers produced more food than the more educated ones. This is not in line with the *apriori* expectation but supports the findings of Mathew-Njoku *et al* (2007) that education negatively correlated with crop production. The reason could be that the more educated farmers may have not been fully interested in food crop production as a result of their engagement in the pursuit of non-farm jobs which they might find more lucrative and less strenuous.

Farming experience (X_6) was positively related to food production of women farmers.This relationship is significant at 1% level of probability.This result

supports that of Onyenweaku and Nwaru (2005) in their study of food crop farmers in Imo State. This implies that the more experienced women farmers produced more food crops than the less experienced women farmers. Experience is related to the knowledge one has about a business in terms of the number of years one has put in.

The household size of women farmers (X_7) was found to be significant and negatively related to the food production. This relationship is statistically significant at 5% level. This is not consistent with the *a priori* expectation but is in line with Ironkwe *et al* (2009).This implies that the female farmers with large household size produced less food than the female farmers with small household size. The reason could be that households with large families might have spent more money in family upkeep at the expense of investment on food crop production and equally could not make maximal use of family labour as a result of other engagements such as schooling by family members.

Farm size (X_8) was positively related to food production. This relationship is significant at 5% level of probability. This implies that the female farmers who had cultivated larger farms produced more food than their counterparts who cultivated smaller farms. Large farm size is associated with greater wealth and greater productivity. It was revealed that amount of capital available determines to a great extent the size of farm cultivated, more capital encourages larger farm

size. Therefore food production usually increases with increase in farm size. This is in line with Ohajianya and Onyenweaku, (2001), Nwaru (2003) and Nwaru(2007) who reported a positive relationship between farm size and output. It was concurred by the female participants in the FGDs held at various locations that availability of capital is the major determinant of size of farmland cultivated. They stressed that;

with sufficient fund one can acquire more land assuming she does not have enough, purchase other necessary inputs and be able to hire labour.

Amount of capital invested (X_{14}) was also found to be positively related to food production among female farmers. This relationship is significant at 1% level of probability. This implies that women farmers who invested more money produced more food than their counterparts who invested less. Higher investment increases resources of farmers and their ability to meet transaction costs associated with the various agricultural operations they might want to take. With more financial resources at their disposal, farmers are more likely to purchase the necessary farm inputs and enhance their management practices. This finding corroborated with Okoronkwo, Okelola and Nwagwu (2009) who observed that capital investment were positively related to food crop production.

The coefficient of age was negatively related to food production among the female farmers. This implies that food crop production decreased with increase

in age. The finding is consistent with Espig (1992) who found that productivity decreased with advancement in age. This is more so because the farmers in this locality still operate the traditional method of using hoe, matchet and digger.

Membership of cooperative society among the female farmers had negative relationship with food crop production. This implies that food crop production decreased with increase in membership of cooperative society among the female farmers. This is not in line with *a priori* expectation and equally disagrees with Mathew-Njoku *et al* (2007) who found that membership of cooperative society had positive relationship with food crop production among female farmers. The negative relationship of food crop production with membership of cooperative society is a reflection of lack of control over the resources that will enable the farmers to reap the benefits that accrue from cooperatives. It was revealed from the Focus Group Discussions held that the cooperatives that exist are self-sponsored and that benefits are shared according to the amount of contribution made by the individual.

The spouses' socio-economic characteristics such as type of occupation, level of education, and level of income had positive signs but the effects were not significant because very few were involved. This implies that if these characteristics are properly harnessed can encourage farmers' productivity.

4.3b.Socio-Demographic Factors that affect Food Crop Production among the Male Farmers

In order to determine the socio-demographic factors that affect food crop production for male farmers, a multiple regression analysis was done in four functional forms (linear, semi log, double log, and exponential forms). Based on the statistical significance of the coefficients and the goodness of fit, the double log function was chosen as the lead equation. The double log function was chosen because it has the highest number of significant variables (seven variables), it has the highest R^2 (0.685) value and a highly significant F-ratio value (3.258).

The adjusted (R^{-2}) was found to be 0.655 (65.5%). This is an indication that 65.5% of the variation in food production was explained by the explanatory variables (socio-demographic factors). The f-ratio which determines the overall significance of the regression is highly significant at 1% level. This explains the significance of the goodness of fit of this model suggesting that the model has a high explanatory power.

Table 4.21 Multiple Regression Estimates of factors that affect food crop production among the Male Farmers.

Model				T	Sig.	
	Variable	Coefficients	Std. Error	B	Prob Level	
1	(Constant)	14.970	1.763	8.491	.000	
	Age	-.497*	.286	-1.735	.084	
	Marital status	.430**	.169	2.541	.012	
	Religion	.237	.188	1.261	.209	
	Education	.048	.097	.490	.625	
	Income	-.251***	.081	-3.096	.002	
	Farming experience	.086	.083	1.044	.298	
	Household size	.041	.089	.463	.644	
	Farm size	.265***	.073	3.607	.000	
	Membership to cooperative	.208***	.074	2.797	.006	
	Spouse education	-.109	.088	-1.241	.216	
	Spouse income	.014	.028	.486	.628	
	Spouse occupation	.213*	.117	1.828	.069	
	Source of land	-.050	.080	-.631	.529	
	Amount invested	.110***	.008	13.880	.000	
	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F-ratio
	.828	.685	.655	.48698	1.999	3.258***

Computer Output of the Regression Result
*****Significant at the 1% level**
****Significant at 5% level**
***Significant at the 10% level**

Age of the male farmers (X_1) was found to be negatively related to food production. This relationship is statistically significant at the 10% level.

This implies that the younger male farmers produced more food than their older counterparts. This agrees with Mbah (2011) who observed that output declines with advancement in age. The reason may be that the younger male farmers were in their economic active and productive age and must have applied their strength to the farm enterprise.

Marital Status of male farmers (X_2) was found to be positively related to food production. This relationship is statistically significant at the 5% level.

This implies that the married male farmers produced more food than their unmarried counterparts. This is in line with the *a priori* expectation but disagrees with the findings of Mbah (2011) who found that marital status had negative implication with output. The reason for the positive effect here could be that the married male farmers who engaged in food crop production must have used the pool of labour in their household to accomplish many agricultural tasks. This implies that they got assistance from their wife and children. It was gathered from the Focus Group Discussions held that men are more likely to mobilize members of their households, including their wives to assist in the farm more than their wives can do. This is a reflection of male superiority inherent in Igbo society.

Income level of the male farmers (X_5) was found to be significant and negatively related to food crop production. This effect is significant at 1% level. This implies that the less income male farmers produced more food crops than their higher income counterparts. However the negative relationship was found to be significant because majority 75.2% of the male farmers were in the low income group. This contradicts the *a priori* expectation. The reason could be that the

more income male farmers may have diverted their income to the development of non-farm economic activities as a way to diversify while the less income ones concentrated their income on farming enterprise.

Farm size (X_8) positively related to food production. This relationship is significant at 1% level of probability. This implies that the male farmers who cultivated larger farms produced more food than their counterparts with less cultivated farms. This is in line with the *a priori* expectation and equally supports the finding of Ironkwe *et al* (2009) who reported positive relationship of output with farm size. Farm size is associated with greater wealth; therefore food production increases with increasing farm size.

Membership of cooperative societies (X_9) had a positive and significant coefficient with food crop production. This relationship is significant at 1% level of probability. This means that the male farmers who were co-operators produced more food crops than their counterparts who were not co-operators. This supports the *a priori* expectation but disagrees with the finding of Mbah (2011) who rather reported negative relationship of membership of cooperative society with output. The reason for the positive relationship of cooperatives with increase in output could be because farmers who were co-operators pooled their resources for mutual economic benefits. This was not the case with the female

farmers who had little or no control over production resources that could enhance their participation benefits.

Spouse occupation (X_{12}) had a positive and significant coefficient with food production. This relationship is significant at1% level of probability. This implies that the male farmers whose spouses were farmers produced more food than those whose spouses were non-farmers. The reason could be that there was great support from these spouses to their husbands in carrying out farm tasks. This goes further to substantiate the result of the effect of marital status on food production for male farmers.

