EFFECTS OF INSURGENCY ON CROP FARMING ACTIVITIES OF RURAL WOMEN IN ADAMAWA STATE, NIGERIA

BY

JOSHUA, Garnvwa Gloria
MTech/SAAT/2017/6965

DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT

SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE, NIGERIA.

SEPTEMBER, 2021

ABSTRACT

The study analyzed the effect of insurgency on crop farming activities of rural women in Adamawa State, Nigeria. Multi-stage sampling technique was used to select 232 rural women involved in agricultural production on which structured questionnaire complemented with interview schedules was employed to collect primary data. Data collected were analyzed using both descriptive statistics (means, percentages and frequency counts) and inferential statistics (multiple regression and Gini Coefficient). The result showed that majority (82.8%) of the respondents were within the age range of 26 – 55 years with mean age of 40 years, Majority (74.6%) were married with a mean household size and farming experience of 7 and 13 years respectively. The results also revealed that majority (59.9%) were full-time farmers with poor access to credits and extension services. The respondents had access to improved seeds, fertilizer, herbicides, cutlass, and hoes. The result of the Gini-coefficient was 0.53 implying that there was inequality in the distribution of income among the rural women in the study area. The effects of insurgency on crop farming activities of rural women were relocation, fear of been killed, loss of farm land, decrease in production, death of many farmers, reduction in contribution to the economy, loss of farm produce in storage, increased food insecurity and low yield of crops. Rural women also reported that ignorance, loose border, poverty, unemployment and religious bigotry were the major perceived causes of insurgency in the study area. Regression analysis revealed that farm land lost (-0.3001), animals lost (-0.2447), assets lost (-0.5605), relocation (-0.1449), frequency of attack (-0.7582), people displace (-0.1661) and Exposure to bomb (-0.2548) were found to be negative and statistically significant. The major constraints faced by farmers were inadequate access to fertilizer, inadequate access to credit, destruction of farm land, stealing of farm produce and poor access to farm lands. It was recommended that government, policy makers and other stakeholders should put in more effort to end insurgency activities in the study area to improve agricultural activities. It was also suggested that more production inputs should be provided to the rural women who are the most vulnerable and victims of insurgency by Federal and State government, Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs).

TABLE OF CONTENTS

Cover page
Title page i
Declaration ii
Certification iii
Dedication iv
Acknowledgements v
Abstract vi
Table of contents vii
List of Tables xi
List of Figures xii
CHAPTER ONE
1.0 INTRODUCTION 1
1.1 Background of the Study 1
1.2 Statement of the Research Problem 3
1.3 Aim and Objectives of the Study 6
1.4 Hypotheses of the Study 6
1.5 Justification of the Study 6
CHAPTER TWO
2.0 LITERATURE REVIEW 8
2.1 Social-economic characteristics of rural women 8
2.1.1 Age 8
2.1.2 Educational status 9
2.1.3 Gender 10
2.1.4 Marital status 10
2.1.5 Household size 10
2.1.6 Years of farming experiences 11
2.1.7 Farm size 11
2.1.8 Annual income 12
2.2 Concept of insurgency 13
2.2.1 Overview of insurgency in Nigeria 14
2.3 Accessibility of Rural Women farmers to Agricultural inputs 16
2.3.1 Input supply 17

2.3.2	Fertilizer	17
2.3.3	Access to land and credit	18
2.3.4	Equipment	20
2.3.5	Extension services	20
2.4	Income Generation Activities of Farmers	21
2.5	Agricultural Production by Women in Nigeria	24
2.6	Effects of Insurgency on Agricultural Crop Production	26
2.7	Constraints Faced by Farmers due to Insurgency	30
2.7.1	Access to land and land tenure system issues	31
2.7.2	Access to finance and agricultural inputs	33
2.7.3	Women farmers access to agricultural information and agricultural extension services	35
2.7.4	Gender division of labour in agriculture	36
2.7.5	Women participation in farm management	37
2.8	Conceptual Framework	40
2.9	Theoretical Framework	43
2.9.1	Conflict Theory	43
2.9.2	Social Identity Theory	45
2.9.3	Frustration Aggression Theory	47
CHAPTER THREE		
3.0	METHODOLOGY	51
3.1	Study Area	51
3.2	Sampling Procedure and Sample Size	54
3.3	Method of Data Collection	55
3.4	Validity and Reliability test for Data Collection instrument	56
3.5	Measurement of Variables of the Study	56
3.5.1	Dependent variables of the Study	56
3.5.2	Independent variables	56
3.6	Method of Data Analysis	58
3.7	Model Specification	59
3.7.1	Gini coefficient	59
3.7.2	Multiple regression model	59
3.7.3	Pearson product moment correlation (PPMC)	60

CHAPTER FOUR

4.0	RESULTS AND DISCUSSION	62
4.1	Socio-economic characteristics of cereal crop farmers	62
4.1.1	Age	62
4.1.2	Marital Status of the respondents	62
4.1.3	Household size of the respondents	63
4.1.4	Educational status of the respondents	63
4.1.5	Farming experience of the respondents	64
4.1.6	Farming status of the respondents	64
4.1.7	Farm size of the respondents	64
4.1.8	Farmland acquisition by the respondents	65
4.1.9	Secondary occupation of the respondents	67
4.1.10	Extension contact by the respondents	67
4.1.11	Access to credit by the respondents	67
4.1.12	Sources of credit by the respondents	68
4.1.13	Cooperative membership by the respondents	68
4.1.14	Sources of labour	68
4.2.1	Crop Production Activities of Women Farmer	69
4.2.2	Mean Cost incurred in Crop Production Activities	70
4.2.3	Access to Production Inputs by the Respondents	71
4.2.4	Level of accessibility of inputs by women Farmers	72
4.3	Income Distribution among the Respondents	73
4.4.1	Perceived causes of insurgency by the respondents	74
4.4.2	Perceived Effects of Insurgency on respondents' agricultural activities	76
4.5	Effect of Insurgency on Crop Production of the Respondents	79
4.6	Constraints faced by Rural Women in Agricultural Production	81
4.7	Hypothesis of the Study	83
4.7.1	Testing of hypothesis I	83
4.7.2	Testing of Hypothesis II	84

CHAPTER FIVE

5.0	Conclusion and Recommendation	85
5.1	Conclusion	85

5.2 Recommendations 85
REFERENCES 88
APPENDIX I 99
APPENDIX II 106

LIST OF TABLES

3.1 Summary of the sampling outlay for the study 55
4.1 Distribution of respondents based on their socio-economic characteristics 66
4.2 Distribution of respondents based on institutional characteristics 69
4.3 Distribution of respondents based on level of involvement in crop farming activities 70
4.4 Mean cost incurred in crop farming activities 71
4.5 Distribution of respondents based on access to production inputs 72
4.6 Levels of accessibility to production inputs by respondents 73
4.7 Distribution of respondents based on their income generation 74

4.8	Perceived causes of insurgency by the respondents	75
4.9	Perceived effects of insurgency in agriculture activities of respondents	78
4.10	Regression estimate on effects of insurgency on crop production	81
4.11	Constraints faced by rural women in agricultural production	83
4.12	Regression estimates of hypothesis I	84
4.13	Correlation estimates of hypothesis II	84

LIST OF FIGURES

2.1	Conceptual model on the effects of insurgency on crop output of rural women in the study area	42
3.1	Map of Adamawa State showing the study area	53

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Agriculture in Nigeria is the most important sector of the economy from the standpoint of rural employment, self-sufficiency in food, fiber, and export earning prior to the discovery of oil (Towobola *et al*., 2014). Agriculture production has become one of the most political and social pre-conditions for efficient mobilization of production resources and accelerated rural development process (Jongur, 2011). Agricultural activities are the main source of livelihood and well-being of the people, majority of the farmers were classifies as small-scale farmers because of the small size of their holdings. Both men and women are into agricultural activities, but males are the dominant gender in agricultural production (Umar and Abba, 2012). These farmers produce crops and livestock at a subsistence level with low level of productivity.

In Nigeria, studies have shown that women play a vital role in different aspects of income generation activities such as farming and non-farming operations. Women perform large percentage of household's social, economic and cultural activities of the society, their contribution to national and economic growth, even though not well documented statistically is quite substantial (Food and Agriculture Organization, 2011). According to Fontana and Paciello (2012) rural women constitute major contributors, most especially in developing nations where agricultural production is the major source of livelihood for the rural dwellers. In addition, rural women play significant role as producers of food for the maintenance of the family.

Agada and Ameh (2017) reported that about 60% of food produced comes from rural women farmers who make up to 60–80% of the agricultural labour force. Rural women

in Nigeria worked side by side with men in agricultural production to enhance the livelihood of the household with some marked division of labour among them. The men perform the tedious tasks of felling trees, gathering and burning of bush and making ridges, while women are involved in planting of seeds especially food crops, harvesting, transportation, processing and selling of farm produce and products. But, rural women are lagged behind in all fields of self-advancement coupled with the challenge of insurgency; their level of production has reduced.

However, the incidence of insurgency has destabilized agricultural and socio-economic activities of the nations (Adebayo, 2014). The instability generated by the insurgency has caused an exact and substantial decrease in agricultural production (Ojo *et al.*, 2018). The effects of *Boko Haram* insurgency are so numerous and cut across all aspects of life especially in the North Eastern part of Nigeria (Beatrice, 2015). Many rural areas in the epicenter of the *Boko Haram* insurgency namely Borno, Yobe and Adamawa States have been rendered unsafe for human habitation, pushing hundreds of thousands of farmers out of their lands. It should be noted that bulk of the farmers in Northern Nigeria are rural dwellers and rural areas happened to be the hardest hit areas by the Boko Haram insurgency. Recent estimates put the number of people killed and displaced by the conflict as approximately 17,000 and 2.5 million respectively (Shettima, 2016). This has seriously affected all forms of livelihood activities including agricultural production. In a region known for its debilitating poverty, aridity, periodic cycle of drought and famine, the Boko Haram insurgency has further sown the seeds of famine (Shettima, 2016).

It is noteworthy the threat posed by insurgency is undermining the existence of Nigeria as one sovereign territory. The insurgency had significantly affected the agricultural production and welfare of the people around the area mostly affected by insurgency

(Blanchard, 2014). The activities of the insurgents have seriously affected various fields of human endeavors that could be categorized into physical, social and economic factors (Babagana *et al.,* 2018). Physically, the attacking of schools, places of worship, market structures, houses and some infrastructures like roads, bridges and electricity cables have halted developmental projects that could have positive bearing on the lives of the entire community especially that of rural women (Onwusiribe *et al.,* 2015). They could not easily move around to carry out their farming activities as well as marketing of agricultural produce for the fear of unknown.

Socially, the insurgent crisis have resulted to increase in crime rate, reduction in the standard of living and increased number of refugee influxes, as well as setback in the educational system. These have resulted in a drop in the formal and informal sector of the economy compared to what was obtainable some years back. Economically, the crisis has affected market linkages between towns and cities and many businesses have closedown thereby crippling the income generating potentials of the rural women. These have serious bearing on the rural women as they cannot go on with their economic activities peacefully. They are exposed to rape, kidnapping and in some cases loss of lives (Onwusiribe *et al.,* 2015).

1.2 Statement of the Research problem

The current insurgency in the North-east geographical zone of Nigeria that originally took the form of sectarian religious violence has escalated into terrorist activities with international linkages and affiliations making it relatively difficult for the Nigerian Government to clamp down (Gilbert, 2014). The emergence of insurgency in the North-east part of the country has led to the flight for safety and security of most Nigerians residing in the area. Since the commencement of the terrorist operations, they have

adopted several methods to unleash terror on the people and these has impacted negatively on agricultural activities of the affected areas because farmers in the area hardly go to farmlands for fear of the unknown, especially women farmers who are the most vulnerable targets of insurgency activities. Most States of Northern Nigeria have experienced the dastard activities of insurgency, but the worst hits have been Adamawa, Borno and Yobe States crippling the economic activities particularly that of the rural women.

The activities of the insurgency in these States have constituted a serious threat to lives and properties of residents in the study area particularly that of women residing in the area. In Adamawa State, women play vital roles in food production, processing and marketing. They also contribute to household well-being through their income generating activities. However, the insurgency attack has deprived them their farmlands, homes and properties. The economic activities of the women in this area had being grounded thereby affecting their livelihood. In fact, the physical and economic implications of insurgency activities cannot be quantified and the social costs are enormous.

The problem of declining crop productivity in Nigeria is compounded with insurgency in the Northern part of the country as effect of insurgency on food crop production is alarming and there have been recorded low crop output in the affected areas including Adamawa State. According to Adebisi *et al.* (2017), who reported that due to the numerous impacts of the Boko Haram insurgency, average mean of agricultural output to Nigeria's GDP dropped from 37.05% in 2009 to 21.0% in 2013. The reduction in the output of crops because of the activities of insurgency and attacks on farmers constituted a decrease in the availability of food for the ever-increasing population.

Since the inception of insurgency in the Northern part of the country in 2009 and its first attack in Adamawa State in 2011, few studies (Babagana *et al.,* 2018; Ojo *et al.,* 2018) have been conducted to determine impact of insurgency on agricultural crop production activities, there is dearth of empirical evidence on the impact of insurgency on women farmers in Adamawa State. This has constituted a gap in knowledge that need to be filled. It is against this backdrop that this research was conceived to assess the effects of insurgency on crop farming activities of rural women in Adamawa State, Nigeria. Thus, the following research questions were formulated in an attempt to provide answers to:

i. what are the socio-economic characteristics of rural women in the study area?
ii. what are the rural women production activities and level of access to inputs in the study area?
iii. what is the pattern of income distribution among the rural women in the study area?
iv. what are the perceived causes of insurgency on rural women's crop production in the study area?
v. what are the perceived effects of insurgency on rural women's crop production in the study area?
vi. what are the effects of insurgency on crop output of rural women?
vii. what are the constraints faced by the rural women farmers in the study area?

1.3 Aim and Objectives of the Study

The aim of this study is to determine the effect of insurgency on crop farming activities of rural women in Adamawa State, Nigeria. The specific objectives are to:

i. describe the socio-economic characteristics of rural women in the study area;

ii. examine rural women's crop production activities and level of access to inputs in the study area;

iii. examine the pattern of income distribution among the rural women;

iv. assess the perceived causes of insurgency on rural women's crop production;

v. assess the perceived effects of insurgency on rural women's crop production;

vi. determine the effects of insurgency on crop output of rural women;

vii. examine the constraints faced by the rural women farmers in the study area.

1.4 Hypotheses of the Study

The following hypotheses were tested in this study:

HO_1: There is no significant relationship between selected socio-economic characteristics (age, household size, educational status, farm size and experience) of the rural women and their output in the study area.

HO_2: There is no significant relationship between the rural women's perceived level of access to production inputs and perceived effect of insurgency on crop production in the study area.

1.5 Justification of the Study

Farmers no doubt, are the most valuable asset of any developing nation and anything that affects them directly or indirectly affects the nation and as such, would constitute a national threat to food security. To this end, the study will generate information on socio-economic characteristics of women farmers in the insurgency area, which will be useful to government and policy makers that will match their status or needs. In view of the fact that insurgency has led to grave consequences, there is therefore the need to understand the effect of insurgency on agricultural activities of women which is their major means of livelihood in northeastern Nigeria. Furthermore, information collected

will be of benefit to extension agents and relevant stakeholders so that they can step up their extension activities and the type of assistance to render to women and Nigeria at large. Not all insurgent attacks in North-Eastern part of Nigeria are being reported by the media, and even when they are reported, the levels of damage to their livelihood are quantitatively not precisely reported.

This research work will provides details of the communities affected by insurgency to the government, Nigerians and the world at large for possible intervention so they can comfortably go back to their livelihood activities. This study will further provide information that will be useful to policy makers and researchers to formulate workable policies in future that would be of assistance towards ameliorating or preventing the mindless destruction of crops, animals and properties as well as the senseless killing of humans that occurred in the region and beyond. It is hoped that this work will serve as an addition to already existing literature on insurgency. More so, the findings from the study will be of benefit to academic in the social science, humanities, development studies, peace, intelligence and security studies and the society.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 SOCIO-ECONOMIC CHARACTERISTICS OF RURAL WOMEN FARMERS

One of the major factors responsible for the declining agricultural productivity in Nigeria is the relegation to the background of the contributions of women in the issues of food crop production (Abiola and Omoabugan, 2001). It has been reported that women farmers requires time saving technologies for both farming and domestic works to reduce the length of their working day as well as increase their efficiency, their output and reduce poverty for enhance standard of living (Central Bank of Nigeria (CBN), 1998; United Nations, 2001;Federal Government of Nigeria (FGN), 2004; Rahman and Usman, 2004).

According to Steunou (2009), the contributions of women farmers to agricultural production have been marginalized and under-valued in conventional agriculture, economic analysis and policies. For this study, the following characteristics were reviewed age, gender, education, land ownership, farm size, types of labour, access to farm inputs, access to credit, access to extension services, farming experience and household size.

2.1.1 Age

Bello *et al.* (2017) investigated the economic effect of insurgency on smoked fish sellers in Maiduguri Metropolis of Borno State, Nigeria. The study reported that the mean age of the fish trader was 41 years and they were actively involved in fish marketing. Onyebu (2016) in his study on the assessment of income generating activities among rural women in Enugu State, Nigeria reported that about nine percent of the respondents

were in the age category between 25 - 34 years, thirty-six percent were in the age category between 35 - 44 years, twenty-nine percent of the respondents were in the age category between 45 - 54 years, twenty percent of the respondents of the respondents were within the age bracket between 55 - 64 years and six percent of respondents were above 64 years of age.

Ojo *et al.* (2012) studied women's accessibility to resources of agricultural productivity in Borno State, Nigeria. The age distribution in the result of the study showed that over 85% of respondents were in under 50 years. This has direct bearing on availability of able-bodied labour force for primary production and ease of adoption of innovations. This is the age where people are more likely to take risks to enhance their farm business.

2.1.2 Educational status

Education is associated with adoption because it is believed to increase farmers' ability to obtain, and analyze information that helps them make appropriate decision. In almost every adoption study, education of the farmer is considered to positively influence the farmer's likelihood of adopting a new technology or practice because farmers with better education have more exposure to new ideas and information, and thus have better knowledge to effectively analyze and use available information (Kassie *et al*., 2013; Prokopy *et al*., 2008).

Meanwhile, most studies consider education in terms of number of years of formal education, the categorization of education by Baumgart-Getz *et al*. (2012) seems more appropriate: in contrast to formal education, it reflects knowledge farmers attain through other means such as extension programs, workshops, and field days. Similarly, findings by Yengoh (2012) indicated that education enhances productivity and efficiency among

farming households in the humid forest, dry savannah, and moist savannah agro-ecological zones of Nigeria.

2.1.3 Gender

The connection between input utilization, agricultural productivity and gender was well dominated in the studies of Ogundele and Okoruwa (2006). The study observed that the contribution of female farmers to agricultural productivity was highly significant. Other authors offered evidence of gender differentials in agricultural productivity in Nigeria with women's productivity arising from their weak bargaining position within the family and in the labour market. Further support for this gender bias in Africa derives from the fact that women have far less access to land and other productive inputs.

2.1.4 Marital status

Marital status in this study refers to the category the woman farmer belongs in terms of whether she is single, married, divorced, separated, or widowed. Marital status determines access, control and ownership of agricultural productive resources. The study, therefore, expects variations in access, control and ownership of agricultural resources because of differences in marital status. Onyebu (2016) study on assessment of income generating activities among rural women in Enugu State, Nigeria. The results revealed that about 81% were married and18% were single. This implies that more married women were involved in income generating activities than those that are single.

2.1.5 Household size

Households with more adults are more likely to adopt improved management practices since many of these practices are labour intensive (Kassie *et al*., 2013). Hence, household heads are the final decision makers regarding choice of technologies and farm inputs utilization. Similarly, as the household size increases, the likelihood of

expanding farming size and by implication utilizing more inputs is expected to be high (Marenya and Barrett, 2007). Onyebu (2016) study on assessment of income generating activities among rural women in Enugu State, Nigeria revealed that 30% of the women had a household size of between 1 – 5 persons, about 60% had a household size of 6 - 10 persons and 10% had a household size of above 10 persons.

2.1.6 Years of farming experiences

Years of farming experience is another factor that enhances efficiency among farming households. Years of farming experience in Nigeria increases as age of farmers increases. Age and farming experience are therefore positively correlated with the efficiency of the farmers. Older farmers have also been observed to have higher productivity than younger farmers. For example, Lambrecht *et al.* (2014) observed that productivity in the humid forest and moist savannah agro-ecological zones of Nigeria was positively associated with more experience in farming. Also Kassie *et al.* (2013) reported that the economic efficiency level of farmers was significantly affected by farming experience.

2.1.7 Farm size

Land related variables influence farmers' adoption behavior, as land holding is an important unit where agricultural activities take place. Secure land tenure has been widely demonstrated to play a critical role in influencing farmers' willingness to invest in rice production (Kassie *et al*., 2013). Concerning land holdings, different studies reported its effect positively. For example, a study conducted by Teshome *et al*. (2014) reported that land ownership and farm size contributed positively in farmers' efficient utilization of improved production resources. Kamau *et al.* (2014) showed that farmers that owned parcels of land on which they farmed were more productive than non-

landowning farming households. This is because they were ready to make huge investments on such land through the adoption of new technological packages to enhance productivity levels.

In relation to land management, it is argued that 'assurance effect' of secure land tenure provides a guarantee to farmers to invest in both short and long-term soil management practices (Grimm and Klasen, 2014) because it eliminates threats of appropriation. Odongo and Klasen (2015) using the profit function equation found that small farms attained higher productivity levels than larger farms in a study conducted in Tanzania. Therefore, they came up with a contrary conclusion which shows large and small farms that exhibits equal levels of productivity. Mugwe *et al*. (2008) however observed that large farms were more efficient than small farms in farm inputs utilization. Equally, Pulido and Bocco (2014) shows that larger farm size owners were much more motivated to adopt improved farm management practices in other to enhance their productivity.

2.1.8 Annual income

Annual income was used as one of the proxies for economic status that was envisaged to have a positive effect on adoption behaviour (Knowler, 2015). This is premised on the argument that lack of cash or access to cash may deter smallholder farmers from adopting new technologies that require initial investments. Several analyses of the role of income and farm profitability on adoption have revealed a positive influence (Baumgart-Getz *et al*., 2012; Knowler and Bradshaw, 2007; Prokopy *et al*., 2008).

2.2 CONCEPT OF INSURGENCY

There have been different definitions of insurgency by various authors. Powell and Abraham (2006) as cited in Onwuaroh *et al.* (2017) defined Insurgency as a violent movement made by a person or group of persons to resist or oppose the enforcement of

law or running of government or revolt against constituted authority of the state or of taking part in insurrection. Kilcullen (2006) defined insurgency as a struggle to control a contested political space, between a state or a group of states or occupying powers, and one or more popularly based non-state challengers. In addition, Babagana *et al.* (2018) defines insurgent as when one or several people who take up arms against the local state authority or a participant in insurgency.

Insurgency as defined above becomes violation of the criminal law and the international treaty obligations of a nation in the same circumstances. The situation includes an attack on defenseless citizens and other property resulting into destruction of properties, injuries, loss of lives as well as forced or massive internal displacement of people out of their habitual places of residence. It drives business/investors away from an insecure area and constitutes domestic, and international crimes punishable by law such as treasonable felony, terrorism, murder, crimes against humanity and genocide (Onwuaroh, 2017).

Act of insurgencies seek to overthrow an existing order with one that is commensurate with their political, economic, ideological or religious goals (Gompert and Gordon 2008). Insurgency is not new to Nigeria alone as there have been various act of insurgencies around the world by Al-Qaeda in Afghanistan, Hezbollah in Lebanon, the Syrian Islamic Liberation front in Syria, Hamas in Palestine, the Taliban's in Pakistan, Al-shabaab in Somalia, the Lord's Resistance Army in Central African Republic, the M23 Rebels in Democratic Republic of Congo, the National Movement of Azawad (MNLA) and the Al-Qaeda in the Islamic Maghreb (AQIM) in Mali among others just to mention a few. Thus, the most devastating effects of these insurgencies all over the world have been the high toll of humanitarian crisis in the form of rise in Internally

Displaced Persons (IDP's), refugee influx, food insecurity, spread of diseases, gender and sexual based violence (Huger project, 2012).

Many scholars have attributed the cause of insurgencies to many factors. According to Awojobi (2014), most of the conflicts in developing countries are caused by the prevalence of poverty. People engage in insurgency for various reasons such as politics, tribal or ethnicity, religion and so on. Thus, engaging in insurgency under the umbrella of religious creed or doctrines could be described as religious insurgency. Insurgency has become a threat to global peace and security in the 21st century due to the fact that it constitutes the highest contributor to humanitarian crises in the form of rise in human casualties, internally displaced persons, refugee debacles, food insecurity and the spread of various diseases (Awojobi, 2014).

2.2.1 Overview of insurgency in Nigeria

A government crackdown after violent confrontations in June and July 2009 in Maiduguri and several other cities led to the extrajudicial execution of Yusuf by the Nigerian police, as well as the killing of a number of other sect leaders and at least 1,000 supporters. Female supporters did not play a direct part in the 2009 violence. "Although there were women among the followers of Muhammad Yusuf, none was arrested or found among the dead. This might be because the sect leader evacuated them to safety when the invasion of his enclave became imminent" (Usman, 2009).

An in-depth examination of the work of Agomuo (2011) on "Boko Haram: Off Shoot of Bad Governance" shows that the study critically reviewed works from several authors, drew out insights from their finding and came out with conclusive findings that the *Boko Haram* sect targeted serving and retired military and other security personnel, perhaps to avenge Mohammed Yusuf, their leader who was allegedly killed in 2009 by

some policemen. According to the study, since the sect started their operations, members of the sect have assassinated a number of high profile Islamic scholars in Maiduguri and like Afghanistan Talibans, the group has also attacked many drinking and eating rendezvous where they dispatched hundreds of souls to their early graves. As revealed by Crises Group Africa Report (CGAR) (2014), clashes with security agents in 2009 escalated in July into a full scale armed insurrection targeting police headquarters, stations and officers homes in a failed attempt to establish an Islamic state in Maiduguri and some cities in the North including Bauchi, Potiskum and Kano. However, a brutal military crackdown led to the death of over 800 *Boko Haram* members.

Chukwurah and Eme (2015) worked on implication of *Boko Haram* terrorism on northern Nigeria. The study revealed that the Northern Nigerian's economy before *Boko Haram* terrorist activities was a thriving economy but has now been grounded to a halt in the transport, tourism, commercial, core service and infrastructural sectors.Their findi ngs focusedmostly on the tertiary activities (transport, schools, hospitals, hotels, parks a nd recreation) with negligible attention on agriculture which is the major source of livelihood of these rural dwellers especially women.

According to Abubakar *et al.* (2017), more often than not, insecurity constituted by Boko Haram in Adamawa state of Nigeria has to a large extent tampered with tens of thousands of people whom major activities is farming. The protracted violence in the affected zone has forced large-scale farmers to abandon their farming activities in search for their dear lives. This has to a large extent, crippled economic activities and hence led to reduction in internally generated revenue of the state. The mass displacement of people resulted in poor harvesting in the Northern and some central part of Adamawa State; mainly Mubi North, Mubi South, Michika,Madagali, Maiha, Hong

and Gombi Local government areas of the State. In addition, rising prices of food and other services in Adamawa have always been linked to high rate of insurgency in the state. There are challenges to low productivity, mass displacement, and decrease in internally generated revenue of the state. Consequently, farming activities in many parts of these states were seriously hampered by the insurgency leading to very significant drop in crop production which in turn led to food insecurity.

2.3 ACCESSIBILITY OF RURAL WOMEN FARMERS TO AGRICULTURAL INPUTS

Farmers' socio-economic characteristics are among the most common variables associated with farmers' potentials to agricultural production. It plays an important role in creating awareness and knowledge as they influence decision and level of input utilization for agricultural production (Barungi *et al.,* 2013). Some of the socio-economic characteristics of the farmers which may affect their level of input utilization and efficiency includes improved seeds, fertilizer, herbicides and land ownership, types of labour, and access to credit facility, access to extension services and other farming equipment.

Agricultural input supply networks are not operational due to transport and road issues and systemic weaknesses. Extension services are nearly non-existent and land access is limited. The combination of these issues contributes to ongoing food insecurity and low level of income because of insurgency (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017).

2.3.1 Input supply: The Northeast Nigeria Joint Livelihood and Market Recovery Assessment (2017) found that the most common issue reported by farmers is the lack of access to appropriate inputs – especially fertilizer and seeds. Other agricultural inputs

were hybrid seed, pesticides, local seeds and farm tools. It also found that during the insurgency around 30% of farmers changed the locations where they purchased seeds and fertilizer: for seeds, farmers were now more likely to get seeds from friends and neighbors or the village marketplace than before the insurgency. Only twelve percent received seeds through government aid prior to the insurgency and only 1% from aid agencies, indicating that market mechanisms were working, although needing quality improvements. Some can get fertilizers through the village marketplace, but many farmers could not get fertilizer at all due to the restrictions described above. Less than 10% of farmers reported getting fertilizer from government extension officers. Before the insurgency, the number of farmers who got free fertilizer from government officers was slightly higher than today. The assessment found that the weak input sector significantly inhibits farm production. On the supply side, input suppliers have struggled to stock products due to security issues affecting supply lines. On the marketing side, inputs suppliers lack rural outreach and marketing strategies to distribute their products over a mile and into the hands of rural farmers. There is a lack of affordable transportation for inputs at village level, and a lack of effective training and knowledge dissemination mechanisms to build the capacity of farmers.

2.3.2 Fertilizer: In spite of the demand for hybrid seeds, without appropriate fertilizer and farm chemicals, production levels will not be significantly different from traditional varieties, and the increased cost will be unjustified. Therefore, restrictions on chemical fertilizers due to *Boko haram* attacks are a serious concern. The assessment found evidence that input suppliers in Yobe and Adamawa bought animal waste, packaged it for farmers, and sold in more cheaply than chemical fertilizers which could not meet the quantity of yield compared to fertilizer (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017).

2.3.3 Access to land and credit: There is general consensus among farmers and input dealers that there is plenty of land available for planting; however the security situation as a result of Boko haram attacks remained the main barrier to full use of that land. In many cases farmers planted only the part of their land closest to town, or raised crops on land that was not their own. Many LGA administrations recommended that farmers do not plant beyond a secured radius of the town. As the security improves, restrictions should be lifted. The size of the secured area ranges from a distance of 3km to 10km from town, depending on the local security context, with restrictions more commonplace and stringent in Borno.

The assessment found that farmers travel on foot, an average distance of 6km to farmland, a journey of over two hours. The result of these security restrictions is, of course, that not all arable land is being planted, despite ongoing food security concerns which affect the level of income of the farmers. In some households, women support the men as workers on the farm. In other households, women are allocated a specific piece of land to farm, with control over the land they are working on. Some women farmers in South Borno reported that: "Women work on their husband's farm in the mornings from Monday to Thursday and then, she would work on her own farm on Friday, Saturday and Sunday. In the evenings, she may work on either." Farmers who can travel long distances might have more land to choose from, whilst some women who may be unable to travel long distances might have access only to land closer to home, even if the land is not fully suitable for their needs (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017).

Another potential restriction, particularly acute for more vulnerable groups, lands at safe zones were in high demand, which drives up the cost on rent age of land (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017). As a result, some

farmers do risk planting land further away, which further alienates women from engaging in agricultural activities. In Konduga, a producer reported that despite the restrictions, he accesses land up to 20km away. In doing so, "...there is constant fear of a Boko Haram attack on the farm. Recently, there violence including theft of farm produce and tools. Only a few days prior [to this interview] a neighbour was chased off his land by Boko Haram insurgents." The data suggests that the shifts in land access during the insurgency may have reduced input usage, as farmers chose not to invest in soil conditioning or irrigation equipment. Similarly, Stephen and Sharmarke (2014) reported that insurgency had affected farmers' access to farm inputs, reduced their productivity, caused destruction to their crops and livestock, conflict on land ownership and even forced the energetic farmers to migrate to more secured places.

According to Sidney *et al.* (2017), farm input subsidy is statistically related to the output of farmers. The result indicates that the odd of farm input subsidy is estimated to be about 0.8 (1/1.202) times as high than the time when there is no farm input subsidy, this is as a result of insurgency activities in the areas. The odd ratio for the farm input subsidy express the effect of 1 percent increase in the farm input subsidy increases the odd of productivity of rural farmer by an estimated 20%. Access to credit and savings plays an important role in the utilization of agricultural activities (Sanginga and Woomer, 2009). Credit access facilitates purchase of inputs especially improved local seed varieties, organic fertilizers and labour (Geta *et al*., 2013; Teklewold *et al*., 2013). Capital and risk constraints are key factors that limit the efficient utilization of rice production inputs by small-scale farmers. In line with this, studies conducted by different authors such as Kansiime and Wambugu (2014) also found that the use of credit had positive and significant influence on adoption and intensity of adoption of the technologies.