Amount of capital invested (X_{14}) was found to be positively related to food production. This relationship is significant at 1% level of probability.

This implies that the male farmers who invested more money produced more food than their counterparts who invested less. Higher investment increases resources of farmers and their ability to meet transaction costs associated with the various agricultural operations they might want to take. With more financial and other resources at their disposal farmers are more likely to purchase the necessary farm inputs and improve their management practices.

4.4 The Types and Quantities of crops cultivated by the farmers

In most rural areas of Imo state, mix-cropping is the commonest farming system adopted by farmers. This could be attributed to the scarcity of land in the area.

Farmers grow variety of crops which mainly include yam, cassava, maize, cocoyam, melon, and vegetables. However, other food crops grown by farmers include rice, plantain, local beans, and groundnut, but these are not as common as those mentioned above, probably because they are environment sensitive crops and therefore do not thrive well in all types of soil . Against this background the commonest crops grown by most farmers are enlisted here.

Table 4.22: Distribution of Respondents by Types of crops Cultivated. The analysis is presented in the table below.

Crops	Sex of Respondent	
	Male	Female
	Freq(%)	Freq (%)
Cassava	192(73.3%)	256(99.6%)
Yam	233(88.9%)	40(15.6%)
Maize	85(32.4%)	191(74.3%)
Cocoyam	22(8.4%)	66(25.7%)
Melon	50(19.1%)	93(36.2%)
Vegetable	32(12.2%)	56(21.8%)
Okra	35(13.4%)	37(14.4%)
Pepper	16(6.1%)	53(20.6%)

Source:Field Survey 2012

Table 4.22 above presents the types of crops cultivated by the male and female farmers. The table reveals that majority 88.9% of the male farmers cultivated yam, 73.3% cultivated cassava, and about 32.4% cultivated maize. Insignificant

numbers 19.1%, 13.4%, 12.2%, 8.4%, and 6. %1 of male farmers cultivated melon, okra, vegetable, cocoyam, and pepper respectively.

On the other hand, majority 99.6% of the female farmers cultivated cassava, 74.3% cultivated maize and 36.2% cultivated melon. The table also shows that cocoyam, vegetable, pepper, yam, and okra were cultivated by 25.7%, 21.8%, 20.6%, 15.6% and 13.4% of the female farmers respectively. It can therefore be inferred from the study that the female farmers were more actively involved in food crop production than the males. The lower level of involvement of males in other food crops was linked to the sex stereotype attached to the crops as well as the low yield value of these crops. Apart from yam, which is regarded as a male crop, others are known in this area as female crops. This was further illuminated by both male and female participants in the In-depth interviews and Focus Group Discussions, who collectively agreed that food crops are mainly cultivated by women.

A male participant in the FGD added that:

I grow only yam and the remaining crops are usually grown by my wife. My interest is only on yam. Other crops are women's crops. Apart from cassava, they do not generate adequate income.

Curiously, the researcher probed further for situations whereby the farmer is a widower or unmarried, a male participant added that:

In such situation the male farmer may add other food crops to his farm but in small quantities just for family consumption.

A female participant also added that:

even in jointly owned farms men's interests are usually on yam which they sell and most times leave the damaged ones for family consumption. But women grow various other crops mainly for household feeding.

The greater value accorded yam can also be explained by its importance for the traditional festival of Igbo people (new yam festival), which marks the beginning of every harvesting season and where men display their production capacity.

A traditional chief in one of the In-depth Interviews stressed that;

Yam is known as the king of all crops in Igboland. Even when a man is not interested in farming, as long as he resides in the rural area he would want to cultivate yam, otherwise he will not have anything to celebrate during new yam festival.

Fig 4.11: Chart representing types of food crop grown by the farmers

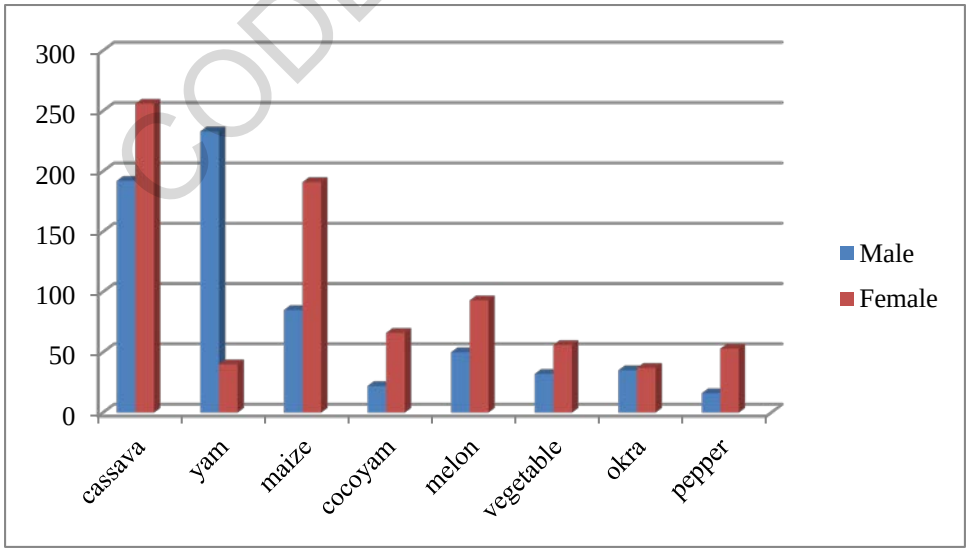


Table 4.23a:Distribution of Respondents by Quantities of Food Crops (kg) Produced.

Crops (kg)	Sex of Respondent		Total
	Male	Female	
Cassava	51950	68603	120553
Yam	61333	7350	68683
Maize	17443	39320	56763
Cocoyam	1867	6633	8500
Melon	8750	12647	21397
Vegetable	1633	2003	3637
Okra	2457	2815	5272
Pepper	850	2637	3487

Mean crop production value for male farmers = N254450.3817; Mean crop production value for female farmers = N192726.848
Source: Field Survey 2012

Table 4.23abovepresents the quantity (kg) of the crops produced by the male and female farmers. The quantity of food crops produced by the male and female farmers in table 4.23 above was converted to monetary values and subjected to t test. The result of the t test shows that the mean value of crops produced by the male farmers was N254450.3817whilethat of the female farmers was N192726.8482 (see Appendix 10 for more details). From the result we can infer that the value of the food crops produced by the male farmers was higher than that of the female farmers. This is not surprising considering the fact that men

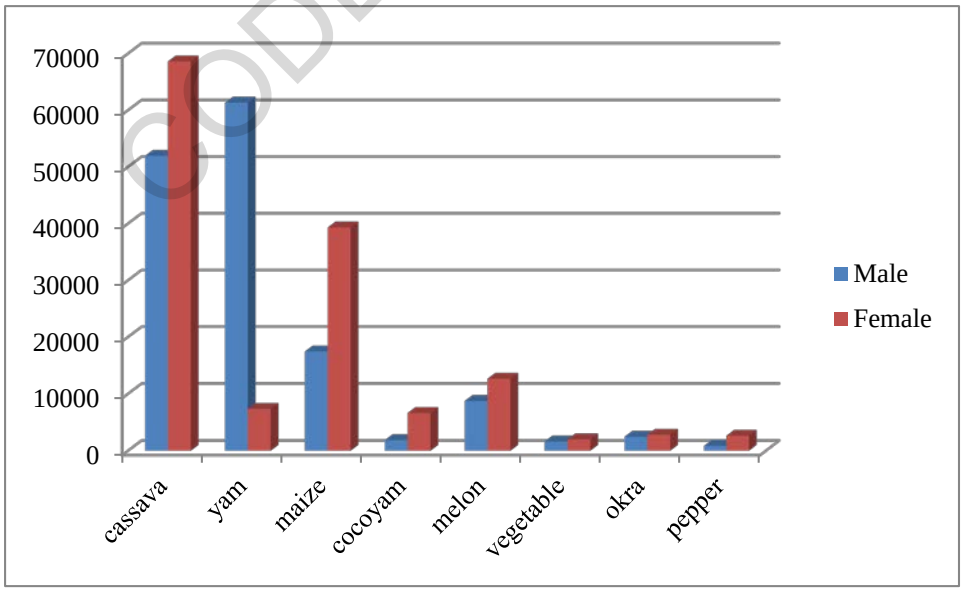
have better access to production resources. This was expressed by the female participants in FGD. They asserted that:

Most women grow food crops that are usually not adequate for sale, not because they cannot work, but because they lack the necessary inputs. If women have enough resources they will be able to produce larger quantity.