2.3.4 Equipment: Prior to 2014, most LGAs in the Northeast were involved in the agriculture sector. The state governments invested heavily in the sector through the procurement of machinery such as combine harvesters and tractors. During the insurgency, some LGAs fell under the control of armed groups and farming activities were severely limited (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017).

2.3.5 Extension services: Extension services to farmers have largely been provided by local government agents organized into "blocks" and "cells". However, because resources for these services are extremely limited, more remote areas were often underserved even prior to the insurgency. This situation has not improved in the assessment areas, and little to no extension services are currently provided in these areas. Vulnerable farmers and women have always been more likely to be left out of these services, as agricultural extension officers simply cannot meet all their support obligations (Northeast Nigeria Joint Livelihood and Market Recovery Assessment, 2017).

Extension services are a channel through which agricultural innovations and information are passed to farmers for improvement in their standard of living, production and productivity. Onubuogu *et al.* (2014) narrates that natives' are poorly visited by extension agents to ascertain their farming problem and know where they need assistance. The implication of the finding is that it could bring about low productivity due to lack of innovative information. Knowler and Bradshaw (2007) and Deressa *et al*. (2008) all agreed that adequate extension contact have a positive relationship with the adoption of agricultural technologies. A research conducted by Muddassir *et al*. (2016) agreed that inadequate information through extension services was the major reason for utilization of recommended farming practice or technology. In

addition, according to Fiaz *et al*. (2016), self-sufficiency in agriculture could only be achieved by addressing the agricultural problems through effective use of extension services.

2.4 INCOME GENERATION ACTIVITIES OF FARMERS

Food and Agriculture Organization (2002) categorized income generating activities into two types, agriculture and non-agriculture income generating activities. Moreover, Food and Agriculture Organization (2002) observed that communities decides the kind or type of income generating activity to engage in based on the nature of their localities, social, economic, political as well as psychological situation. Resources available in the communities are regarded as crucial factor given much consideration on deciding. According to Winters *et al.,* (2009), an income-generating activity can be seen as some form of employment whereby participants are involved in activities for the purpose of increasing their income.

Onwurah (2017) study on impact of insurgency on income of farmers in North Eastern Nigeria. The results showed that there was great variation in income residuals across the three models (pooled data, 2009 data and 2015). The implication is that parameters' estimates of the conditional mean of income differ across 2009 and 2015. Thus, it can be said that insurgent activities have had an impact on income. This finding total aggress with Salkida (2012) who stated in his work that insurgency in the North has had a devastating effect on family and livelihood of many groups which had resulted to the bringing down of incomes and increasing poverty levels.

Activities that generate income includes self-supporting project that produce profit for participants from sale of items for money, from employment for wages, or from increased produce. Types of activities carried out in a country may vary depending on

the situation and environment. Quite a number of women's groups are involved in activities such as sewing; gardening and making bounties; and other small businesses. Adebisi *et al.* (2017) categorized income generating activities into cash, food crops, livestock, agricultural wages and non-agricultural activities.

Income generating activity can increase income to provide the poor with freedom to make choices about how to improve their lives. It allows them to build assets, reduce vulnerability to disasters and improve their food security (Adebisi *et al.,* 2017). According to Food and Agriculture Organization (2005), income generating activities improve the family's food security when there is enough accessibility of food in local markets, but the impact vary depending on the distribution of income within the household and the use of that income. In the developing world, women use almost all of their income to cover the family's needs, while men spend at least 25% on other uses (FAO, 2005).

The increases in women's income have a significantly higher effect on household food security compared to a similar increase in men's incomes. Income generating activities aimed at creating opportunities for the use of resources among displaced people in a meaningful way and with the objective of becoming less dependent, more self-reliant and able to care for the family (UNICEF, 1992). Moreover, by providing support to income generating activities among communities, one can support local economic development in a broader sense. Income generating activities frequently lead to the rise of new skills, services, and opportunities in the communities and can stimulate the local economy, thereby linking relief with development. Similarly, this is the case when displaced people avail themselves of a durable solution (UNICEF, 1992).

Income generating activities are composed of the activities that generate the means of household survival and livelihood sustainability. Income earning strategies may be divided into natural resource based activities (e.g. collection and gathering, cultivation, livestock-keeping, weaving) and non-natural resource based activities (e.g. trade, services, remittances.) (Ellis, 2000). Means of livelihood are referred to as production strategies which include income-earning activities, remittance, gifts and loans. But income earning strategies are dynamic and widespread from which rural poor people are able to respond based on changing pressures and local opportunities that could be adapted accordingly (Ellis, 2000). However, livelihood sustainability outcomes and goals vary and they are subject to changes, for example, in peaceful and politically stable situations, livelihood goals might include increased well-being or more income; whereas in times of crisis, peoples goals might become focused on such short-term objectives as personal safety, food security, reduced vulnerability and survival (United Nations Development Programme (UNDP, 2013).

Ayinde, *et al.* (2012) examined the analysis of income inequality in Nigerian agricultural economy: A case study Of Ekiti State. The findings revealed that income inequality is higher in urban than in the rural areas and that income level, farm size and household size are the factors that contribute to inequality in both rural and urban areas. The study recommended that the production technology should be improved, infrastructural facilities should be provided, access to credit and land should be made easier and that large family size should be discouraged to facilitate a more equitable dist ribution of income and increase agricultural production. In the study of Awoyemi *et al.* (2010) which examined the effect of zonal differences on the distribution of per capita expenditure in terms of polarization, inequality, and poverty in Nigeria. The findings

revealed that decline in the level of inequality and polarization in Nigeria, while an increasing level of identification which indicates an emerging level of bipolarization.

2.5 AGRICULTURAL PRODUCTION BY WOMEN IN NIGERIA

The international development community has recognized that agriculture is an engine of growth and poverty reduction in countries where it is the main occupation of the poor. But the agricultural sector in many developing countries is underperforming in part because women, who represent a crucial resource in agriculture and the rural economy through their roles as farmers, labourers and entrepreneurs, almost every were face more severe constraints than men in access to productive resources. Efforts by national governments and the international community to achieve their goals for agricultural development, economic growth and food security will be strengthened and accelerated if they build on the contributions that women make and take steps to alleviate these constraints. (United Nations Development Programme (UNDP, 2013).

Women make essential contributions to the agricultural and rural economies in all developing countries. Their roles vary considerably between and within regions and are changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector. Rural women often manage complex households and pursue multiple livelihood strategies. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting fuel and water, engaging in trade and marketing, caring for family members and maintaining their homes. Many of these activities are not defined as “economically active employment” in national accounts but they are essential to the well-being of rural households. (United Nations Development Programme (UNDP, 2013).

The Nigerian rural women have played significant role in agricultural sustainability and rural development. Wofan, (2003) confirmed this and suggested that rural women's role be identified, appreciated and maintained via adequate rural development policies. The agricultural sector of Nigeria is seen as the key driver for growth and development. It remains the largest providers of food, employment opportunities, raw materials for industries and foreign earnings from exportation of the surpluses. Thus, agricultural growth and development depend more and more on yield-increasing technological change (Datt and Ravallion, 1996). It is believed that the adoption of new agricultural technology such as the high yielding varieties (HYV) could lead to significant increases in agricultural productivity in Africa and stimulate the transition from low productivity subsistence agriculture to a high productivity agro-industrial economy (World Bank, 2008).

Some people have identified some areas of development where women are active in Nigeria. Ogundele *et al.* (2009) identified the eight cardinal elements of sustainability development as they affect women, e.g education, health, culture, politics, economy, agriculture, enhanced environment, quality and peaceful co-existence.

Nigeria women take active part in agriculture. In a study of women's participation in agricultural production in northern Nigeria's rural area found that women were active participant in the process. According to the researchers about 90% of the women interviewed had farming as their main occupation (both arable and pastoral) including those in purdah. The general patrilineal system of inheritance enable must women in northern Nigeria to have access to land through their husbands who acquire it through inheritance (Alman *et al.*, 2009).

2.6 EFFECTS OF INSURGENCY ON AGRICULTURAL CROP PRODUCTION

Effect could be defined as an immediate influence on the state of the environment surrounding an organization (Sanginga *et al.*,1999). The effect of an event or programme could be assessed in relation to what actually has happened to the people who are faced with such an event or participating in a programme. *Terrorist attack is in the news on a daily basis and the intensity of religious terrorism is increasing every day. The number of death from terrorism is increasing on yearly basis and the world death toll in 2013, increased by 61% when compared to 2012 (*Adebisi, 2017*).* The Boko Haram group in Nigeria and neighbourhoods and the Al-Shabaab in Kenya are enough to discourage Westerners from doing business with Africa. More than 1.5 million people, mostly farmers, have been forced to flee their homes as Boko Haram intensified its insurgency in the past years according to the United Nations High Commissioner for Refugees. The worst-hit states of Borno, Yobe and Adamawa produce staple foods such as cowpeas, rice, millet, sorghum, corn and yams as well as tomatoes, onions, fish and livestock for both local consumption and export markets. The fear of the notorious group has stopped farmers from going to farm even when the climatic condition is very favourable and could have led to a bountiful harvest. The attacks on villagers, burning down homes and indiscriminating shooting have forced survivors to relocate to the State capital especially in Adamawa State (Adebisi, 2017).The government has also been spending a lot to cater for refugees. The situation has led to an increase in government expenditure. Insurgency has brought pain and death to Nigerian business especially in the agricultural sector of the nation. The aftermath of insurgency is hunger as it has displaced farmers from their settlements and buyers into untold hardship. Each attack in Adamawa State kills human beings and destroys farm products. The Boko Haram insurgency which started in 2002 lunched its

full-scale attack in 2009 and since then became more violent each day. The fear of Boko Haram has prevented farmers from cultivating their farm lands and the few that did have lost their farm products to the terrorists who set them ablaze, killing the farmers and destroying their products. These States are closer to Niger, Chad and Cameroon where agricultural business activities were booming especially in area of export of groundnuts and groundnut oil (Mustapha, 2015). These activities are now becoming history due to Boko Haram attacks. The government must use all means to fight these terrorist to allow farmers go back to business in order to boost the Gross Domestic Product (GDP) of the country.

Agriculture's as a main source of livelihood in the northern state of Nigeria has experiences decline in productivity due to the influence of Boko Haram. The percentage of people engaged in subsistence agriculture will continue to reduce if nothing is done to arrest the situation. Although GDP can depend on macroeconomic activities, agriculture in Nigeria is also a major source of GDP and therefore cannot be left to be destroyed by a violent sect called Boko Haram. Agriculture in Nigeria is beyond food for man and animals. It serves as a source of income to the country through exportation and raw materials for industries in the country. The importance of agriculture in the creation of employment, industrialization and poverty reduction cannot be over emphasized (Adebisi *et al.,* 2017).

Indeed every aspect of human endeavour, be it health, environmental, food, economy, political, social, education, sport and physiology among others stands to be greatly affected by the state of security or insecurity of that nation. It is no longer news that in recent time, Nigeria has been burdened with challenging security issues chief among which is the Boko Haram insurgency (Adebayo, 2014). According to Adibe (2014), Boko Haram attack started in 2004, in Yobe State and by 2011, it made its presence

known to the global community by bombing the United Nations headquarters in Abuja. Especially over the last two years, it attacked hundreds of buildings and killed many innocent Nigerians.

Until recently, the Nigerian security and intelligence agencies knew very little about the group's origin and philosophy, its *raison d'etre*, and its goals and end game (Adibe, 2014). In the past, Boko Haram insurgents have used Cameroon as a safe haven for initiating hit-and-run attacks on neighbouring Nigerian territory. The Nigerian government responded by deploying a military presence on the northern border. Further attempts to prevent the sect extremists from accessing targets across the porous boundary have culminated in official closure of the Cameroon border (Merrick and Li, 2014).

The North has 78% of Nigeria's land which supports most of Nigeria's agriculture (food, cash crops and livestock) (Innocent and Ibietan, 2012). With increased intensity of bombings in the north, there was compulsory mass movement of individuals from the most affected northern states especially in early 2012. This was accentuated by the uncertainties surrounding the fuel price crisis at the time. The movements were of a strange kind since both Southerners and Northerners simultaneously moved from Boko Haram strongholds. While the affected areas of North move to the South-East in hundreds, others relocated to the South-West (Innocent and Ibietan, 2012).

Merrick and Li (2014) stated that the sect has inflicted violence in northern Nigeria for the past five years. Boko Haram means “western education is forbidden”. It upholds its principles by targeting schools, Christian churches, and more recently, the entire towns. Since 2009, Boko Haram insurgency was believed to have killed thousands of people and destroyed properties valued at over a billion dollars (Adebisi *et al.,* 2017). This

includes government buildings, livestock and produce. The insurgents continued to torch public buildings and steal large quantities of produce, thereby destroying livelihoods of farmers and forcing hundreds of businesses to close or relocate.

According to Omilusi (2016), the multi-dimensional impacts of insurgency and armed conflicts in Nigeria are diverse including national insecurity, socio-economic impacts, collapse of infrastructure/humanitarian crises, as well as impacts on diplomatic relations. Perhaps, the most important insurgency related socio-economic impact that could lead to the greatest humanitarian crises in the world was its impacts on food security. Reports by scholars showed that, with the emergence of the Boko Haram insurgency in 2009, it had negatively affected agricultural activities in many areas where the insurgent activities are concentrated especially in Borno, Yobe and Adamawa states (Babagana *et al.*, 2018).

Obviously, the insurgency had really had very significant effect on agricultural activities in the areas especially on crop production and livestock farming.

According to Ojo *et al.* (2018) studied the effects of insurgency on food crop farmers' productivity in Borno and Gombe States, Nigeria. The result reveals that insurgency had negative and significant effect on the food crop farmers' productivity in the study area. Productivity of rural farmers is essential and fundamental to any society or nation, but insurgency activities has led to massive displacements of many hundred thousands of rural farmers resulting in high level of food insecurity in North-Eastern Nigeria. Community and household resources may be diminished as funds are diverted away from social services, prices for food and other commodities rise, and fear or physical obstacles prevent care-givers from pursuing livelihood activities.

2.7 Constraints Faced by the Farmers Due to Insurgency

Although rural women farmers throughout Nigeria and Africa in general play significant roles in food production, processing and feeding families, it must be mentioned that they perform these functions whilst facing numerous constraints and as such are hardly ever able to attain their full potential with respect to the substantial efforts they put into the agricultural sector.

Women make significant daily contributions to their households as employed wage earners, as entrepreneurs, and caretakers to their families and elders. However, female farmers are less likely to succeed when compared to their male counterparts; this problem is often due to a number of setbacks that range from a lack of same access to seeds, credit, extension services and technology. Unfortunately, they are also less likely to own land as statistics show that only 20 percent of landowners globally are women. Also if they hope to inherit family property, the law may deprive them of an equal share, or social norms and traditions may simply favour their male relatives (UN Women, 2016).

The major problem affecting agricultural development in most rural areas of sub-Saharan Africa (SSA) has been identified as the lack of infrastructure; all attempts to develop agriculture would be useless if this problem is not solved. A large number of farmers in this region operate at the subsistence and smallholder level, with average holding of about 1.0-3.0 hectares, and sadly, a disproportionate share of the agricultural production is left in their hands. With little or no access to modern improved technologies their general circumstance cannot secure them reasonable investments in capital, inputs and labour (Baba, *et al.*, 2015). In Nigeria, as in most parts of SSA, the diminishing capacity of agriculture to guarantee household food subsistence since the

1980s led to a sharp increase in the workload shouldered by rural women as most rural men withdrew their labour from agriculture to work in other more income-generating sectors of the economy. This situation has the increased attention given to the role of smallholder subsistence agriculture in ensuring food security of the continent, as about 73% of the rural population consists of smallholder farmers (IFAD, 1993).

Several factors weigh against African women in their efforts to participate in agriculture and maximally benefit from the contributions they put in the sector. These factors limiting their endeavours include but are not limited to socio-cultural and economic problems that they face at home and in the society. Most of these obstacles are so deeply rooted in societal norms that it becomes overwhelming for these women to overcome. Overall, women contribute immensely to agricultural output but unfortunately they hardly, until recently, benefited from agricultural incentives and innovation due to economic suppression, social and traditional practices which weaken the constitutional provisions on gender equality. Gender discrimination, rather than ignorance, is the justification for the lack of female participation in agricultural programmes and projects (Ogunlela and Mukhtar, 2009).