This was corroborated by the male group in most of the FGDs, who asserted that women farmers are hard-working, but that they lack the resources that will enhance their production as much as men. Consequently they produce mainly for household use, unlike their male counterparts who produce relatively sufficient quantity for market.

Women, most time, produce just to feed the family and sell a little quantity to purchase other foodstuffs, but men usually produce and sell more to generate enough income for savings.

Figure 4.12: Chart Representing the Quantity of Food Crop Cultivated by the Male and Female Farmers



4.1.5 Disparity in Role Allocation between Male and Female Farmers

The domestic roles performed by the respondents at home were also considered, to assess the farmers' level of commitment to these roles. This provided insight into the activities which might be taking the farmers' time thereby affecting their productivity. Productivity is usually measured in terms of output per person in a unit time. This analysis is considered pertinent because the level of involvement in household chores will determine the amount of time devoted to other profitable income generating activities. This will in turn influence the financial status of the farmer. The result is represented in the table below.

Table 4.24: Distribution of Respondents by Domestic Roles Performed.

Domestic Roles	Sex of respondents			
	Male		Female	
	Participants	Non-participant	Participants	Non-participant
Cooking	42(16.0%)	220(84.0%)	227(88.3%)	30(11.7%)
W. cloths	122(46.6%)	140(54.4%)	176(68.5%)	81(31.5%)
W. dishes	65(24.8%)	197(75.2%)	206(80.2%)	51(19.8%)
F.water	152(58%)	110(42%)	95(37%)	162(63%)
F.firewood	104(39.7%)	158(60.3%)	205(79.8%)	52(20.2%)
House Cleaning	94(35.9%)	167(64.1%)	229(89.1%)	28(10.9%)
Care of the Sick	125(47.7%)	137(52.3%)	220(85.6%)	37(14.4%)
Child care	87(33.2%)	175(66.8%)	228(88.7%)	29(11.3%)
Livestock mgt	92(35.1%)	170(64.9%)	184(71.6%)	73(28.4%)
P. foodstuff	91(34.7%)	171(65.3)	240(93.4%)	17(6.6%)

Source: Field Survey 2012

Examination of the table above shows that some salient differences exist in the domestic roles performed by the male and female farmers. The table shows that the female farmers dominated in all the domestic chores except fetching water where about 58% of the male farmers were involved against 42% of the female farmers. This number may have come from the male farmers who had easy means of transporting gallons of water. For example those who had bicycle, tricycles (Keke and Okada) and car. This finding agrees with the theoretical propositions (Ikpe, 2004; Dauda 2004) that women are more actively involved in domestic roles than males. In a similar vein an empirical study by Dikwal and Jirgi (2000) revealed that women actively participated in domestic front as over 80% of women farmers were involved in fetching water, firewood, cleaning, and cooking. Mahmood (2000) equally asserted that women spend far more hours per day on tasks such as fetching water, fuel fetching, tendering crops, processing, marketing, cooking and child rearing, which are mostly labour intensive and hence militate against the full realization of women's potential in agricultural production.

Other activities of interest are the various farm tasks performed by the farmers. It is widely acknowledged that men and women perform different farm tasks. While men are commonly known to perform the more tedious farm tasks such as bush clearing and mound making, women are known to perform the less tedious

ones which include planting, weeding, application of fertilizer/manure, and harvesting among others. It is therefore pertinent to empirically examine this proposition in order to arrive at a scientific conclusion. The result of the investigation is represented in the table below.

Table 4.25:Distribution of Respondent According to Farm Roles

Farm Roles	Sex of respondents			
	Male		Female	
Participants	Non-participant	Participant	Non-participant	
Land Clearing	77(29.4%)	185(70.6%)	129(50.2%)	128 (49.8%)
Land cultivation	78(29.8%)	184(70.2%)	122(47.5%)	135(52.5%)
Planting	88(33.6%)	174(66.4%)	217(84.4%)	40(15.56%)
Staking	220(84%)	42(16%)	95(37%)	162(63%)
Fert App.	45(17.2%)	217(82.8%)	228(88.7%)	29(11.3%)
Weeding	35(13.4%)	227(86.6%)	234(91.1%)	23(8.9%)
Harvesting	46(17.6%)	216(82.4%)	226(86.3%)	31(13.7%)
Transporting	94(35.9%)	168(64.1%)	213(81.3%)	44(18.7%)
Marketing	45(17.2%)	217(82.8%)	231(89.9%)	26(10.1%)
Food Processing	17(6.5%)	245(93.5%)	233(90.7%)	24(9.3%)

Source: Author's field work 2012

The result in table 4.25 above represents a breakdown of those who contributed and those who did not contribute to farm labour. Generally it shows that more females than males contributed to farm labour the previous farming season. Specifically, the highest number 84% of the male farmers accounted for the labour in staking, only 29.4%, 29.8%, 33.6%, 17.2%, 13.4%, 17.6%, 17.2% and 6.5% participated in mound making, planting, fertilizer/manure application, weeding, harvesting, transporting of crops, marketing and food processing respectively.

On the other hand, 91.1%, of the female farmers contributed their labour to weeding, 90.7% took part in food processing, and 89.9% participated in marketing. About 88.7%,86.3%, 84.4%, 81.3%, 50.2% accounted for the labour in fertilizer/manure application, harvesting, planting, transporting crops, and land clearing respectively. Few 47.5% and 37% were involved in land cultivation and staking respectively. This implies that the female farmers contributed more than the male farmers to farm labour in the previous farming season.

4.1.6 The challenges facing the food crop farmers

Table 4.26: Distribution of the Respondents by the problems facing food crop farmers

Problems	Sex of Respondents	
	Male Freq%	Female Freq %
Inadequate land	16(6.1%)	39(15.2%)
High cost of labor	104(39.7%)	79(30.7%)
Inadequate fund	115(43.9%)	127(49.4%)
High cost of fertilizer	47(17.9%)	54(21.0%)
High cost of seeds/stem	27(10.3%)	23(8.9%)
Extension agents	1(0.4%)	0(0%)
Hiring machines	5(1.9%)	2(0.8%)
Lack of farm tools	1(0.4%)	1(0.4%)