2.7.1 Access to land and land tenure system issues

Drafor and Puplampu (2013) mentioned a number of authors in affirming that land is a significant resource for the sustenance of rural women and that these women are empowered to tackle the pressing problems of food insecurity and poverty when they control their own land. However, African women farmers are faced with the inability to access land and even when they do; they face tough land tenure systems that are often influenced by biased customary norms and traditions. These customary claims to land are often built on the basis of social differentiation and inequality. It is therefore

intuitive that these prevailing land tenure systems in Africa reduce agricultural production, exacerbate poverty and exclusion of these rural women. An OECD report on the effect of social norms on gender equality in Sub-Saharan Africa notes that although legal protection may exist theoretically, in practice, women's ownership rights to land and property are still highly restricted in the region. Gender discrimination is most evident in access to land, where traditional law often prevails. For example, in Rwanda and Ethiopia, women can only access land through marriage; despite the fact they constitute a sizeable proportion of farm workers. Likewise, in Congo, women make up 60% of the agricultural workforce, but only 25% of them own agricultural land; in Kenya, only 4% of land is owned by women (OECD, 2010).

In Nigeria, women generally own less land by reason of traditional authority. According to the 2012 Gender in Nigeria report by the British Council, average land ownership by women across the country was found to be significantly low at less than 10%; 4% in the North-East, and just over 10% in the South-East and South-South parts of the country (Sahel Capital and Advisory, 2014). These figures across Africa imply that there is a general lack of female land ownership and the limiting effect of this phenomenon is most felt when sourcing for bank loans. Given that banks often demand land as collateral, this poses a setback for most female farmers in accessing loans. In addition, access to property other than land often depends on whether a woman is married and under which legal regime her marriage is recognized (OECD, 2010).Access to land and security of land tenure affects female farmer's access to other crucial resources such as credit, technology and extension services. When women farmers lack security of land tenure, as they do in many African countries, the result is that they will most likely have lower access to credit and productive inputs which unfortunately lead to an inefficient land use and as such decline in their agricultural yields. Moreover, insecurity in land

tenure system implies that most female farmers are often excluded from modern contract-farming arrangements because they do not have full control over their land, a condition which is needed to guarantee the delivery of reliable flow of produce (Drafor and Puplampu, 2013). Land tenure arrangements vary considerably across Africa. In some areas, women have traditionally held land and maintained rights over it. In other areas, men retain the rights to land, but provide women with access to it through marriage. In discussing women's access to land, it is important to note the extent to which women have formal and customary rights over the land that are independent of their husbands. It is sometimes argued that women's access to land is generally not a problem where social institutions allocate land to both men and women or where women can borrow or claim unused land (Bryson, 1981). This suggests that it does not matter how an individual obtains access to land or how access to land changes with varying economic conditions. However, both women's access to land and the security of women's land tenure will affect decisions regarding the adoption of technology (Doss, 1999)

2.7.2 Access to finance and agricultural inputs

Poor access to financing is another major setback faced by women in agriculture. Credit is an extremely useful resource to farmers due to the fact that their production activities are most often seasonal in nature and a considerable lag occurs between the time they incur costs and the time that they are able to generate income from their produce. Several researchers have identified a number of reasons women farmers are still not able to access credit easily. Some of the most relevant ones include; the lack of collateral requirements, high transaction cost, limited education and mobility, socio cultural impediments, irregularity of employment, and the nature of women's businesses. Moreover, the OECD noted that, the scattered settlement pattern in many

rural communities with lack of basic infrastructure and risky nature of agricultural production, cripple opportunities for providing adequate and timely credit to rural households (Drafor and Puplampu, 2013). In Nigeria, women farmers receive less than 10% of the credit offered to small-scale farmers. Women farmers are deterred from applying for formal loans because of the complexity of the administrative process, unsuitable loan sizes and credit rates. Typically, women are not found in farmer clusters. According to the National Bureau of Statistics (2017), in 2007, some 20,098 men accessed loans compared to 8,550 women (Sahel Capital and Advisory, 2014).

Furthermore, Drafor and Puplampu, (2013) cite several authors in asserting that this situation in sub-Saharan Africa is further worsened by the probability that women are less likely than men to utilize credit and that they often do not control the credit when it is obtained. Anyhow, in view of the gender aspects of the land tenure system, women do not generally fare well in using land titles as collateral for credit. The inherent sexism within the credit market also makes it more difficult for female-headed firms to be as productive and profitable as male-headed ones.

Difficulty in accessing key agricultural inputs such as improved seedlings, fertilizers, pesticides, machinery, etc is often as a direct result of the poor financial situation these women are faced with. Women farmers have indicated that they are unable to use improved inputs due to their high cost in the open market (Sahel Capital and Advisory, 2014). Together, these factors place restrictions on access to input and output market information and have a negative impact on women's productivity. Lastly, Öhlmer (2008) examined the effect of credit constraint on production efficiency of farm households In Southeastern Ethiopia. The findings revealed that the mean efficiency score of credit constraints of farm household was 12% which implies considerable

potential loss in output due to inefficient production. In general, the results have important implications for credit, education and land policies in developing countries

2.7.3 Women farmers access to agricultural information and extension services

Problem in accessing information and training is another major constraint women face in agricultural production. Women's participation in farmer training is often low due to the lack of awareness, societal barriers, and transportation facilities. Also, discriminatory cultural norms restrict some women from accessing Information and Communication Technology (Sahel Capital and Advisory, 2014). Furthermore, illiteracy and lack of a l formal education are constraints that most rural women face. Education is fundamental to agricultural production and rural development. It stimulates participation, builds capacity and betters the opportunities of underprivileged communities in decision- making process. A lack of education and illiteracy denies rural women access to essential information and technologies required to manage and expand their productive capacity. Additional factors that influence rural women's access to education include social, political, religious and economic factors and these are often based on discrimination against the female gender (Omeire, 2016).In adequate contact with extension agents or a lack of extension services is often why there still exists an agricultural information gap between female and male farmers. Agricultural extension seeks to improve the know-how of farmers, through education and communication in farmers‟ attitude, knowledge and skills. As such the role of agricultural extension involves information dissemination, capacity building of farmers through the use of a variety of communication methods and assisting farmers in making informed decisions (Koyenikan, 2008).

Nevertheless, it has been observed that in most parts of Africa, there has been a failure of government extension workers to reach women farmers and even worse still the

cultural bias existing in most countries has hindered women from actively participating in training sessions and extension meetings. These services have been predominantly offered by men and these extension agents usually directed their services to male farmers or heads of households, excluding female-headed households (Commonwealth Secretariat, 2001). Furthermore, the agricultural extension service in Nigeria has been plagued by numerous problems. Koyenikan (2008) cites Agbamu (2014) as stating the main issues to be inadequacy and instability of funding, poor logistic support for field staff, use of poorly trained personnel at local level, ineffective agricultural extension linkages, insufficient and inappropriate agricultural technologies for farmers, and disproportionate ratio of extension agent to farm family as well as lack of clientele participation in programme development in some parts of the country. Other setbacks include poor input supply and irregular evaluation of extension programmes and policy, institutional and programme instabilities of national agricultural extension systems.

2.7.4 Gender division of labour in agriculture

Gender division of labour in agriculture is a common practice that has often been viewed by several researchers as a limiting factor for most women in agriculture. In most parts of Africa, there has always been a strict division of labour by gender in agriculture. Such division of labour is usually based on crop or task, and both types of division of labour by gender may occur concurrently. Both genders frequently mobilize each other's labour for some tasks involved in the crops that they control (Doss, 1999).In Uganda, the division of labour between men and women in agricultural production varies by region and community. Conversely, it is usually the men who are in charge of large-scale cash cropping, especially when it is highly mechanized, while the women are responsible for household food production and small-scale cultivation of food and some cash crops that require low level technology (Opio, 2003).Furthermore,

cash crops and export crops are often described as male crops, while subsistence crops are termed female crops. The major reason for this categorization is that women are responsible for feeding the family and thus prefer to grow subsistence crops for household consumption. On the other hand, men in agriculture are breadwinners of their homes and as such are expected to grow cash and export crops that will generate higher income for the family.

In general, it is hard to decipher why women grow lower-value subsistence crops; it could be because they have different preferences and concerns or because they have limited access to land, inputs, credit, information, or markets (Doss, 1999).Nigerian women account for 75 percent of the farming population in the country; working as farm managers, and suppliers of labour. Normally, the extent of gender involvement in agricultural production varies across ethnic groups in the country. In most cases, the men perform the more tedious tasks such as land clearing and felling of trees, gathering and burning of bush, and making ridges, while the women engage in planting. Furthermore, women also participate in weeding, harvesting, processing, and selling of farm produce. As is the case in most countries of sub-Saharan Africa, Nigerian women are rarely connected with agricultural export crops such as cocoa, rubber, cotton, but rather involved with the production of food crops such as maize, cowpea, melon, pepper, cassava, and vegetables that do not yield large revenues as compared to export crops. Additionally, some women engage in small scale animal husbandry and aquaculture (Sahel Capital and Advisory, 2014).

2.7.5 Women participation in farm management

Like in most patriarchal societies, socio-economic conditions, among other factors, affect the decision-making role of Nigerian women in agriculture. Damisa and Yohanna (2007), in their study on the Role of Rural Women in Farm Management Decision

Making Process in Chikum and Igabi Local Government Areas of Kaduna State, concluded that women farmers are heavily involved in agriculture in Nigeria although their level of participation in farm management decision making are quite low attributable to their age, education, land tenancy, and the wealth status. A greater part of the women interviewed were found to be illiterate and belonging to the low income group. Their study thus recommended gender specific policy interventions to enhance women access to basic farm inputs including finance in order to boost their participation in agriculture and its various decision making processes. Ogunlela and Mukhtar (2009) alluded to some authors in emphasizing that there is an urgent need for a gendered approach to agricultural policy in Africa. The reason for this call is based on the fact that although, women are an essential part of the African farming structure, they have been largely excluded by policy makers who have ignored this gender dimension at a high cost to African agriculture and to gender equity within the continent. A possible determinant for low levels of female representation in policy formulation could be traced to the fact that men tend to have higher levels of education compared to women and as such are more likely to be chosen to fill such positions at government level. Although it is obvious that the low economic status of rural women constrains their opportunities for extensive participation in agricultural production, other factors such as their assigned roles as home makers, caretakers, child bearers contributes to this constraint. Notwithstanding, they perform these household roles together with their farm responsibilities, therefore implying that these women have longer working hours compared to their male counterparts. Moreover, Doss (1999) mentions that the burden of pregnancy limits their ability to partake in farm tasks. This further suggests that there may be a decreased availability of household farm labour due to women's pregnancy.

Likewise, the efforts of rural women in agriculture are often underestimated and under-appreciated.

Although they are largely responsible for food production and household management, their decision-making is subservient to men. Therefore compared to men, they lack access to the benefits of Agricultural Knowledge, Science and Technology and to credit and markets for cash crops. African women farmers are unlikely to benefit from extension services and farm inputs, in addition, they can hardly afford agricultural technologies, and women are also under represented in scientific and technical research institutions which may result in technical innovations that do not take account of women's distinct perspective and farming needs(Wakhungu, 2010).Irrespective of these problem facing Nigerian women in agriculture, they have over the years come to prove that they have and are ready to play a serious role in the male dominated agricultural sector if they are given the right avenue and opportunity to do so. As such there is an urgent need to exterminate the gender bias issue that holds these women down; only when this is achieved can make women start contributing significantly to policy making and governance (Ogunlela and Mukhtar, 2009). Conversely, Olawoye *et al,* (2016) mentioned that there have been specific breakthroughs by the Nigerian government in acknowledging the significant role played by rural women in agricultural production and as such this has led to some level of attention into formulating gender aware agricultural policies. To this effect, numerous specific studies among different tribes in Nigeria have been carried out as a result of this acknowledgement. Moreover, Ogunlela and Mukhtar (2009) mentioned that this acknowledgement by the government, is as a direct result of the increased need to address poverty as a way of improving the economy. The recognition of the contributions of the women in the agricultural sector

and the resulting government investment in poverty alleviation programmes is critical given that the bulk of the nation's poor are women.

Food insecurity is still at extremely high levels due to a lack of access to seeds, farming tools, land and water among other factors. In the worst affected and least accessible areas of Adamawa State, reaching people remains a major challenge because of restricted access due to high levels of insecurity. FAO Seeds Security System Assessment (2014) indicated that the insurgency has negatively affected both the formal and informal seed system in the North-East States. Absence of drying season farming had made the people rely on expensive food and assistance that have negative effect leading to lack of economic and employment opportunities, and possible harmful consequences on the youth and women. Thus, funding is needed to support irrigated vegetable production and micro-gardening in the dry season, as well as rebuild livestock systems. More so, women's access to land, a key productive asset, is limited by patrilineal inheritance (from father to son), traditional authority structures that tend to give men decision-making control over all spheres of life and by local residence.

2.8 CONCEPTUAL FRAMEWORK

Conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure subsequent presentation. Conceptual framework is a research tool used to assist a researcher to develop awareness and understanding of the situation under study and communication. It is important because it helps the researcher to understand and to use the ideas of others who have done similar things; it also helps the researcher to explain why he or she is taking a project in a particular way; and used to simplify the research work.

Conceptual framework of the work explains the relationship between independent, intervening and dependent variables. For instance, increase in the age of the farmers

may likely result in change in agricultural output of farmers while increase in the level of education will have positive influence in agricultural output. This is because high level of education will expose them to many sources of information that will facilitate adoption process. Similarly, farmers with higher income may likely have the privilege of acquiring agricultural inputs that will improve production. Furthermore, farmers with large family size may likely have enough family labour for agricultural production and change in farming experience is expected to bring about a change in agricultural production positively, and increase in farm size will lead to increase in agricultural activities and production. Access to agricultural input by women farmers will improve agricultural output and vice visa.

On the other hand, if the effect of insurgency is much, it may affects agricultural output negatively so the higher the level of impact, the lower the level of agricultural production. When farmers face more constraints due to insurgency, their level of agricultural

activities will reduce and this will consequently affect income and livelihood in general . The intervening variables which may affect the level of agricultural production activit ies of farmers though, not study in this work are: government policies, cooperative membership, climatic factors, norms.

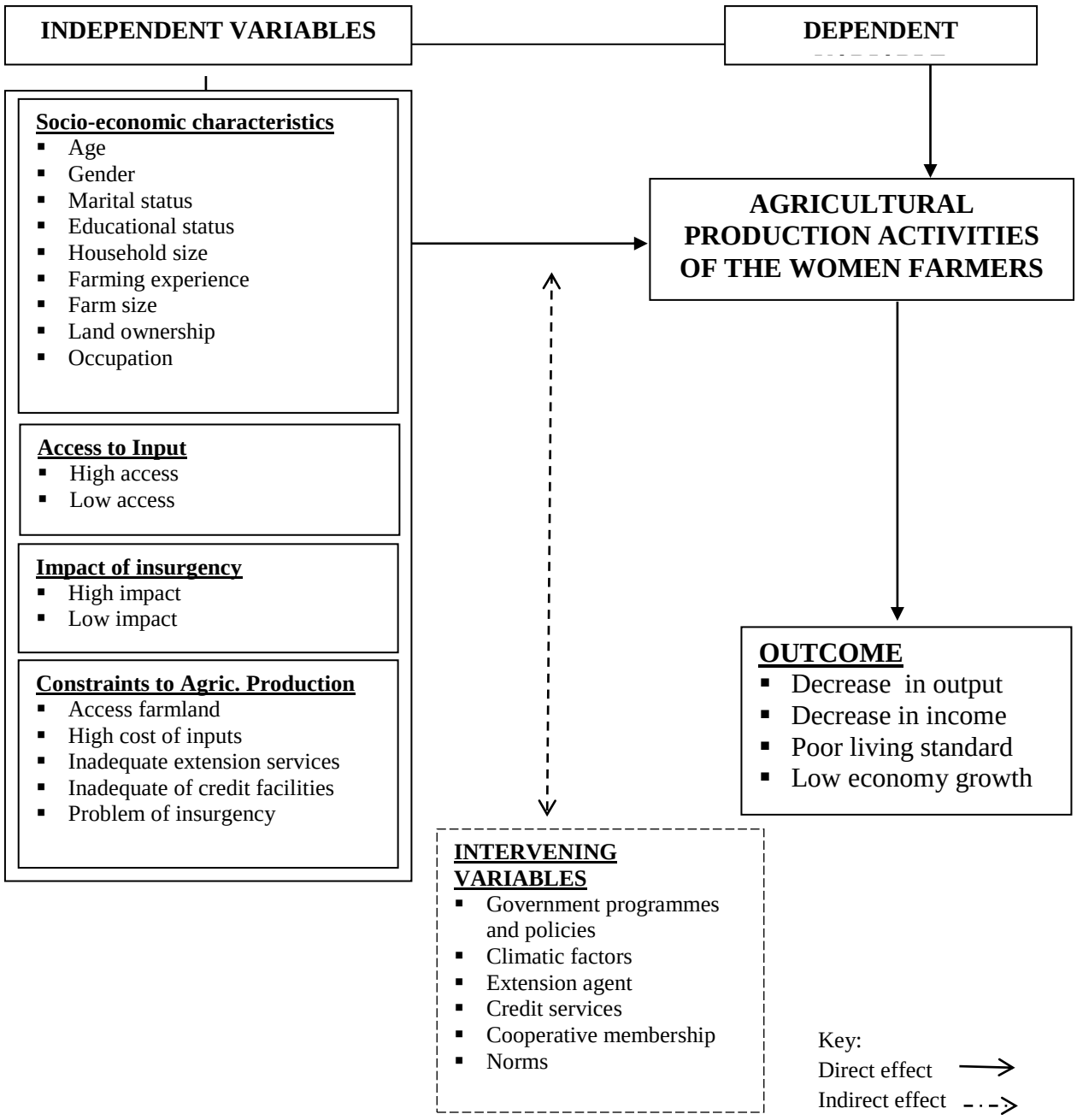

Figure 2.1: Conceptual model on the impact of insurgency on agricultural production activities of rural women in the study area

2.9 THEORETICAL FRAMEWORK

2.9.1 Conflict Theory

*In the early to mid1800, Karl Marx's work formed the initial statements of the perspective of conflict theory. Marx's concern on class and the dialectics of capitalism led to argument that capitalism would end up producing its own gravediggers by creating conditions under which class consciousness and a failing economy would come into existence (*Onwuaroh, 2017*). With the existence of structure and class-based group experience, the working class revolution would take place (Allan, 2010) in the early twentieth century. Max Weber provided a response to Marx's theory. Weber saw that conflict did not overwhelmingly involve the economy, but that the state and economy together setup conditions for conflict. Weber saw that class is more complex than Marx initially supposed, and that there are other factors that contribute to social inequality, most notably status and party(or power) (Allan, 2010).*

*In general, conflict theory scientifically seeks to explain the general contours of conflict in society (i.e how conflict starts and varies, and the effects it brings). The central concerns of conflict theory are the unequal distribution of scarce resources and power (*Onwuaroh, 2017). *What these resources are might be different for each theorist, but conflict theorists usually work with Weber's three systems of stratification, class, status, and power (Allan, 2010). Coser (1956) went further beyond Marx and Weber scope of research to consider the ways in which conflict can fluctuate. One of the more important ways that conflict can vary is by its level of violence. If people perceive conflict as a means to achieving clearly expressed rational goals, then conflict will tend to be less violent. Conflict can be* violent when it

has emotional involvement and transcendent goals (Coser, 1956). Karl Marx, Weber and Lewis Coser had good perceptions on conflicts, but this work was guided by Dahrendorf (1959) view on conflict. The development of conflict theory gained new vigor with the publication of the authors work titled Class and Class Conflict in Industrial Society in 1959.Although initially influenced by the thought of Karl Marx, he departed from Marx's focus on the conflict between the social classes and looked instead to the conflict between interest groups. Thus for the author, social inequalities have their basis not only in economics but also in bureaucratic and political power.

Dahrendorf (1959) categorized groups contributing to conflicts to be quasi-group, interest group and conflict group. The quasi-group is aggregates of people occupying identical power positions and holding latent interests or unconscious role expectations. The quasi-group may have conflicts of interest with other groups, but these conflicts are not usually overt. People of quasi group may be recruited into interest group. Interest groups are associations of people mobilized into action by virtue of their membership in the group. They share manifest interests or conscious goals. Interest groups are real agents of group conflict. Conflict groups attempt to instigate revolutionary social change, sometimes through violent means (Dahrendorf, 1959).

The American Association of Retired Persons (AARP) (201), which is an organization with over 32 million members, is an example of an interest group while provincial Irish Republic Army (IRA) of Northern Ireland, the Islamic Jihad of the Middle-East and the Zapatistas of Mexico are all examples of conflict groups. The Dahrendorf perception of conflict theory applies so much to this research work. Most of the financiers and sponsors behind *Boko Haram* are believed by many to be politically exposed persons that were not being favoured by the Nigerian government and as such are being persuaded by people of similar views to join their group. These conflicts have

negatively affected the availability and affordability of food items in these areas. Many rural farmers have been displaced while others are restricted from going to their farms because of security hecks and the militaristic counter-terrorism approach of the government (Dabugat, 2013).

It is general believe that the *Boko Haram* insurgents have faceless persons sponsoring them and giving them all weapons they need to unleash terror on their targets. These political figures could be liken to the quasi-group, the group they are being persuaded to join the interest group, while the *Boko Haram* insurgents can be likened to the conflict group as explained by the conflict theory. Therefore, this research work is deeply rooted in the conflict theory as aforementioned.

2.9.2 Social Identity Theory

Social identity theory (SIT) was first proposed by Tajfel (1978) and later strengthened by Tajfe land Turner (1979). It is a social-psychological theory that attempts to explain cognitions and behaviors with the help of group processes. SIT assumes that humans show all kinds of group behavior, such as solidarity within groups and discrimination against out groups as a part of social identity process, with the aim to achieve positive self-esteem and self-enhancement (Abrams and Hogg, 1988). Social identity is the individual self-concept derived from perceived membership of social groups (Hogg and Vaughan, 2002). The SIT was developed by Tajfel and Turner in 1979 in order to understand the psychological basis of intergroup discrimination. The theory not only explains how groups come into conflict, but also explains a wide range of political events such as racism, ethnic conflict, nationalism, and political extremism (Cottam and Cottam 2001). Comparison among groups creates conflict over scarce social resources, economic resources, values ideology, and unmet needs regarding identity, security, status or power (Cottam and Cottam, 2001). Social Identity Theory not only aids the

understanding of the causes and outcomes of conflicts, it also provides the knowledge of how to resolve these conflicts. The theory provides three conflict resolution approaches which are: *Contact Hypothesis, De-categorization, and Re-categorization or Super ordinate*. These three approaches all have their origins in the social identity theory (Pon, 2010).

*(a) Contact hypothesis (*Brown, 2000) relates how Gordon (1954) introduced the contact hypothesis to eliminate prejudice among groups. The goal of the hypothesis is that bringing members of different groups into contact with one another in various ways is the best way of reducing any tension or hostility that might exist between them (Brown, 2000). However, the hypothesis works only under certain conditions. One of the conditions is that the contact groups must have equal status. Therefore, the minority group should have an equal status with majority group in order for the contact hypothesis to be applicable (Brown, 2000).

(b) De-categorization The idea of de-categorization is introduced by Brewer and Miller (1984) as a way of reducing the inter group discrimination and stereotyping. According to the de-categorization approach, boundaries between the two groups become less rigid during contacts, and ultimately they will be dissolved altogether. In order to decrease boundaries between groups, all interactions should take place on an interpersonal level, rather than on the group level because in this 'personalized 'form of contact, individuals are interested in one another information and less attentive to the group-based information. The relationship between groups will improve when contacts are people - people, not race - race (Brown, 2000). An example is former President Clintons “Come Together Fellowship”. This program was held for improving American racial relations by supporting black and white individuals who belong to existing clubs and groups to get to know each other better. Moreover, the approach could also lead to assimilation.

According to Brown (2000) this approach has a generalization problem. It can prevent only individuals that have been in contact with individuals from other groups from becoming prejudice. It cannot prevent prejudice against individuals who have not met or contacted individuals in other groups.

(c) Categorization or Superordinate approach Instead of decategorization, Gaertner (19 99) proposes a different method to reduce prejudice between groups. It is recategorizatio n or superordinate identity. Recategorization is not trying to eliminate the categories; ins tead, they redraw the boundaries of categories. In other words, it recategorizes the previous in groups and out groups into a new superordinate category so that the former out groupers can be perceived as fellow in-groupers.

According to this approach, rather than attempting to eschew group references altogether, it allows keeping minimal group salient or identity while optimizing the various contacts. Gaertner (1999) demonstrated that recognizing subgroups within the super ordinate identity is the best method of lessening the intergroup bias. According to the author, establishing a common super ordinate identity, while simultaneously maintaining the salience of subgroup identities, would be particularly effective because it permits the benefits of a common in-group identity with arousing countervailing motivations to achieve positive distinctiveness (Gaertner,1999). The Social Identity Theory (SIT) focuses on causes, outcome and resolution of conflicts. The conflict resolution approaches of SIT is useful in this research for proffering possible solutions that can be used to manage the current insurgency in Nigeria and also prevent future recurrences.

2.9.3 Frustration Aggression Theory

Aggression is always a consequence of frustration, meaning that the occurrence of aggressive behaviour always presupposes the existence of frustration and the existence of frustration always leads to some form of aggression (Dollard *et al.,* 1939; Johannes and Malte, 2017). A frustration is an interference with the occurrence of an instigated goal-response at its proper time in the behavior sequence, while aggression is any sequence of behaviour or the goal-response to which is the injury of the person toward whom it is directed" (Dollard *et al.,* 1939; Johannes and Malte, 2017). Expectations of punishment can evoke inhibitions against the open display of aggression (Dollard *et al.,* 1939; Johannes and Malte, 2017).

According to Dollard *et al,*.(1939) cited by Johannes and Malte (2017), several aspects of the thwarting that presumably affected the strength of the resulting instigation to aggression are: the strength of the drive whose gratification was blocked, the degree of interference with this drive satisfaction, and the number of frustrated response sequences. The greater the satisfaction anticipated on attaining their objective, the more aggressively inclined people will become when kept from reaching their goals; the strength of the resulting instigation to aggression will be reduced by whatever partial gratifications are obtained, and the frustration-generated aggressive inclinations will summate over repeated instances of unsatisfied expectations. Persons unfairly prevented from reaching a desired objective are often more angry and aggressive than those exposed to socially approved barriers to goal attainment (Kulik and Brown,1979). People become angry and aggressive on being kept from reaching a desired goal to the extent that they think that someone had intentionally and unfairly produced this interference or had deliberately and wrongly tried to hurt them (Averill, 1982). Deliberately provoked subjects are spurred to stronger attacks on their tormentor when they receive indications that their initial punishment of that person is hurting him

(Baron, 1977). Dollard *et al.*, (1939) cited by Johannes and Malte, (2017), regarded aggression as not merely the delivery of noxious stimuli but as an action having a fairly definite objective: the infliction of injury. The exact nature of this response is not always the same from one occasion to the next (Berkowitz, 1989). Anticipations of punishment could lead to indirect forms of aggression rather than a direct attack on the target and any interference with the instigated aggression is also a frustration and thus would strengthen the thwarted persons' aggressive inclinations (Dollard *et al*. 1939; Johannes and Malte, 2017).

However, even when aggression is not initially the dominant response, if the person persists in trying to reach the goal but the thwarting continues, the nonaggressive reactions will extinguish and there will be an increasingly greater probability that the instigation to aggression eventually will become dominant. Dollard *et al.* (1939) cited by Johannes and Malte, (2017), believed that all aggression could be traced to one or more prior frustrations, although they did not specify how this previous influence would operate. This supposition seems to neglect the possibility that aggression can be learned instrumental behavior. People at times attack others, not because they have been thwarted in the past, but because they think this action will bring them some other benefits (other than the infliction of injury)(Berkowitz, 1989). Dollard *et al.* (1939) cited by Johannes and Malte (2017) also appeared to assume that aggression was always primarily aimed at doing harm. Such an assumption fails to recognize the important distinction between instrumental and hostile aggression first made by Feshbach (1964) and now widely accepted by most social psychological investigators of aggression. In hostile (or emotional) aggression, the primary goal is to do harm, whereas instrumental aggression is oriented mainly to the attainment of some other objective such as money, social status, or territory. Maslow (1941) maintained that the Dollard (1939) theory held

only for those frustrations seen by the afflicted individuals as a "threat to their personalities." According to Pastore (1952) only illegitimate frustrations produce aggressive reactions. When people are engaged in hostile aggression, information that their attacks on the target have hurt that person should have is inforcement value even when no extrinsic rewards are obtained. Furthermore, especially in the case of hostile aggression, the information about the target's suffering when provided shortly after the aggressor starts attacking the intended target, can also serve as an incentive to even stronger acts of aggression (Berkowitz, 1989).

People are more strongly instigated to attack their frustrates when they think they have been deliberately and wrongly kept from reaching their goal than when they believe the interference has only been accidental, and they may be inclined to inhibit their aggressive reactions when they think the thwarting was socially proper(Berkowitz, 1989). The frustration-aggression theory is useful in explaining the reasons behind the unprecedented attacks and pains the *Boko Haram* insurgents have unleashed on Nigerians and West Africans at large. *Boko Haram* is believed to have this dream of establishing Sharia government in Borno State, even a bigger dream of establishing an Islamic caliphate across the northeast of Nigeria. The goal of this group did not go down well with the government, and in order to frustrate this goal, the Nigeria police, Borno State command used brutal force to the extent of killing their leader in custody without giving him a fair trial. As a result of this extrajudicial approach by the government security agent, members of the group became frustrated and scattered only to regroup and re-emerge in 2010 with aggressive activities that have killed thousands and caused more than a million people to be displaced from their homes.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

The study was conducted in Adamawa State, Nigeria. Adamawa State is one of the States that was formed on the 27th of August 1991 by General Ibrahim Babangida Military administration. The State which is also known as land of beauty, sunshine and hospitality derives its name from Modibbo Adama, a Fulani leader who led the 19th century Jihad in upper Benue region. Adamawa State is one of the largest States in Nigeria with about 36,917 square kilometers. It lies between Latitude 7º11' North of the equator and Longitude 11º14' East of the Greenwich meridian line. The State is bordered to Borno to the North-West, Gombe to the West and Taraba to the South-West and sharing international boundary with Cameroun Republic along its Eastern side which is also the National Eastern border. The State has human population of about 3,168,101 according to 2006 population census, which was projected to be about 4,283,270 in 2017 at 3.2% growth rate per annum (National Bureau of Statistics (NBS), 2015).

Adamawa State comprises of three Agricultural Zones namely; Northern, Central and Southern Zones which makes up twenty one Local Government Areas in the State. Topographically, it is a mountainous land crossed by large river valleys - Benue, Gongola and Yedsarem and the valleys of Cameroon, Mandara and Adamawa mountains form part of the landscape. The area falls within the Northern Guinea

Savannah and has a tropical wet and dry climate. Dry season lasts for a minimum of five months (November-March) while the wet season spans from April to October. The mean annual rainfall is less than 1000mm in the Central and North-West part of the State. On the other hand, the North-Eastern strip and the Southern part have over 100mm of rainfall. The temperature in the State is typical of the West Africa Savannah. The climate is characterized by high temperature almost throughout the year due to high solar radiation which is relatively and evenly distributed throughout the year. Maximum temperature in the State can reach 40ºC particularly in April, while minimum temperature can be as low as 18ºC between December and January. Mean monthly temperatures in the State ranges from 26.7ºC in the South to 27.8ºC in the North Eastern part of the State (NBS, 2014).

The major economic activity of the inhabitants is agriculture (farming, fishing and cattle rearing). There are also civil servants and small-scale traders among them. The major crops grown in the area includes rice, cowpea, maize, sorghum, millet, groundnut, sweet potatoes and sugar cane. Livestock reared in the State include cattle, sheep and goat. The fishing activities are mostly by the residents along the Benue River Bank and Lake Njuwa, while the Fulani are mostly cattle rearers. The dominant ethnic groups in the area are Fulani, Batta, Verre, Hausa and Laka, with other ethnic groups from different parts of Nigeria and other countries also residing in the area (Adebayo *et al.,* 2012).