NB: Multiple Response, total is ≠ 100

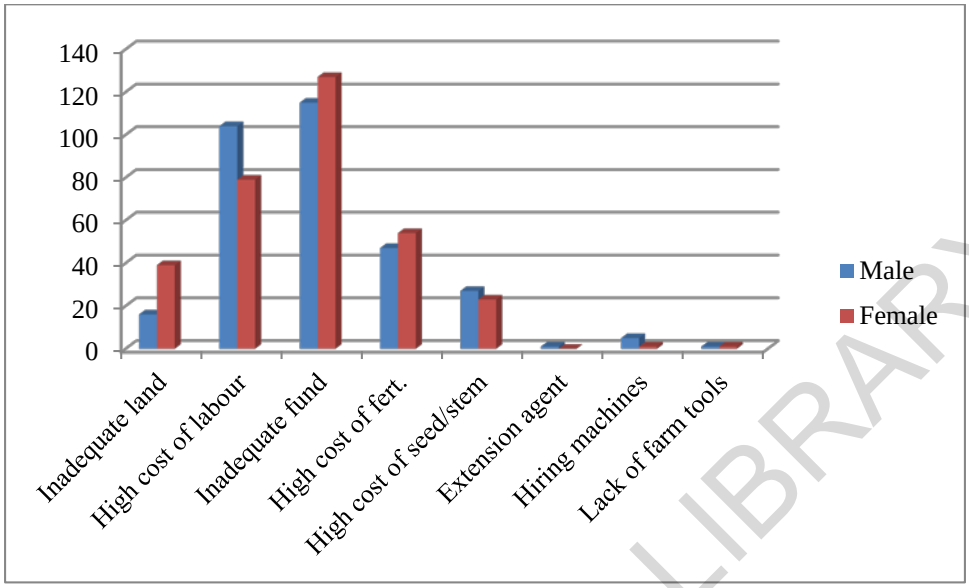
Source: Field Survey 2012

The result in table 4.26 above shows that 36.9% of the male respondents indicated that inadequate fund was their major problem, 32.9% claimed that their major problem was high cost of labour, 14.9% affirmed that high cost of fertilizer was their major problem, while a few 8.5%, 5.1%0.3%, 1.6%, 0.3%

identified high cost of seed/stem, inadequate land, lack of extension services, high cost of machine, lack of farm tools respectively as their major problem.

On the other hand, 39.1% of the female respondents indicated that inadequate fund was their major problem. High cost of labour was the major problem for 24.3% of the female farmers. 16.6% of the females identified high cost of fertilizer as their major problem. Furthermore, inadequate land was the major problem for 12% of the females. Some of the female farmers, 7.1%, 0.6%, and 0.3%, identified high cost of seed/stem, hiring of machine, and lack of farm tools respectively as their major problem in food crop production. This study therefore revealed that generally the most serious problems encountered by both male and female farmers include, inadequate fund, high cost of labour, high cost of fertilizer and inadequate land. This is consistent with the finding of Nwakor *et al* (2010) who observed that the major problems encountered by farmers in Abia state were lack of inputs, lack of fund, and high cost of labour. However apart from the problems enlisted here, it was revealed during the Group Discussions that the farmers also encounter such problems as pests disturbances, crop diseases, as well as crop pilfering which discourage farmers.

Figure 4.13: Chart Representing Challenges Encountered by Male and Female Farmers



4.1.7 Contribution to Household food on the Basis of Sex

Table 4.27:Distribution of Respondents by Level of Contribution to Household Food

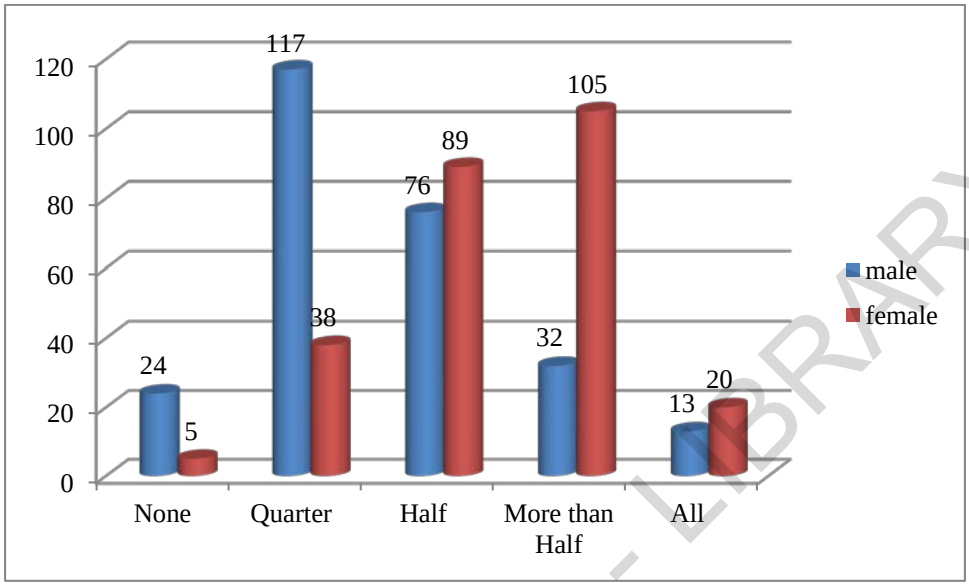
Level of Contribution to Household Food	Sex of Respondent		
	Male Frequency(%)	Female Frequency	Total(%)
None	24(9.2%)	5(2%)	29(5.6%)
Quarter	117(44.7%)	38(14.8%)	155(29.9%)
Half	76(29.0%)	89(34.6%)	165(31.8%)
More than Half	32(12.2%)	105(40.9%)	137(26.4)
All	13(5.0%)	20(7.8%)	33(6.4%)
Total	262 (100%)	257(100%)	519(100%)

Source: Field Survey 2012

Table 4.27 above shows that;12.2%of the male farmers contributed more than half of the household food, while 40.9% of the female farmers contributed more

than half of household food. This agrees with the proposition of Ekumankama (2000) that women contribute more than men to household foods.

Figure 4.14: A Chart Representing Contribution to Household Food



4.1.8. Variations in Access to Production Resources across the Zones

4.28:Variations in access to production resources by zones

Zones	Owerri		Orlu		Okigwe	
	Sex of Respondents					
	M	F	M	F	M	F
Land						
Inheritance	108 (81%)	11 (8.2%)	38 (59.4%)	3 (4.5%)	30 (44.8%)	4 (6.6%)
Lease	10 (7.5%)	46 (34.3%)	8 (12.5%)	22 (32.8%)	11 (16.4%)	10 (16.4%)
Borrow	2 (1.5%)	21 (0.2%)	7 (10.9%)	17 (25.4%)	6 (9.0%)	16 (26.2%)
Freehold	1 (0.7%)	51 (38.1%)	10 (15.6%)	22 (32.8%)	16 (23.9%)	18 (29.5%)
Purchase	13 (9.7%)	5 (3.7%)	1 (1.6%)	3 (4.5%)	3 (4.5%)	13 (21.3%)
Labour						
Family labour	6 (4.5%)	28 (20.9%)	11 (17.2%)	29 (43.3%)	18 (27.7%)	13 (21.3%)
Hired labour	2 (1.5%)	5 (3.7%)	16 (25%)	16 (23.9%)	11 (16.9%)	16 (26.2%)
Exchange labour	0 (0%)	0 (0%)	0 (0%)	2 (3%)	1 (1.5%)	1 (1.6%)
Family/hired	126 (94.0%)	101 (75.4%)	37 (57.8%)	20 (29.9%)	35 (53.8%)	31 (50.8%)
Capital						
Personal	105 (78.4%)	89 (64.5%)	43 (67.2%)	43 (66.2%)	35 (49.3%)	28 (45.9%)
Local Money Lender	4 (3.0%)	0 (0%)	5 (7.8%)	9 (13.8%)	0 (0%)	3 (4.9%)
Rel/Friend	9 (6.7%)	11 (8.0%)	3 (4.7%)	7 (10.8%)	4 (5.6%)	13 (21.3%)
Bank loan	6 (4.5%)	1 (0.7%)	8 (12.5%)	3 (4.8%)	11 (15.5%)	1 (1.6%)
Isusu	10 (7.5%)	37 (26.8%)	5 (7.8%)	12 (18.5%)	21 (29.6%)	16 (26.2%)

NB:**Multiple Responses. Summation ≠ 100**

From table 4.28 above, it can be deduced that there are variations in access to all the production resources across the zones. In access to farmland, greater number of males than females owned their farmland. For instance 81.0%, 59.4%, and 47.8% accounted for the number of inherited farmland by male farmers in Owerri, Orlu and Okigwe zones respectively. On the other hand 8.2%, 4.5% and 6.6% accounted for the number of female farmers' inherited farmlands in Owerri, Orlu and Okigwe respectively. This is an indication that the customary land rights in this part of Igbo community has not really changed in the face of modern changes in economic and family institutions (e.g women taking over food crop production and household feeding responsibilities).