Keys	
Studied Zones	**Local Government Area Selected**
Central Zone	**Hong**
	Michika
	Mubi North

Figure 3.1 Map of Adamawa State Indicating the Selected Local Government Areas

3.2 Sampling Procedures and Sample Size

The population for the study comprises of rural women who are into agricultural production in insurgency-affected area of Adamawa State. Multi-stage sampling technique was adopted for the study. The first stage involved the purposive selection of Central Agricultural Zone of Adamawa State because the zone is the most affected region by insurgencZy. The second stage involved random selection of three (3) Local Government Areas (LGAs) from the Central Agricultural Zone of Adamawa State. The third stage involved random selection of four (4) communities each from the LGAs selected to get a total of twelve (12) communities. In the fourth and final stage, involves proportionately selection of 232 respondent's using Taro Yamane model as used by Kassahun (2014) and it is specified as follows:

$$n = \frac{N}{1+N(e)^2} \text{ ---------- (3.1)}$$

Where;

n = samples size

N = finite population

e = limit of tolerable error (level of precision at 0.05 probability)

l = constant

Table 3.1: Summary of the sampling outlay for the study

Zone	LGA's	Communities	Sample Frame	Sample Size
Central	Mubi North	Vimtim	48	16
		Bwahuli	54	18
		Betso	38	12
		Digil	37	12
	Hong	Daku	90	30
		Mbanga	80	27
		Gashala	85	29
		Migzil	75	25
	Michika	Yamue	60	20
		Kwabapale	40	14
		Tsandza	37	12
		Kudzum	50	17
Total	**3**	**12**	**694**	**232**

Source: Pre-field Survey, 2018.

3.3 Method of Data Collection

Primary data was used for this study. A structured questionnaire complemented with interview schedule was used to elicit the necessary information from respondents in the study area. Data were collected on the socio-economic characteristics of the rural women farmers, access to production inputs, income of the rural women due to insurgency, perceived effect of insurgency on crop production, effect of insurgency on

crop output and constraints faced by rural women farmers in insurgency area. Resident extension agents in each village were trained as enumerators by the researcher to assist in data collection. The data collection retain lasted for a period of three months from October to December in 2019.

3.4 Validity and Reliability test for Data Collection Instrument

To establish the validity, the questionnaire was subjected to the scrutiny of two experts who evaluated the relevance of each item in the questionnaire to the objectives. The experts rated each item on a scale 1 - 10. Their recommendations were used to finally modified the questionnaire in a formal tool that had the ability to solicit the expected data. Thus, face and content validity were used in the study, while test re-test reliability method of administering questionnaire over the same group of individual was adopted. The scores obtained from the first and second test were therefore subjected to Pearson Product Moment Correlation (PPMC) to obtained coefficient of 0.82.

3.5 Measurement of Variables

The variables to be measured in the study include the following:

3.5.1 Dependent variable

The dependent variable for the study was crop production output of the rural women in the study area. This was measured in kilogram using grain weight equivalent.

3.5.2 Independent variables:

(I) The independent variables for this study include the following:

i. Age was measured in years
ii. Educational status was measured by the number of years of formal schooling
iii. Farming experience was measured in years
iv. Farm size was measures in hectares.

v. Extension contact was measured by the number of extension visits per year

vi. Amount of credit was measured by the amount of credit received in naira

vii. Household size was measured by the number of members in the household

viii. Marital status was measured as a dummy variable (1 = married, 0 if otherwise)

ix. Cooperative membership was measured in (number of cooperatives)

x. Income was measured in Naira

xi. Fear of abduction was measured as a dummy variable (yes=1, No=0)

xii. Life lost was measured in number

xiii. People displaced was measured in number

xiv. Amount of crops lost was measured in naira

xv. Amount of livestock lost was measured in naira

xvi. Farmland destroyed was measured in hectares

xvii. Severity of attack was measured as a categorical variable (1 = very severe, 2 = severe and 3 = not severe)

xviii. Frequency of attack was measured in number of attack

xix. Fear of attack was measured as a dummy variable (yes=1, No=0)

xx. Lose of asset was measured in naira

xxi. Witness of violence was measured using dummy variable (yes=1, No=0)

xxii. Relatives lost was measured in number

xxiii. Distance of relocation measured in kilometer

xxiv. Exposure to bomb was measured as a dummy variable (yes=1, No=0)

xxv. Fear of being killed was measured as a dummy variable (yes=1, No=0)

xxvi. Access to agricultural input was measured using 3-point Likert type rating scale of Very accessible = 3, Accessible = 2 and Not accessible = 1)

xxvii. Crop production activities were determine by asking the respondents to indicate the activities they engaged in

xxviii. Perceived causes and effects of insurgency was determined by asking the respondents to indicate the causes and effects of insurgency

(II) Constraints faced was measured using 3 point Likert-type rating scale of Very Severe = 3, Severe = 2 and Not Severe = 1. The corresponding values of 3, 2 and 1were added together to obtain an aggregate score of 6, which was then divided by 3 to obtain a mean score of 2.0 as the cut-off mean. Constraints with mean score less than 2.0 was taken as not severe constraints, while mean score of equal or greater than 2.0 was taken as severe constraints faced by the rural women farmers.

$$\text{Mean} = \frac{\Sigma fx}{n} = \frac{3+2+1}{3} = 2.00 \quad \text{---------- (3.2)}$$

3.6 Method of Data Analysis

Combination of various analytical tools such as descriptive statistics, Gini-coefficient, Linear Regression Analysis and Pearson Product Moment Correlation (PPMC) was used to achieve the objectives of the study. Objectives i, ii, iv and vi were achieved using descriptive statistics such as mean, frequency distribution and percentages, while objective iii was achieved using Gini-coefficient and objective v was achieved using Linear Regression Analysis.

3.7 Model Specification

3.7.1 Gini coefficient

The variation in income of the rural women which is objective iii of the study was achieved using Gini-coefficients. Gini-coefficient is defined as a ratio with values between zero and one (0 & 1). Low Gini-coefficient indicate more equal income or wealth distribution among rural women, i.e when the value tends towards zero (<0.5),

while a high Gini-coefficient indicate unequal distribution of wealth or perfect inequality i.e as the value tends towards one (0.51-1.00). The Gini coefficient model as used by dabugat (2013) is specified as

follows:

$GC = 1 - \sum (XY)$ ---------- (3.3)

Where,

GC = Gini Coefficient,

X = Proportion of women farmers,

Y = Cumulative proportion of the women farmers' income

$\sum$ = Summation sign

3.7.2 Multiple regression model

Multiple regression model was used to determine the effect of insurgency on crop production of the rural women which is objective v. The model in its implicit form is specified as:

$Y = f\ (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10,}X_{11} \ldots\ldots X_{16})$ ---------- (3.4)

The explicit functional forms of the multiple regression model were expressed as:

Linear:

$Y = \beta_o + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \ldots\ldots\ldots + \beta_{16}X_{16} + U_i$---------- (3.5)

Cobb-Douglas:

$\ln Y = \beta_o + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \ldots\ldots + \beta_{14} \ln X_{14} + U_i$ ---------- (3.6)

Semi-log:

$Y = \beta_o + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \ldots\ldots + \beta_{14} \ln X_{14} + U_i$ ---------- (3.7)

Exponential:

$\ln Y = \beta_o + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \ldots\ldots + \beta_{14}X_{14} + U_i$ ---------- (3. 9)

Where;

Y = Output of the rural women from crop production measured in kilogram using grain weight equivalent.

X_1 = loss of farm land (hectares)

X_2= loss of crops (qty)

X_3= loss of animals (₦)

X_4 = lost of asset (₦)

X_5= loss of lives (Number)

X_6= relocation (Km)

X_7= frequency of attack (Number)

X_8= people displaced (Number)

X_9= Farming experience (years)

X_{10} = death of several farmers (Number)

X_{11} = exposure to bombs (yes 1, no 0)

X_{12} = fear of being killed (yes 1, no 0)

X_{13} = fear of abduction (yes 1, no 0)

X_{14} = fear of attack (yes 1, no 0)

β_o = constant

$\beta_1 \ldots \beta_{14}$ = coefficients of the independent variables

$X_1 \ldots X_{14}$ = independent variables

U_i = Error term

ln = Natural log

3.7.3 Pearson Product Moment Correlation (PPMC)

Hypothesis (i) was tested using t-values from the linear regression model while Pearson Product Moment Correlation (PPMC) was used to test for hypothesis (ii) which stated that there is no significant relationship between the perceived effect of insurgency on

crop production and the rural women's access to production inputs in the study area. The PPMC model is mathematically expressed as:

$$r_{xy} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{\{n\sum x^2 - (\sum x)^2\}\{n\sum y^2 - (\sum y)^2\}}} \text{ ---------- (3. 10)}$$

r = correlation coefficient

x = Access to production inputs

y = perceive effects of insurgency

n = total number of observation

Σ = summation

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-Economic Characteristics of the Respondents

This section presents and discussed the results of the study on socio-economic characteristics of the rural women farmers in the study area which comprises of the age, marital status, level of education, farming experience, farming status, primary occupation, secondary occupation, extension contact, access to credit and membership of cooperative among others.

4.1.1 Age of the respondents

The result in Table 4.1 revealed that majority (82.8%) of the respondents were between the age range of 26 – 55 years with mean age of 40 years. This is an indication that majority of the rural women were in their active and productive stage. This implies availability of able-bodied labour force by women for primary production that could cushion the effect of insurgency in the study area. The result agrees with Ojo *et al.* (2018) who reported that majority of the respondents were in their active and productive age (below 50 years). Onyebu (2016) posited that age determines the degree and quality of labour supply in a given production.

4.1.2 Marital status of the respondents

Table 4.1 showed that majority (74.6%) of respondents were married, while 12.9% were single. The married women are responsible for pro-creation of next generation, thus expected to have access, control and ownership of agricultural productive resources including family labour for farming operations which can go a long way in boosting farm income and improving the livelihoods of rural women in the study area. This finding also agrees with Onyebu (2016) who reported that majority of his respondents

were married and more involved in income generating activities than those that were single.

4.1.3 Household size of the respondents

Results in Table 4.1 indicated that more than half (58.6%) of the respondents had household size between 6 – 15 persons with a mean household size of 7 persons. This suggests that majority of respondents had relatively large household size. Household size signifies the number of people eating from the same pot. In every subsistence farming system, the number of children is very important as it determines labour availability. However, due to insurgent activities in the study area, most families especially women and children deserted their homes for fear of been killed or attacked. This has resulted in decrease in agricultural activities among rural women. This result tallies with that of Marenya and Barrett (2007) who reported that as the household size decreases, the likelihood of expanding farm size and by implication utilizing more inputs is expected to be low.

4.1.4 Educational status of the respondents

Table 4.1 revealed that 33.6% of the respondents acquired primary school education, while 32.3% acquired secondary education and 7.4% acquired tertiary education with a mean of about 8 years of formal schooling. This implies that the educational status of the rural women is low with most attending primary and secondary schools. Low educational status could be attributed to the negative impact of insurgency on rural women potentials to pursue and enhance their educational level resulting in poor decision making and sustenance of improved agricultural practices. Education is believed to increase farmers' ability to obtain and analyze information that helps them to make appropriate decision. This is in line with the finding of Kassie *et al*. (2013) who posited that education of farmers positively influences the farmers' likelihood of

adopting a new technology or practice as farmers with higher education have more exposure to new ideas and information.

4.1.5 Farming experience of the respondents

Table 4.1 indicated that some (40.1%) of the respondents had farming experience of between 6 - 15 years with a mean farming experience of 13 years. This implies that the rural women farmers had wealth of experiences over time to adjust with the accompanying changes and challenges that comes as a result of the insurgency as experienced in study area. In a similar study, Umar *et al*. (2019) reported that farmers in conflict states of Benue and Nasarawa, Nigeria had long farming experiences.

4.1.6 Farming status of the respondents

Finding in Table 4.1 showed that majority (59.9%) of respondents were full-time farmers while 40.1% were part-time farmers. This suggest that despite the negative impact of insurgency on agricultural activities in the study area, most rural women or family members endured resiliently against insurgency to engage in farming for self-sufficiency in food crops production in order to combat hunger and starvation. Farming status as used here indicates weather farmers were full time farmer or part time farmers.

4.1.7 Farm size of the respondents

From Table 4.1, 56.5% of the respondents had farm size of less than 2.1 hectares with a mean farm size of 2.5 hectares. This implies that most of the rural women farmers were small-scale farmers. Farm size refers to the size of land cultivated by farmers which is usually very small as compared to available land. Small farm size will result in low yield which is a measure of output per hectare. However, this small farm size under cultivation and low yield could be due to the activities of insurgency in which most of the farm lands meant for farming are hijacked by the insurgents rubbing the farmers of

their right to cultivation. This result correlates with Nwaiwu (2015) reported that majority of the respondents had farm size of less than 2 hectare.

4.1.8 Farmland acquisition by the respondents

Entries in Table 4.1 showed that majority (73.7%) of the respondents acquired their farmland through inheritance. This was followed by 16.8% of the respondents who acquired their farmland through rent/lease, while 8.2% was through purchase and 1.3% of the respondents acquired their farmland through gift. This is an indication that the rural women farmers acquired their farmlands through different means with majority acquiring their farmland through inheritance. Land related variables influence farmers' adoption behaviour, as land holding is an important unit where agricultural activities take place. Land tenure system plays a critical role in influencing farmers' willingness to invest in crop production. Teshome *et al*. (2014) reported that land ownership or farm size contributes positively in farmers' efficient utilization of improved production resources.

Table 4.1: Distribution of respondents based on their socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage	Mean
Age (yrs)			
<26	24	10.3	**40**
26-35	54	23.3	
36-45	95	41.0	
46-55	43	18.5	
>55	16	6.9	
Marital status			
Single	30	12.9	
Married	173	74.6	
Divorced	8	3.4	
Widowed	16	6.9	
Separated	5	2.2	
Household size (No)			
<6	90	38.8	**7**
6-10	104	44.8	
11-15	32	13.8	
>15	6	2.6	
Education status (yrs)			
Primary	78	33.6	**8**
Secondary	75	32.3	
Tertiary	17	7.4	
Non-formal	62	26.7	
Farming experience (yrs)			
<6	55	23.7	**13**
6-10	47	20.3	
11-15	46	19.8	
>15	84	36.2	
Farming status			
Full time	139	59.9	
Part time	93	40.1	
Farm size (ha)			
<2.1	131	56.5	**2.1**
2.1-4.0	78	33.6	
4.1-6.0	16	6.9	
>4.0	7	3.0	
Farmland acquisition			
Inheritance	171	73.7	
Purchase	19	8.2	
Rent/lease	39	16.8	
Gift	3	1.3	

Source: Field Survey, 2019

4.1.9 Secondary occupation of the respondents

Table 4.2 shows the distribution of women farmers according to their secondary occupations. These secondary sources of income generating activities include civil service (19.8%), livestock rearing (15.1%), agro-processing (12.5%), trading (10.8%) and gathering of fire wood (1.3%). The secondary occupation is being carried out by the rural women crop farmers to complement income generated from crop production.

4.1.10 Extension contact by the respondents

Table 4.2 indicates that majority (63.4%) of the respondents did not have contact with extension agents, while 36.6% had contact with extension agents. This implies that access to extension services by the rural women is very poor. Extension agents are channels through which agricultural innovations and information are passed to farmers for improvements in their standard of living, production and productivity. The low contact between women farmers and extension workers may be attributed to insurgency among others.

4.1.11 Access to credit by the respondents

Table 4.2 revealed that majority (69.8%) of respondents had no access to credit facilities, while 30.2% of respondents had access to credit facilities. This implies that most of the rural women lacked access to credit for agricultural production. Credit is a form of incentive required to boost production capacity. Inadequate or lack of credit may deter smallholder farmers from adopting new technologies that could help improve production. Severity and frequency of insurgency can negatively affect access to essential services such as credit which will affect adoption of improved agricultural technologies that would have a positive influence on output. In a related study, Umar *et al*. (2019) reported that conflict negatively affected access to essential services by farmers.

4.1.12 Sources of credit by the respondents

Table 4.2 revealed that majority (69.8%) of the women crop farmer didn't have access to credit. Those that had access to credit (14.7%) sourced it from friends. while 5.6%of the respondents sourced their credit from cooperative societies. This implies that families, friends, and cooperatives were the main sources of credit to the rural women farmers in the study area. The poor access to credit may be attributed to insurgency activities because most financial lending institutions were shut down for fear of been attacked by the insurgents.