In access to labour, greater number of male and female farmers combined both family and hired labour. However there are variations within zones. For instance, a greater number of those who used only family labour were 20.9% of females from Owerri zone, 43.3% of females from Orlu zone and 27.7% of males from Okigwe zone. On the other hand, greater number of those who used only hired labour in each zone were 3.7% of females from Owerri, 25% of males from Orlu zone and 26.2% of females from Okigwe zone.

In access to capital, majority of both male and female farmers used personal savings in farming. Nevertheless, majority of those who used money from

relative/friends in each zone were 80% of the females from Owerri zone, 10.8% of the female farmers from Orlu and 21.3% of the males from Okigwe. Men constituted majority of those who accessed Bank loan in all the zones and accounted for 4.5%, 12.5% and 15.5% in Owerri, Orlu and Okigwe respectively. Furthermore, greater number of those who borrowed money from thrift associations (*Isusu*) were 26.8% of females in Owerri, 18.5% of females from Orlu zone and 29.6% of males from Okigwe zone. From the foregoing, it can be inferred that access to production resources varied by gender. Based on this study, the disparity in access to labouris more flexible than in access to land which is customarily rooted. Access to labour is usually influenced by availability of capital as well as population composition of the farm household. However, generally the male farmers had better access to resources than their female counterparts, which is a reflection of male dominance, characteristic of patrilineal Igbo society.

4.2Testing of Hypotheses

Hypothesis 1

Ho: there is no significant difference in access to production resources between male and female farmers

H1: there is significant difference in access to production resources between male and female farmers.

A study by Devkota (2006) among households in Chitwan District in Nepal observed that there is significant difference in access to resources between male and female farmers. This study hypothesized that there is no significant difference in access to production resources (land, labour, capital) between male and female farmers in Imo State. To test this hypothesis the three production resources understudy were further split and subjected to a more rigorous test using Chi Square.

Table 4.29:Chi Square Result Showing the Difference in Access to Production Resources between the Male and Female Farmers

Resources	Chi Square	DF	Significant Level
Access to land	188.58***	4	0.000
Access to labour	9.35***	2	0.009
Access to capital	24.74***	4	0.000

(x^2*= 188.58, 9.35 and* 24.74; P<0.000, 0.009, and 0.000 respectively).

Source: Author's fieldwork 2012

The result of the Chi Square test in table 4.29shows that there was significant difference in access to production resources between male and female farmers in Imo State. We therefore reject the null hypothesis and accept the alternative which states that there is a significant difference in access to production resources between male and female farmers.

Furthermore, several studies conducted in different parts of the country (Mahmood, 2000; Ekumankama, 2000; Ukoha, 2003) showed that women have the total responsibility for food production, food storage, food processing, and food marketing. It is also largely acknowledged that agricultural labour is mostly provided by women. Yet women's farm production is characterized by very low returns. This could be attributed to lack of control over production resources. A study of farmers in rural Dodoma in Tanzania revealed that equal rights in access to production resources resulted in increased output in food crop production and a better livelihood for the rural dwellers (Dimitra Newsletter, 2008).

Hypothesis 2

Ho: There is no significant difference in allocation of domestic roles between male and female farmers

H_1: There is significant difference in allocation of domestic roles between male and female farmers

Taking the analysis of allocation of roles further, The data for allocation of domestic roles were subjected to a more rigorous examination using Chi square in order to establish if a significant difference exist between the male and female farmers in role allocation. This was done to test the null

hypothesis which states that there is no significant difference in allocation of domestic roles between male and female farmers.

It is generally acknowledged that women are more actively involved in domestic roles. It is therefore pertinent to empirically examine this proposition in order to arrive at a scientific conclusion. Hence this study hypothesized that there is no significant difference in allocation of roles between males and females. The null hypothesis which states that there is no significant difference in allocation of domestic roles between male and female farmers was therefore tested. The result represented in the table below shows that there was significant difference in the domestic roles studied.

Table 4.30:Chi Square result of differences in farm tasks performed by male and female farmers.

Roles	Mean	df	p-value
Land Clearing	45.000	3	0.000
Land cultivation	43.998	3	0.000
Planting	149.277	3	0.000
Staking	139.443	3	0.000
Fert/manure app	266.657	3	0.000
Weeding	313.671	3	0.000
Harvesting	257.948	3	0.000
Transporting	131.212	3	0.000
Marketing	275.998	3	0.000
Food processing	368.699	3	0.000

Computer output of author's field survey 2012

All the observed differences are significant at 0.000 levels. We therefore reject the null hypothesis and accept the alternative and conclude that there is a significant difference in allocation of domestic roles between the male and female farmers.

This was also captured in the expression of the participants in the FGD and IDI interviews held at various locations. A male participant opined that:

Domestic roles are the primary roles of women. Men are always away from home looking for daily bread for the upkeep of their family.

A local chief in one of the IDI's added that;

From the time of our fore fathers women have been the home managers. Any man who sits at home with his wife and children to do domestic chores will be regarded as a weakling. Those ones are for women, men's duty is out there not at home.

On the part of the female participants, one of the participants added that:

Women are the ones who do the house work, men are often out there either for business, politics or leisure. However a man might volunteer to help her wife at home but this depends on the type of love he has for her.

Hypothesis 3

Ho: There is no significant difference in allocation of farm roles between male and female farmers.

H_1: There is significant difference in allocation of farm roles between male and female farmers.

Further, the various tasks which are performed in the farm were examined to investigate the roles played by the respondents in the farm. This was to ascertain those who were more actively involved in farm work. Empirical study by Uzokwe (2009),of food crop farmers in the Seychelles, show that males were more actively involved in food crop farming. On the contrary, in Eastern Nigeria various studies hold that female farmers are more actively

involved in food crop production. This study hypothesized that there is no significant difference in allocation of farm roles between male and female farmers in Imo State. To subject the result to a statistical test in order to arrive at a scientific conclusion, Chi-Square was employed. This is presented in the table below.

Table 4.31:Chi-Square result of differences in domestic roles performed by the male and female farmers.

Roles	Mean	df	p-value
Cooking	271.697	3	0.000
Washing clothes	36.075	3	0.000
Washing dishes	159.775	3	0.000
Fetching water	24.145	3	0.000
Fetching firewood	101.493	3	0.000
House cleaning	176.595	3	0.000
Care of the sick	129.655	3	0.000
Child care	182.495	3	0.000
Livestock mgt	70.973	3	0.000
Food purchasing	216.345	3	0.000

Source: Authors field survey 2012

The result of the chi square test shows that there was a significant difference in the allocation of farm roles between the male and female farmers. All the results are significant at 0.000 levels. This runs contrary to the null hypothesis which holds that there is no significant difference in allocation of farm roles between male and female farmers. We therefore accept the alternative hypothesis that there is significant difference in allocation of

farm roles between the male and female farmers and reject the null hypothesis.

This was illuminated more by the participants in the FGD held at different locations.

Most times women do most of the farm work especially on women owned farms, however on jointly owned farms, men help in clearing the bush, preparing the land and staking, then women take over the rest of the farm tasks.

4.5 Relationship between Sex and Quantity of Food Crop Production

Table 4.32: Spearman Correlations result of the relation between sex and quantity of food crop produced

Spearman Correlations

			Food production	Sex
Spearman's rho	Food production	Correlation Coefficient	1.000	.381(**)
		Sig. (2-tailed)	.	.000
		N	519	519
	Sex	Correlation Coefficient	.381(**)	1.000
		Sig. (2-tailed)	.000	.
		N	519	519

**Correlation is significant at the 0.01 level (2-tailed).

****Correlation is significant at 0.01 level (2-tailed).**

Source: Field Survey 2012

Hypothesis 4

Ho: There is no significant relationship between sex and quantity of food crop production

H_1: There is significant relationship between sex and quantity of food crop produced

The result shows that the Spearman correlation coefficient is 0.381. This indicates that the degree of association between sex and food crop production is 38.1%. The coefficient is significant at 1% level. This coefficient of correlation is positive, implying that sex is an important determinant of food crop production in Imo State. This finding is in line with the data collected from the FGDs and IDIs. For instance one of the extension agents interviewed stressed that;

Men and women have different interests and needs which influence the quantity and type of food they grow. Men usually consider the market value of a particular crop before growing it. On the other hand women tend to consider the household utility value in selecting the crops to grow.

Another extension agent added that;

Men, as the heads of their respective family, tend to be compelled more by the need to grow enough for sale, this is to enable him shoulder various household responsibilities as the family head. They tend to be shrewder than their female counterparts. On the other hand, women who are saddled with the responsibility of feeding the household tend to be more complacent. Some times their priority is to grow crops for household use. This, in addition to their relative low access to production resources, affects the type and quantity of food they grow. Sometimes even when opportunity to increase production is there, some do not utilize it because they feel it is not necessary since what they have grown can serve the family.

However, these attitudes can be linked to the gender partitioning of household responsibilities and roles.

Hypothesis 5

Ho: There is no significant difference in the quantity of food crop produced by male and female farmers.

H_1: There is significant difference in the quantity of food crop produced by male and female farmers.

The result in table 4.34 shows that there was significant difference in quantity of food crop production on the basis of sex. (t=6.32,P< 0.05 and the F value=6.514).It can therefore be inferred that the quantity of food crop produced varies by sex in Imo State. This finding contradicts the null hypothesis which states that there is no significant difference in the quantity of food crop produced between male and female farmers. The alternative hypothesis is therefore accepted.

Table 4.33:The t test result of differences in quantity of food crop produced by male and female farmers

Variable	N	M	Std D	Df	T	Sig
Male	262	254450.3817	1.30	517	6.32	.000
Female	257	192726.8482	88342.5	460.78		

** = Significant at 9.5% interval (0.05)

Source: Field Survey 2012

4.3 Research Findings

Socio-demographic profile

The study of the socio-demographic characteristics of the farmers revealed that majority of the male and female farmers were in the age bracket of 46-55 years. Majority 79.19% of the respondents were married. Christianity was

the dominant religion accounting for a total of 96% respondents. It was also observed that, 40.5%, of the respondents obtained secondary education. 46.2% of the male farmers were artisans while greater number, 57.6%, of the female farmers were traders. The average annual income for the males from non-farm occupation was N41, 986.26 while that of the females was lower N 28, 964.59. Both the male and female farmers were experienced farmers with the mean experience of 21 years and 20 years respectively. The study also revealed that the household size for the majority of the male and female farmers were 1-5 persons. However quite a good number; 41.2%, male and 43.2%, female had between 6 and 10 persons in a household. The mean farm size for the male farmers was 1.19 ha while the mean size for the female farmers was only 0.87 ha. Majority, 79.5%, of the respondents' spouses were educated. Very few, 6.55%, of the spouses were farmers. The average income for the male spouses was N30.345.81 while the average for the females was N26.380.14. Generally, the study showed low participatory rate in cooperatives for both males 42.8% and females 40.1%. However, the males participated more than the females.

Demographic factors that affected farmers' production by sex

The socio-demographic factors that actually affected food crop production were also examined. The result from the multiple regression showed that the

socio-demographic factors that positively influenced food production among the female farmers were farming experience (x_6), farm size (x_8), and amount of capital invested (x_{14}). Other socio-demographic characteristics such as age, household size and educational level among others, were found to have negative effects on food crop production among the female farmers. On the other hand the socio-demographic variables that positively affected food crop productions among the male farmers were marital status (x_2), farm size (x_8), membership of cooperative society (x_9),spouse occupation (x_{12}), and amount of capital invested (x_{14}). Age, educational level, income from non-farm occupation as well as spouse education had negative effects with food production among the male farmers.

Level of contribution to household food

Furthermore, the result of the study revealed that the female farmers contributed more than the male farmers to household food. While, 12.2% of the male farmers provided more than half of the household food, 40.9% of the female farmers provided more than half of the household food.

Disparity in allocation of roles

The result showed that the female farmers dominated in all the domestic chores except fetching water, where about 58% of the male farmers were involved against 42% of the female farmers. Similarly the findings

showedthat more females than males contributed to farm labour the previous farming season. Specifically, the highest number 84% of the male farmers accounted for the labour in staking, only 29.4%, 29.8%, 33.6%, 17.2%, 13.4%, 17.6%, 17.2% and 6.5% participated in mound making, planting, fertilizer/manure application, weeding, harvesting, transporting of crops, marketing and food processing respectively. On the other hand, the largest number, 91.1%, of the female farmers contributed their labour to weeding, 90.7% took part in food processing, and 89.9% participated in marketing. About 88.7%,86.3%, 84.4%, 81.3%, 50.2% accounted for the labour in fertilizer/manure application, harvesting, planting, transporting crops, and land clearing respectively. Some, 47.5% and 37%, were involved in land cultivation and staking respectively.

The result of the Chi Square analyses showed that there was a significant difference between male and female farmers in role allocation. This implies that the female farmers were more actively involved in both farm tasks and domestic chores than their male counterpart.

Disparity in Access to Production Resources

Furthermore, the study on the disparity in access to production resources showed disparity in access to the production resources between the male and female farmers. The main source of land for majority of the male farmers

was through inheritance; on the other hand, majority of the female farmers had access to farmland through freehold (usufruct right). In terms of access to capital, majority of the farmers, 68.3% males and 60.3% females used their personal savings to farm. However more males, 9.3% than females, 3.8% accessed bank loan while more females, 25.3%, than males, 13.7% borrowed money from “Isusu”(thrift association). Although majority of the farmers, males, 62.6% and female 63.4% combined both family and hired labour, more females, 24.9 % than males,17.9% employed only family labour while more males, 19.1% than females 10.5% used only hired labour. The Chi square result equally showed that significant difference existed in access to all the production resources. The result is significant at 1% level of significance.

Types and Quantities of Crop Produced

It was observed that majority,88.9%, of the male farmers cultivated yam, 73.3% cultivated cassava, and about 32.4% cultivated maize. Very few, 19.1%, 13.4%, 12.2%, 8.4%, and 6.%1, of the male farmers cultivated melon, okra, vegetable, cocoyam, and pepper respectively. On the other hand, majority, 99.6%, of the female farmers cultivated cassava, 74.3% cultivated maize and 36.2% cultivated melon. The table also shows that cocoyam, vegetable, pepper, yam, and okra were cultivated by 25.7%,

21.8%, 20.6%, 15.6% and 13.4% of the female farmers respectively. It can therefore be inferred from the study that the female farmers were more actively involved in food crop production than the males.

Furthermore, the result showed that the mean value of the crops produced by the male farmers was N254450.3817whilethat of the female farmers was N192726.8482.From the result we can infer that the value of crops produced by the male farmers was higher than that produced by the female farmers.

Disparity in access to production resources across zones

The result showed that access to production resources varied by gender across the zones in Imo State. Thus it can be inferred from the result that disparity in access to production resources existed in all the zones in Imo State.

Challenges facing food crop farmers by sex.

The study revealed that generally the most serious problems encountered by both male and female farmers include, inadequate fund, high cost of labour, high cost of fertilizer and inadequate land. Specifically, the most serious problem encountered by majority, 36.9%, of the male farmers was inadequate fund, 32.9% claimed that their major problem was high cost of labour, 14.9% affirmed that high cost of fertilizer was their major problem, while a few, 8.5%, 5.1% 0.3%, 1.6%, 0.3% identified high cost of seed/stem,

inadequate land, lack of extension services, high cost of machine, lack of farm tools respectively as their major problems.

On the other hand, the major problem for the majority, 39.1%, of the female respondents was inadequate fund. High cost of labour was the next reported by 24.3%, 16.6% of the females identified high cost of fertilizer as their major problem. Furthermore only 12% reported that inadequate land was the major problem.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This study investigated gender disparity in agricultural production and the implications for achieving food security in Imo State. The work is divided into five chapters. The first chapter introduced the work. The second chapter dwelt on literature review and theoretical framework. Chapter three focused on the research methodology. The fourth chapter is where the researcher presented, analyzed and interpreted the data collected. Finally the work ended with the summary, conclusion and recommendations which were derived from the research findings.