4.1.13 Cooperative membership by the respondents

Table 4.2 suggests that 45.7% of the respondents were members of cooperative societies, while 54.3% did not belong to any cooperative. Agricultural cooperative societies are essential to agricultural development. Cooperative membership is often used as a proxy for social capital and can be useful especially when issues dealt with during meetings are relevant to the challenges members are facing. However, inadequate participation in cooperative societies could be due to the activities of insurgency which had simply displaced most farmers hence denying them the chances of belonging to one or more cooperatives.

4.1.14 Sources of labour

Table 4.2 showed that about half (49.6%) of the respondents used hired labour in their crop production, while 44.0% used family labour. Only 6.4% of the respondents employed the service of communal labour. This is an indication that the rural women farmers used more of hired labour than family labour. The use of hired labourers in farming operations could be due to the negative effects of insurgency causing fears, panic, displacement and separation of families. Labour is used in farm operations to

ensure activities are carried out on the farm as at when due. This is done to achieve smooth farming operations for greater output.

Table 4.2: Distribution of respondents based on institutional variables accessed

Variables	Frequency	Percentage
Secondary occupation		
Farming	94	40.5
Gathering of fire wood	3	1.3
Trading	25	10.8
Civil servant	46	19.8
Livestock rearing	35	15.1
Agro-processing	29	12.5
Extension contact		
No	147	63.4
Yes	85	36.6
Access to credit		
No	162	69.8
Yes	70	30.2
Sources of credit		
None	162	69.8
Commercial banks	7	3.0
Bank of agriculture (BOA)	8	3.4
Cooperatives societies	13	5.6
Family and friends	34	14.7
Government programmes	8	3.4
Cooperative membership		
No	126	54.3
Yes	106	45.7
Sources of labour		
Family	102	44.0
Hired	115	49.6
Communal	15	6.5

Source: Field Survey, 2019

4.2.1 Crop production activities engaged by the women farmers

Result in the Table 4.3 showed that, land preparation constituted the highest crop production activities engaged in by the rural women as represented by 92.2%. This is followed by harvesting (86.6%), weeding (85.3%) and planting (82.3%). This implies that land preparation, harvesting, weeding and planting were the crop production activities mostly carryout by the rural women. Usually, these farming activities are less

strenuous compared with others production activities reason. In crop production activities farmers especially women usually engaged in weeding operations. Other crop production activities carried out by the rural women in the study area were fertilizer application (79.3%), ploughing (70.6%) and ridging (23.7%) which is the least crop production activities carried out by the rural women. Also, fertilizer application, ploughing and ridging recorded the least of activities participated by the rural women. This is expected due to the nature of agricultural practice and topography of land in some part of North-Eastern Nigeria.

Table 4.3 Distribution of respondents based on level of involvement in crop farming activities

Production Activities	Frequency	Percentage (%)	Mean (mandays)
Land Preparation (Manual)	214	92.2	5.53
Ploughing	163	70.6	4.15
Ridging	55	23.7	7.58
Planting	191	82.3	5.37
Fertilizer Application	184	79.3	4.04
Weeding	198	85.3	9.65
Harvesting	201	86.6	10.00

Source: Field Survey, 2019

4.2.2 Mean cost incurred in crop farming activities

Result in Table 4.4 revealed that the mean cost incurred in crop production activities by rural women in the study area. Mean cost incurred on land preparation was found to be ₦9,530.35, while the highest mean cost incurred was ₦21, 67.72 for harvesting operation. This implies that women farmers spend less on land preparation which could lead to reduction in cost that would be spent on hired labour. Thus, land clearing and weeding are farming roles that can easily be carried out by the rural women hence there was no need to spend on hired labour for them. However, the differences in the minimum and maximum costs incurred for the different crop production activities

carried out by the rural women could be due to the activities of insurgency which influenced their livelihood negatively.

Table 4.4 Mean cost incurred in crop farming activities

Production activities	Minimum (₦)	Maximum (₦)	Mean (₦)	Std. Dev. (₦)
Land preparation	500	80,000	9,530.35	12,351.50
Ploughing	500	90,000	19,814.67	17,195.20
Ridging	2,000	110,000	20,533.44	21,828.80
Planting	400	100,000	13,520.26	14,343.70
Fertilizer application	500	160000	12,032.65	23,852.20
Weeding	1,000	180,000	21,404.05	22,270.20
Harvesting	1,000	200,000	21,679.72	25,047.30

Source: Field Survey, 2019

4.2.3 Access to production inputs by the respondents

The distribution of the respondents based on their access to production inputs is presented in Table 4.5. The table revealed that majority (84.9%) of the respondents had access to production inputs, while 15.1%did not have access production inputs. This implies that majority of the rural women farmers had access to production inputs which could be from government and other donor agencies such as NGOs that tend to assist insurgency affected farmers in order to enhance their re-settlement and economic activities. More so, as shown in the Table 4.5, the major production inputs accessed by the rural women farmers include fertilizer (83.6%), herbicides (82.3%), cutlass (78.9%), hoes (76.7%) and improved seeds (71.1%);implying that these inputs were readily available. However, few respondents were able to access other production inputs such as knapsack sprayer (44.0%), pesticides (38.8%), water pumping machines (22.8%), plough (20.7%) and ridger (12.9%). Production inputs with higher cost of purchase and maintenance are usually not accessible by rural farmers with poor resources except few progressive farmers who are exposed to technologies and have the resources to acquire them. Generally this finding shows that inputs such as fertilizer, herbicides and

improved seeds were accessible by rural women as well as cutlasses and hoes to boost production in the study area. However, bigger inputs such as pumping machines, and knapsack sprayer were not well accessed by the rural women farmers in the study area due to fear of attack by the insurgents.

Table 4.5 Distribution of respondents based on access to production inputs

Production inputs	Frequency	Percentage (%)
Access to fertilizer	194	83.6
Access to herbicides	191	82.3
Access to hoe	183	78.9
Access to cutlass	178	76.7
Access to improved seeds	165	71.1
Access to knapsack sprayer	102	44.0
Access to pesticides	90	38.8
Access to pumping machines	53	22.8
Access to plough	48	20.7
Access to ridger	30	12.9

Source: Field Survey, 2019. Multiple Responses

4.2.4. Level of accessibility of inputs by women farmers

The respondents' levels of access to agricultural production inputs in the study area are presented in Table 4.6. The respondents had high access to cutlass ($\bar{X}$=2.43) which ranked 1st among the production inputs. This was followed by hoe ($\bar{X}$=2.25) and ranked 2nd. This indicates that the rural women farmers had high access to cutlasses and hoes. This is expected because cutlasses and hoe represent the oldest farming inputs commonly found with farmers especially in Nigeria and the West African region at large. High accessibility to herbicides ($\bar{X}$ = 2.13), fertilizers ($\bar{X}$ = 2.03) and improved seeds ($\bar{X}$ = 2.03) which ranked 3rd, 4$^{th.}$and 5th respectively, were also recorded. This result is an indication that access to some agricultural inputs by women farmers was not severely hindered by the insurgency in the study area.

Other production inputs not well accessible to the farmers that fell below the cut off mean point of two were pesticides ($\bar{X}$ = 1.90), plough ($\bar{X}$ = 1.43), knapsack sprayer ($\bar{X}$ = 1.34), pumping machines ($\bar{X}$ = 1.33) and ridgers ($\bar{X}$ = 1.30). These inputs were poorly accessed due to high cost of purchase, and activities of insurgents in the study area. This is in line with Umar *et al*. (2019) who reported similar findings.

Table 4.6 Levels of accessibility to production inputs by respondents

Level of Accessibility	HA	A	NA	WS	WM	Rank	Remarks
Cutlass	142	47	43	563	2.43	1st	Accessible
Hoe	121	49	62	523	2.25	2nd	Accessible
Herbicides	54	154	24	494	2.13	3rd	Accessible
Improved seeds	50	138	44	470	2.03	4th	Accessible
Fertilizer	33	172	27	470	2.03	4th	Accessible
Pesticides	75	59	98	441	1.90	6th	Poorly Accessible
Plough	24	51	157	331	1.43	7th	Poorly Accessible
Knapsack sprayer	17	45	170	311	1.34	8th	Poorly Accessible
Pumping machines	18	41	173	309	1.33	9th	Poorly Accessible
Ridger	16	39	177	303	1.31	10th	Poorly Accessible

Source: Field Survey, 2019

Note: HA = Highly Accessible (3), A = Accessible (2), NA = Not Accessible (1), WS = Weighted Sum, WM = Weighted Mean

Thus, mean score of < 2.0 implies poorly Accessible, while mean score ≥ 2.0 implies highly accessible

4.3 Income Distribution among the Respondents

The pattern of income distribution among the respondents in the study area was achieved using Gini-coefficients. As revealed in Table 4.7, the calculated Gini-coefficient was 0.53 which is closer to one. This implies that there was inequality in the distribution of income among the rural women in the study area. This could also be associated with insurgency in the area as most of the rural women are displaced from their various homes depriving them access to farmland to carry out their agricultural activities. Low yield is associated with low income generation except those that have

other sources of income from non-farming activities which could actually lead to income variation among the rural women farmers. This finding is in corroboration with Ayinde *et al.* (2012) who obtained a Gini-coefficient of 0.59 and 0.67 for agricultural and non-agricultural income, respectively. Awoyemi (2007) posited that increasing income inequality and poverty continue to be the most challenging economic problem facing most developing countries, particularly Nigeria. It is also widely believed that majority of the people in sub-Saharan Africa live in the rural areas. They are majorly agrarian with majority of them owing just a small piece of land on which they grow crops hardly sufficient to feed themselves let alone to sell in order to generate income.

Table 4.7: Distribution of respondents based on their income generation

Income (₦)	Frequency	Proportion of respondents (X)	Cumm. Proportion of incomes (Y)	XY
< 200,001	29	0.13	0.04	0.00
200,001 - 400,000	29	0.13	0.10	0.01
400,001 - 600,000	46	0.20	0.25	0.05
600,001 - 800,000	36	0.16	0.42	0.06
800,001 - 1,000,000	46	0.20	0.69	0.14
> 1,000,000	46	0.20	1.00	0.20
Total	**232**	**1.00**		**0.47**
GI				**0.53**

Source: Field Survey, 2019

4.4.1 Perceived causes of insurgency by the respondents

From Table 4.8 perceived causes of insurgency by the respondents were ignorance ($\bar{X}$= 4.43), loose border ($\bar{X}$= 4.30) and poverty ($\bar{X}$= 4.19) which ranked 1st,2nd and 3rd, respectively. Most of the people who participate in the *Boko Haram* insurgency activities lack the basic motives behind the uprising. Some of them were brain-washed to join the group due to ignorance. More-so, Nigeria's loose border led to in-flux of foreigners from nearby Africa countries to attack the study area. Many people have lost their life and properties as a result of their activities. In many developing countries including Nigeria, most of the conflicts have also been attributed to poverty. From the

study, it can also be deduced that majority of people involved in insurgency are poor with few elite who brain washed them to take arms for their ulterior motives. Also, Awojobi (2014) reported that most of the conflicts in developing countries are caused by the prevalence of poverty.

Other perceived causes of insurgency as indicated by the respondents includes unemployment ($\bar{X}$=3.74), religious bigotry ($\bar{X}$= 3.52) which ranked 4th and 5th, respectively. Unemployment rate in the study area and the country generally is high. People who are not actively engaged can easily be influenced against the society which can result in insurgency and other social problems. Although, people engage in insurgency for various reasons such as politics, tribal ethnicity and religion sentiments among others. Insurgency under the umbrella of religious creed or doctrines could be described as religious insurgency like the *Boko Haram* in the North East. The finding of this study showed that youth unrest ($\bar{X}$ = 2.75) was the least perceived cause of insurgency by the respondents in the study area.

Table 4.8: Perceived causes of insurgency by the respondents (n=232)

Perceived causes	SD	D	UN	A	SA	WS	WM	Rank	Remark
Ignorance	10	3	12	59	148	1028	4.43	1st	Agreed
Loose border	8	13	21	49	141	998	4.30	2nd	Agreed
Poverty	5	3	1	156	67	973	4.19	3rd	Agreed
Unemployment	8	5	87	71	61	868	3.74	4th	Agreed
Religious bigotry	11	14	101	56	50	816	3.52	5th	Agreed
Youth unrest	45	87	15	51	34	638	2.75	6th	Disagreed

Source: Field Survey, 2019

Note: SA = Strongly Agreed (5), D = Disagreed (4), UN= Undecided (3), A = Agreed (2), SD = Strongly Disagreed (1), WS = Weighted Sum and WM = weighted mean.
Thus, mean score of < 3.0 implies Disagreed, while mean score of ≥ 3.0 implies Agreed.

4.4.2 Perceived effects of insurgency on respondents' agricultural activities

Table 4.9 showed the perceived effects of insurgency on agriculture activities of respondents. The farmers reported that insurgency led to relocation of farmers ($\bar{X}$=4.61) which ranked 1st. As expected, insurgency displaces and disorganizes people regardless of creed, class, gender, race or ethnicity of the victim. They also indicated that insurgency made farmers abandon their farmlands for fear of been killed ($\bar{X}$=4.59). Also, insurgency led to loss of farmlands ($\bar{X}$=4.45) and decrease in agricultural production ($\bar{X}$=4.41) which ranked, 3rd and 4th, respectively. This is eminent especially in the North-Eastern Nigeria where the devastating effects of insurgency on agricultural activities resulted in increase in hunger and starvation due to deprivation of farmers' access to their farmlands and denying rural women of their sources of livelihoods. This finding validates the result of Abubakar *et al.,* (2017) who reported that activities of insurgency, to a large extent, hampered thousands of people from their major activities which is farming. The protracted violence in the affected zone has forced many farmers to abandon their farming activities to save their lives.

Furthermore, the insurgency led to death of many farmers ($\bar{X}$=4.25), poor access to production inputs ($\bar{X}$ =4.20) and reduction in the contribution of agriculture to the rural economy ($\bar{X}$ = 4.13) which ranked 5th, 6th and 7th, respectively. It was evident that most communities in North-East including the study area were taken over by insurgents, hence preventing farmers from accessing the necessary production resources and inputs. The effects of insurgency are enormous as many able-bodied who could have contributed to food crop production were lost. Ojo *et al.,* (2018) reported that insurgency had negative and significant effect on the farmers' productivity.

Other perceived effects of insurgency by the respondents were loss of farm produce in storage ($\bar{X}$ = 4.12), increased food insecurity status particularly among the rural women and children ($\bar{X}$ = 4.01) and low yield of crops ($\bar{X}$ = 3.79) which ranked 8th, 9th and 10th, respectively. These suggests that activities of insurgents had a devastating effect on families and livelihood of many economic group as most people lost their farm produce either at storage or in the farm as they could not access their farm. Food insecurity in the study area forced many people to migrate into IDP camps where they would get succor. Adibe (2014) who posited that the activities of insurgency have been very damaging both physically and psychologically as most farmers lost their crops, livestock and other properties. This have impacted greatly on food security status of the rural farmers and their households.

Table 4.9: Perceived effects of insurgency on agriculture activities of respondents (n=232)

Perception statements	SD	D	UN	A	SA	WS	WM	Rank	Remark
Insurgency has led to relocation of farmer	5	2	6	53	166	1069	4.61	1st	Agreed
Fear of been killed has made farmers abandon farmlands	0	2	1	86	143	1066	4.59	2nd	Agreed
Insurgency has led to loss of farmland	3	0	1	114	114	1032	4.45	3rd	Agreed
Insurgency has led to decrease production	4	2	5	106	115	1022	4.41	4th	Agreed
Insurgency has led to the death of several farmers	2	0	5	155	70	987	4.25	5th	Agreed
Insurgency causes poor access to production inputs	1	2	9	157	63	975	4.20	6th	Agreed
Reduction in the contribution to the economy	5	5	32	103	87	958	4.13	7th	Agreed
Insurgency activities have led to loss of farm produce in storage	0	5	42	105	80	956	4.12	8th	Agreed
Insurgency has increased food insecurity status of the area	11	15	12	117	77	930	4.01	9th	Agreed
Insurgency activities have led to low yield of crop	1	11	79	85	56	880	3.79	10th	Agreed

Source: Field Survey, 2019

Note: SA = Strongly Agreed (5), D = Disagreed (4), UN= Undecided (3), A = Agreed (2), SD = Strongly Disagreed (1), WS = Weighted Sum and WM = weighted mean.

Thus, mean score of < 3.0 implies Disagreed, while mean score of ≥ 3.0 implies Agreed.