The study was guided by the following objectives; to examine the demographic profile of the population engaged in food crop production, identify the socio-demographic factors that affect food crop production and by implication food security, ascertain on the basis of sex, the level of contribution to household food. Of utmost importance was to ascertain the extant nature of gender disparity in allocation of roles (both domestic and farm) and to examine the disparity in access to production resources (land,

labour, capital) between male and female farmers, to examine variations in access to production resources across zones. Other specific objectives include; to identify the types and quantities of food crops produced by sex, examine the challenges that face the food crop famers by sex and to make recommendations based on the findings. The findings were used to analyze the implications of gender disparity for achieving food security.

The following null hypotheses were also tested. (i) There is no significant difference in access to production resources (land, labor and capital) between male and female farmers.(ii) There is no significant difference in allocation of domestic roles between male and female farmers. (iii) There is no significant difference in allocation of farm roles between male and female farmers.(iv)There is no significant relationship between sex and quantity of food crop produced. (v) There is no significant difference in the quantity of food crop produced by male and female farmers.

A number of literature were reviewed and relevant information were gathered through the secondary sources. However, empirical data were collected through the primary source with the use of questionnaire. In-depth interview and Focus Group Discussion were also used. The population for the study included the rural male and female farmers in Imo State. The sample frame was the list of Imo State ADP contact farmers. The data

collected and analyzed were limited to the following issues discussed here under.

The study of the socio-demographic characteristics of the farmers revealed that majority of the male and female farmers were in the age bracket of 46-55 years. Majority, 79.19%, of the respondents were married. Christianity was the dominant religion accounting for a total of 96% respondents. Majority, 43.51%,of the respondents obtained secondary education. The study also revealed that the farmers were involved in other non-farm occupations probably to supplement farm income which is commonly known to be insufficient due to its subsistence nature. Consequently, majority, 46.18%, of the male farmers were artisans, while majority, 57.59%, of the female farmers were mainly traders. The average annual income for the males from non-farm occupation was N41, 986.26 while that of the females was lower N 28, 964.59. Both the male and female farmers were experienced farmers with the mean experience of 21 years and 20 years respectively. The study also revealed that the mean household size for the respondents were 5.58 and 5.38 persons respectively. The mean farm size for the male farmers was 1.19 ha while the mean size for the female farmers was only 0.87 ha. Majority, 79.5%, of the respondents' spouses were educated very few 6.55% of the spouses were farmers. The average income

for the male spouses (the female farmers' husbands) was N 30.345.81 while the average for the female (the male farmers' wives) was N26.380.14.Generally, the study showed low participatory rate in cooperatives for males,42.75%,and females 40.08%.

Furthermore, the study on the disparity in access to production resources showed disparity in access to the main production resources between the male and female farmers. The main source of land for majority of the male farmers was through inheritance; on the other hand, majority of the female farmers had access to farmland through freehold (usufruct right). In terms of access to capital, more males,68.32%, than females,60.31%, used personal savings, while more females,25.29%, than males,13.74%, borrowed money from "isusu". Also more females than males obtained fund through local money lenders, relatives/friends. Though generally there was low access to bank loan, more males, 9.25%,than females, 1.95%, had access to it. Majority of both male 62.60% and female 63.04% farmers used a combination of family and hired labour.

The socio-demographic factors that actually affected food crop production were also examined. The result from the multiple regression showed that the socio-demographic factors that positively affected the food produced by the

female farmers were farming experience (x_6), farm size (x_8), amount invested (x_{14}). The other socio-demographic factors such as age, household size and educational level among others were found to have negative effect on the food produced by female farmers. On the other hand the socio-demographic variables that positively affected the food crop produced by the male farmers were marital status (x_2), farm size (x_8), membership of cooperative society (x_9),spouse occupation (x_{12}), and amount of capital invested (x_{14}). The age, educational level, income from non-farm occupation as well as spouse education had negative effect on food production of the male farmers.

Furthermore, the result of the study revealed that the female farmers contributed more than the male farmers to household food. Similarly the findings confirmed that there was a significant difference in role allocation and access to production resources between the male and female farmers in Imo State. The male farmers had more access to production resources and were less actively involved in both food crop production and domestic chores than their female counterpart. For instance, the main crop which was found to be cultivated by the male farmers was yam due to its sex stereotype as male crop as well as its cultural importance in Igbo society. Another crop

which was found to be substantially cultivated by the male farmers was cassava probably due to its high yield attribute.

Conversely the female farmers were found to diversify their food crops more than the male farmers. They were found to be more involved in such crops as cassava, maize, cocoyam, melon, okra, vegetable, and pepper. These were however cultivated in low scale due to their poor access to basic production resources. Women were found to be more actively involved in tasks performance both at home and in the farm.

This has serious implications for enhancing the farmers' productivity which by extension will influence food security both at household and national levels. Since women who are more actively involved in food crop production have limited access to production resources and are also over laden with domestic chores and farm tasks which are highly laborious due to the un-mechanized nature, the overall implication is that local productions will continue to remain low.

- ✖ As local food crop production stagnates, prices of foods will continue to soar.
- ✖ Savings will continue to crumble as much of the income will be spent on feeding.

- ✖ Nutrition intake, especially, of farm families will continue to dwindle, thereby affecting their health conditions.
- ✖ The end result is a vicious cycle of un-productivity as unhealthy persons can hardly be productive.

Various theories that exist on gender relations explained gender differences from different dimensions. For instance, the patriarchal model pointed at biological compositions as the main reason for gender differences, Marxist theorist pointed to the economic structure as the main determinant of gender differences. Feminist theorists associated gender differences with different factors such as social structure, economic factors, family institutions, as well as ethnicity.

However, in line with the theoretical framework of this study, the differences that exist between the male and female farmers have little or nothing to do with biological or physiological attributes. That is to say that they are not intracranial but social constructs which are culturally determined and transmitted across generations. For instance, some roles which were traditionally regarded as female roles are being performed by men (e.g Chefs and laundry men)in recent times. Similarly the study revealed that the female farmers participated in land clearing, cultivation and

staking which were regarded as the domain of men. This therefore confirmed the theories adopted by the researcher as the best theory for explaining, understanding and combating gender differences.

5.2 Conclusion

Conclusively, food insecurity is not a natural phenomenon, but a man-made tragedy that can only be corrected by man. It is pertinent to add at this juncture that conditions have changed but the basic traditional principles relatively remain unchanged. Food security can only be achieved by eliminating those traditional practices and standards as well as other social, political and institutional factors that are inimical to progress and growth. There is urgent need to close the gender gap in all aspects of life especially in agricultural production. This will go a long way to reducing the food crisis as well as improving the livelihood of rural farmers who constitute the majority of food crop producers. This however requires the synergistic efforts of government, support groups, agricultural research centers, agricultural extension workers, agricultural technologists, as well as farmers.

5.3 Recommendations

Attempts to eliminate food crisis must address the issues of gender stereo types, gender discrimination, and gender differences in roles and in access to production resources. Any project or programme meant to boost agricultural production particularly in food crop production should be mainstreamed along gender line, and that is taking both sexes into consideration. This implies that the interests of both male and female farmers should be factored into the planning and implementation of agricultural development policies as well as delivering services aimed at improving agricultural production.

The socio-demographic conditions which were found to have positive relationship with food production should be harnessed. For instance, generally, access to capital and increase in farm size will improve food crop production for both male and female farmers. Specifically, participation in cooperatives, marital status, and spouse occupation will influence food crop production for the male farmers, while farming experience will influencefood crop production for the female farmers. There is therefore need for effective training services through the active involvement of extension workers to enhance farmers' farming experience. This will increase the number of farmers with improved technical farming experience.

There is need for credit facilities (establishment of local financial institutions, both formal and informal) specifically for rural farmers to facilitate easy access to credit with collateral free and low interest rate. There is also need to remove all bottle necks and cultural practices that limit farmers' access to productive resources, especially for the females who are found to be more disadvantaged in access to production resources.

Government, Non-Governmental Organizations and donor agencies should direct attention on projects and services which will make farming a profitable and attractive enterprise for both males and females. For instance, creating marketing facilities through Marketing Boards, to buy off surpluses from farmers in other to minimize losses; will encourage large scale production. Establishment of food processing industries to utilize farmers produce, providing insurance benefits, special financial support services and subsidies will go a long way to encourage both male and female farmers to produce more. This will particularly help to lure men, who have almost deserted food crop production, back to farming.

In addition, there is need to provide farmers with labor-saving devices to minimize drudgery both at home and in the farm, to save time for involvement in other profitable economic ventures. This will enable rural farmers, especially women who are more involved in domestic chores, to

improve their productive capacity and also save time for leisure activities which is vital for healthy living. Modernization of agricultural practices is therefore imperative as traditional farming system of hoe and cutlass is no longer suitable for a rapidly growing and changing society like Nigeria generally and Imo State in particular.

Finally, the female farmers should be encouraged and empowered to produce beyond household consumption. They should be encouraged to expand their production for the market rather than for household consumption only. On the other hand the male farmers should be made to play down on sex-stereotyping of crops. In other words they should be encouraged to diversify the crops they grow. Farmers should be encouraged to belong to cooperatives in order to gain from the benefits it engenders.

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APPENDICE 1

School of Post Graduate Studies

Imo State University

P.M.B. 2000 Owerri

20/09/2011

Sir/Madam

INTRODUCTORY LETTER

This is a sociological research on Gender Disparity in Agricultural Production: Implications for sustainable food security in Imo State. The questionnaire is designed to elicit information on the above mentioned issue. You are requested to respond as each question appeals to you. Please tick (√) in the options that appeal to you and supply the information where necessary. The responses will be treated in confidence and they will be solely for the purpose of research.

Thanks for the anticipated co-operation.

Yours faithfully

Winifred Nwabuaku Kanu

APPENDICE 2

QUESTIONNAIRE

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS

1. Gender (a)male { }(b)female{ }
2. What is your age----------
3. Marital status (a) married { } (b) single{ } (c) Divorced/Separated { } (d) Widow/Widower{ }
4. Religion (a) Christianity { } (b) Islam { } (c) Traditional religion { } (d) others specify----------
5. Level of education (a) no formal education{ }(b)primary education{ }(c)secondary education { } (d) tertiary education{ }
6. Other sources of income outside food crop farming (a) trading { } (b) artisan (c) livestock management { } (d) retiredcivil servant (e) others indicate----------
7. What is your estimated annual income from the 2nd source mentioned above (a) N0-N20000 { } (b) N21000-N40000 { } (c)N41000-N60000 { } (d)N61000-N80000 (e) N81000 and above
8. What is your farming experience (years)----------
9. What is your house hold size? ----------
10. What is the total farm size(in ha) ----------
11. What is your Spouse's main occupation----------
12. What is your Spouse's level of education----------
13. Estimate your spouse's annual income----------
14. Membership of cooperative society? (a) Yes{ } (b) No) { }

SECTION B: FARM RELATED ACTIVITIES

15. What was/were the source(s) of land cultivated last year? (a) inheritance (b) lease { }(c) borrow { } (d) free hold { } (e) purchase { } (f) others indicate { }
16. Please specify the main source of labour used (a) family labour { } (b) hired labour { } (c) exchanged labour { } (d) family/ hired labour{ } (e) others specify----------

17. What was/were the source(s) of fund invested in farming last year? (a) Personal savings { } (b) Local money lender { } (c) Relative/Friend { } (d) Bank loan { } (e) Isusu { } Others specify----------

18. Estimate the total amount (N) invested in your farm last year----------
19. How would you describe your contribution to household food in relation to your spouse' contribution (a) none { } (b) quarter { } (c) half (d) all { }

20. What was your harvest on each cultivated crop?

CROP	QUANTITY HARVESTED IN ITS MEASURE	MKT VALUE/UNIT (N)	TOTAL COST (N)
Cassava			
Yam			
Maize			
Cocoyam			
Melon			
Vegetable			
Okra			
Pepper			
Others specify			

21.. Please identify the household chores you take part in.

CHORES	RESPONSE
(a) Cooking	
(b) Washing clothes	
(c) Washing dishes	
(d)Fetching water	
(d) Fetching firewood	
(e) House cleaning	
(f) Looking after the sick	
(g) Child care	
(h) Livestock management	
(i) Purchasing food stuff	
(j) Others Specify	

22. Please indicate the type and number of labour used in these activities.

Activities	Personal	Spouse	Children	Exchange labour	Hired labour	Unit cost	Total cost
Land clearing							
Cultivation							
Planting							
Weeding							
Fertilizer/Manure application							
Staking							
Harvesting							
Transporting							
Marketing							
Processing							
Total							

23. What do consider the most challenging to you in food crop production?(a) access to farmland{ }(b) access to labor { } (c) Inadequate fund { }

(d) access to fertilizer{ }(e)access to seed/stem{ } (f) access to extension services{ } (g) hiring of machines { } (h)farm tools { }Others specify----------

24. What do you think can be done about these to enhance food production?----------
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THANK YOU FOR YOUR COOPERATION

APPENDICE 3

FOCUS GROUP DISCUSSION GUIDE

A. TOPICS TO BE COVERED

i. Perception of disparity between male and female farmers in distribution of farm resources
ii. Perception of disparity between male and female farmers in allocation of domestic and farm roles (specific areas, extent of disparity).
iii. Perception of the effects of these disparities on food productivity on the basis of sex.
iv. Challenges faced in food crop production between male and female farmers
v. Measures to mitigate gender disparity and enhance food crop production

B STUDY LOCATION----------

FGD GROUP----------

DATE----------

C DISCUSSION GUIDE

I. INTRODUCTION AND WARM UP
II. ASSURANCE OF CONFIDENTIALITY
III. PERMISSION TO RECORD AND TAKE PHOTOGRAPH
IV. OPENING REMARK

We are here to discuss issues concerning the differences that exist in allocation ofroles and access to production resources in food crop production in this community. We know little or nothing about these issues in this community. We will appreciate if you tell us all you know about them. Whatever we learn from you today will help in designing policies and programmes that will enhance food crop production in this and other communities.

To help in remembering what is said, there will be a tape recording of our discussions if you permit. This will be compared with the notes to be taken by my colleagues here. But before we start we may need to introduce one another where we came from and what we do.

ACTIVITIES BEGIN

GENERAL INTRODUCTION OF ALL PRESENT

i. Can you let us know what men and women do with regard to domestic and farm roles? (Probe for gender specific roles
   Probe further for beliefs and attitudes towards sex segregated and jointly shared roles.
ii. Can you let us know how men and women access these production resources (land, labour, capital)
iii. Are there any forms of restrictions (social, cultural,economic and/or institutional) as regards to the use of these resources by men or women for farming?
iv. Are there things you would want to own/use for farming but cannot because of your sex?
v. Can you let us know what you cultivated last year, how, where, when, why, and challenges you encountered?
vi. What do you consider necessary thing to be done in order to enhance food crop production?

Thank you for your time and patience

APPENDICE 4

IN-DEPTH INTERVIEW GUIDE WITH KEY INFORMANTS

1. Do you think there are sex segregated/differences in role allocation and access to production resources? If yes give instances and to what extent?
2. Do you think there are any forms of restrictions (social, cultural, economic, and/or institutional) as to what can be owned/used by any particular group (men and women)?
3. Do you think such differences affect the type and quantity of food crop produced by men and women farmers?
4. What challenges do male and female farmers usually face in food crop production?
5. What do you consider necessary things to be done to reduce these differences and to enhance food crop production?

Thank you for your time and patience.