4.5 Effects of Insurgency on crop production of the respondents

From the regression analysis result presented in Table 4.10, reveals that the coefficient of determination (R^2) value was 0.7563 implying that about 76% variation in the crop output of the rural women farmers' was explained by the independent variables included in the model, the remaining 24% unaccounted could be due to type error or other variables not captured in the model. The result reveals that out of fourteen (14) variables included in the model, seven (7) variables were statistically significant at 0.01, 0.05 and 0.10 probability levels, respectively. The seven variables, such as loss of farm land, loss of animals, loss of assets, relocation, frequency of attack, people displace and exposure to bomb were found to be negative and statistically significant, thus inversely influence the crop output of the rural women farmer.

The coefficient of farm land lost (-0.3001) was negative and significant at the 0.01 probability level; implying that a unit increase in lost of farm land will lead to 0.3001 decrease in crop output of the respondents. This has the expected *a priori* because land is an important factor of agricultural production thus any activity that decreases land availability will invariably affect the total output. The land meant for farming is used as the hideout of the insurgent thereby rendering the land unutilized.

The coefficient of animals lost (-0.2447) was negative and significant at the 0.01 probability level; implying that a unit increase in lost of animals will leads to 0.2447 decrease crop output of the respondents. Animals such as donkey, horse, ox and cattle as well as poultry dung aid crop production. Apart from providing the needed cash after sales to procure inputs, they play one role or the other especially in supplying organic manure.

Majority of the farmers lost their animals due to activities of insurgency which had negative effects on crop production in the study area.

The coefficient of assets lost (-0.5605) was negative and significant at the 0.01 probability level; showing that a unit increase in lost of assets especially production assets will leads to 0.5605 decrease in crop output of the respondents. Production assets like hoes, cutlasses, plough, ridger and other equipment are very key to crop production. In most cases, farmers were deprived of them due to activities of insurgency which will in turn have negative effects on crop production of the rural women farmers.

The coefficient of relocation (-0.1449) was negative and significant at the 0.05 probability level; suggesting that a unit increase in relocation of farmers in the study area decreases crop output of the respondents. The activities of insurgency had forced many farmers to abandon their farmland and relocate for their dear lives. This act of relocation had negatively affected crop production activities and output of the rural women farmers in the study area.

The coefficient of frequency of attack (-0.7582) was negative and significant at the 0.01 probability level; showing that a unit increase in frequency of attack from insurgents decreases crop output of the respondents. The more the attacks from the insurgents, the more farmers abandon their farmland for cultivation and consequently affecting their production activities and output negatively in the study area.

The coefficient of people displace (-0.1661) was negative and significant at 0.05 probability level; implying that a unit increase in people displace will leads to 0.7582 decrease in crop output of respondent. This has the expected *a priori.* Many of the respondents take refuge

at IDP camp for safety abandoning their home and farm land which invariably leads to decrease in their crop output

The coefficient of Exposure to bomb (-0.2548) was negative and significant at 0.10 probability level; implying that a unit increase in exposure to bombs will lead to 0.2548 decrease in crop output of respondent. This has the expected *a priori.* The more people are exposed to bombs, the more farmers abandon that location for safety.

Table 4.10: Regression estimate on effects of insurgency on crop production

Variables	Coefficient	T-value
Loss of farm land	-.3001	-2.89***
Loss of crops	.1096	1.39
Loss of animals	-.2447	-3.73***
Loss of asset	-.5605	-5.76***
Loss of lives	-.0596	-0.47
Relocation	-.1449	-2.25**
Frequency of attack	-.7582	-6.23***
People displaced	-.1661	-2.42**
Death of several farmers	-.0084	-0.09
Exposure to bombs	-.2548	-1.98*
Fear of being killed	.1502	0.90
Fear of abduction	.0501	0.40
Fear of attack	-.1268	-0.96
Constant	10.6271	13.15***
R-squared	0.7563	
Adjusted R-squared	0.7239	
F-ratio	14.07***	

Source: Field Survey, 2019

Note: *** implies statistically significant at 0.01, ** implies statistically significant at 0.05%, * implies statistically significant at 0.10%. Figures in parenthesis are the t – values.

4.6 Constraints faced by Rural Women in Agricultural Production

Constraints faced by the respondents in agricultural production is presented in Table 4.11 and the result showed that inadequate access to fertilizer ($\bar{X} = 2.73$) ranked 1st among the severe constraints faced by the respondents in the study area. This was followed by inadequate access to credit for production($\bar{X}$ = 2.70), destruction of farmland ($\bar{X} = 2.43$)

and stealing of farm produce ($\bar{X} = 2.35$)which ranked 2nd, 3rd and 4th, respectively. Credit as a constraint is common among most studies in Nigeria. Many rural households in developing countries are usually faced with problem of credits to purchase the needed inputs of production. This constraints is worse in an insurgency infected zones where economic activities have been grounded. Aside from credit, the women farmers in the study area were faced with destruction of farmlands and stealing of produce at storage. This result agree with the finding of Ohlmer (2008) who showed that credit constrained households had lower mean production efficiency.

Other constraints perceived to be severe by the women farmers include exposure to bombs/explosives in the farm ($\bar{X} = 2.25$), poor access to farm machineries ($\bar{X} = 2.21$), fear of been attacked and abducted ($\bar{X} = 2.19$) and poor access to farmland ($\bar{X} = 2.13$) and ranked 5th, 6th, 7th and 8th, respectively. Among the destructive activities of insurgency is planting of bombs and explosives in the farms which made many farmlands non-accessible because of fear bombs and explosives detonation. Furthermore, many rural farmers especially women were kidnapped and abducted by the insurgents on their way to farm.

However, poor linkages to urban markets ($\bar{X} = 1.87$), inadequate access to farm tools ($\bar{X} = 1.82$), poor accessible road to farmland ($\bar{X} = 1.68$) and lack of access to irrigation water ($\bar{X} = 1.47$) ranked 9th, 10th, 11th and 12th, respectively were not perceived as a severe constraint by the respondents.

Table 4.11: Constraints faced by rural women in agricultural production

Variable	VS (3)	S (2)	NS (1)	WS	WM	Rank	Remark
Inadequate access to fertilizer	182 (78.4)	38 (16.4)	12 (5.2)	634	2.73	1st	Severe
Inadequate access to credit	173 (74.6)	48 (20.7)	11 (4.7)	626	2.70	2nd	Severe
Destruction of farm land	140 (60.3)	52 (22.4)	40 (17.3)	564	2.43	3rd	Severe
Stealing of farm produce	119 (51.3)	75 (32.3)	38 (16.4)	545	2.35	4th	Severe
Exposure to bombs & explosives	125 (53.9)	59 (25.4)	28 (20.7)	521	2.25	5th	Severe
Poor access to farm machineries	63 (27.2)	155 (66.8)	14 (6.0)	513	2.21	6th	Severe
Fear of been attacked and abducted	109 (47.0)	57 (24.6)	66 (28.4)	507	2.19	7th	Severe
Poor access to farm land	49 (21.1)	164 (70.7)	19 (8.2)	494	2.13	8th	Severe
Poor linkage to urban market	43 (18.5)	116 (50.0)	73 (31.5)	434	1.87	9th	Not Severe
Inadequate access to farm tools	34 (14.7)	122 (52.6)	76 (32.8)	422	1.82	10th	Not Severe
Poor access road to farmland	35 (15.1)	88 (37.9)	109 (47.0)	390	1.68	11th	Not Severe
Lack of access to irrigation water	19 (8.2)	71 (30.6)	142 (61.2)	341	1.47	12th	Not Severe

Source: Field Survey, 2019

Note: VS = Very Severe (3), S = Severe (2), NS = Not Severe (1), WS = Weighted Sum and WM = weighted mean. Figures in parenthesis are the percentages.
Thus, mean score of < 2.0 implies Not Severe, while mean score of ≥ 2.0 implies Severe.

4.7 Hypotheses of the Study

4.7.1 Testing of hypothesis I

Hypothesis (i) which stated that there is no significant relationship between the selected socio-economic characteristic (age, marital status, household size, level of educational, farm size and farming experience) of the rural women and their crop production in the study area was tested using linear regression. However, as revealed in Table 4.12, household size (-2.41) and farm size (1.77) were statistically significant at 5% and 10% probability level, respectively. Therefore, the null hypothesis that says there is no significant relationship between selected socio-economic variables such as household size, farm size and farming experience were rejected while the alternative hypothesis was accepted. However, the null hypothesis for age, level of education, marital status and was accepted as they were not significant. The implication is that, some of the selected socio-economic variables play significant roles in determining the output of rural women farmers.

Table 4.12: Regression estimates of hypothesis I

Variables	Coefficient	T-value	Decision
Age	0.0303	1.31	Accept H_A
Marital status	.1975	1.02	Accept H_A
Household size	- 0.1241	- 2.41**	Reject H_O
Level of education	-0.0020	-0.07	Accept H_A
Farming experience	0.0183	0.73	Accept H_A
Farm size	-.0846	-1.77*	Reject H_O

Source: Field survey, 2019.
******* Significant at 1%, **significant at 5% level of probability.

4.7.2 Testing of Hypothesis II

Hypothesis (ii) which stated that there is no significant relationship between the rural women's level of access to production inputs and perceived effect of insurgency on crop production in the study area was tested using Pearson's Product Moment Correlation (PPMC) and the result is presented in Table 4.13 The correlation (r) value of 0.0622 showed that there was a very weak relationship between the level of access to production

inputs and perceived effects of insurgency thus, the null hypothesis was rejected and the alternative hypothesis accepted.

Table 4.13: Correlation estimates of hypothesis II

	Level of access to production inputs	Perceived effect of insurgency
Level of access to production inputs	1.0000	
Perceived effect of insurgency	0.0622*	1.0000

Source: Field survey, 2019 ***signifies weak relations**

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Based on the findings of the study, it was concluded that the women farmers were in their active age, married with small family size and experienced in farming. Access to production inputs were found to be relatively low, thus the rural women had low level of accessibility to production inputs. In terms of income variation among the rural women, Gini coefficient of 0.53 showed that there was inequality in income distribution among the rural women in the study area. However, perceived causes of insurgents were ignorance, loose border and poverty among others. Similarly, perceived effects of insurgency on rural women agricultural activities were relocation of farmers, fear of been killed, lost of farmland and decrease in agricultural production among others. The regression result on the estimates of effects of insurgency on crop production of rural women revealed that loss of farm land, loss of animals, loss of assets, relocation, frequency of attack, people displace and exposure to bomb had inverse influence on the output of women crop farmers. Problem of inadequate access to fertilizer, inadequate access to credit, destruction of farmland and

stealing of farm produce were some of the severe constraint faced by rural women farmers in the study area.

5.2 Recommendations

From the findings of the study, the following recommendations were drawn:

I. The study revealed that the respondents were in their active age with high illiteracy level. In view of the low level of education, it was therefore recommended that policy makers, programme designer, NGOs, extension agencies and other relevant stakeholder should come up with policy formulation that will help to educate and develop skills of the rural women. This could be achieved through training and capacity building that will expose them to knowledge to overcome effects of insurgency on their farming activities.

II. It was also observed by the researcher that critical inputs required for modern day agriculture production activities such as pesticides, knapsack sprayer, pumping machines and ridgers for higher yield and output were poorly accessed due to unavailability and high cost of purchase. Therefore, governments at national and state levels should make provision for these farm machines which save human energy and time. This could be achieve through the input supply value chain.

III. There is need for Adamawa State Ministry of Agriculture to establish rehabilitation and training centers (Skills acquisition programme) for victims of insurgency and empower them appropriately for enhanced economic activities. This will help the victims especially the rural women to build their battered lives and improve on their livelihood.

IV. Also, relevant stakeholders, governments, NGOs and CBOs with interest in rebuilding the North-Eastern Nigeria should consider empowerment as an important tool for rehabilitation in the lives of the rural people especially women and children. This will serve as incentive to welcome them back to their sources of livelihoods and community development.

V. The regression estimates on effects of insurgency on crop production activities by the rural women indicated that insurgency activities, lost of farmland, assets lost, animal lost, relocation and frequency of attack had negative effect on agricultural activities. Hence, it is suggested that the government, policy maker and other stakeholders should put in more effort to end insurgency activities in the study area.

VI. In view of the severe constrains faced by respondents' namely inadequate access to fertilizer, poor access to farm machineries and poor linkage to urban markets, basic structures like roads and input supply system could be factored into the rehabilitation programme of the North East to revive the economic activities. This will champion the call for other NGOs to corroborate and build the devastated region for sustainable development not only in agricultural activities but all spheres of human life.

REFERENCES

Abidde, S. (2014). Appraising the effect of Boko Haram insurgency on the agricultural sector of Nigeria business environment. *Journal of Law and Governance* 11 (1), 65-72

Abiola, R. O. & Omoabugan, O. B. (2001).Women involvement in food crop production.processing and marketing in Nigeria. *Industrialization in Nigeria. Bullion publication of Central Bank of Nigeria.*25 (3), 39-43.

Abrams, D. & Hogg, M. A. (1988). Social identifications: A social psychology of intergroup relations and group processes. Tylor and France/published by Routledge. Pp. 288

Abubakar, E. S, Salihu, Z. H. &Alheri, P. K. (2017). Effect of Boko Haram insurgency on the productivity of local farmers in Adamawa State, Nigeria. *Asian Journal of Economics, Business and Accounting*, 5 (3), 1 – 7.

Adebayo, A. (2014). Implications of 'Boko Haram' terrorism on national development in Nigeria: A Critical Review. *Mediterranean Journal of Social Sciences, Rome-Italy,* 5 (16), 23-95

Adebayo, A. A., Onu, J. I., Adebayo, E. F. & Anyanwu, S. O. (2012). Farmers' awareness, vulnerability and adaptation to climate change in Adamawa State, Nigeria. *British Journal of Arts and Social Sciences,* 9 (2), 104 – 115.

Adebisi, S. A., Azeez, O. O. & Oyedeji, R. (2017).Appraising the effect of boko haram insurgency on the agricultural sector of Nigerian business environment. *Journal of Law and Governance,* 11 (1), 14 – 25

Adibe, J. (2014). Boko Haram in Nigeria: The way forward. Africa in Focus, *Brookings, May 14.*

Agada, M. O. & Ameh, E. (2017).Rural women's involvement in agriculture in Okpo District, Kogi State, Nigeria. *Global Journal of Science Frontier Research, Agriculture and Veterinary* 17 (4), 2-3.

Agomuo, Z. (2012). Boko Harsm, offshoot of bad governance. Business day 9, 144-145

Akinwusi, F. (1995). Economics assessment and the marketing system of smoked fish in Ibadan and its environs, *M.sc. Dissertation, University of Ibadan.* 12- 32

Aliber, M., & Hart, T. G. (2009).Should subsistence agriculture be supported as a strategy to address rural food insecurity? *Agrekon*, 48 (4), 434 – 458.

Allan, K. (2010). Conflict Theory: Lewis Coser, Ralf Dahrendrof and Randall Collins. Accessed from https://books.google.com.ng/books?id=sQwWgbZidDcC&pg=PA233&lpg=PA233&dq=conflict+and+critical+theories+by+R+Dahrendorf&source=bl&ots=OYRih6FJUA&sig=Zk1l1vS_PpFcrQ3M1X3Nq9z_6BI&hl=en&sa=X&ved=0ahUKEwjl3M3znJDKAhVCf RoKHX2KDH8Q6AEIKjAF

Altman, M., Hart, T. G. & Jacobs, P. T. (2009).Household food security status in South Africa *Agrekon*, 48 (4), 345 – 361.

Amaza P. S. & Olayemi, Y. K. (2001). Technical efficiency in food crop production in Gombe State, Nigeria. *The Nigeria Agricultural Journal* 34, 140- 151. And implications for agricultural research institutions; with an annotated Bibliograp y. CIMMYT Economics Program Paper No. 99 02. Mexico D.F.: CIMMYT. https://pdfs.semanticscholar.org/1758/0101d22476be5ad1655abb48d967c78a3875.pdf

Averill, J. R. (1983). Anger and aggression: Implications of theories of emotion. *American psychologist* 38 (11), 1145-1160

Awojobi, O. N. (2014). The socio-economic implications of Boko Haram insurgency in the North-East of Nigeria. *International Journal of Innovation and Scientific Research, 11 (1), 144 – 150.*

Awoyemi T. T., Oluwatayo B. I. & Oluwakemi, O. (2010). Inequality, polarization and poverty in Nigeria. *Poverty & Economic Policy Research Network.*

Ayinde, O. E., Muchie, M., Babatunde, R. O. Adewumi, M. O., & Ibitoye, O. (2012). "Analysis of income inequality in Nigerian agricultural economy: A case study Of Ekiti State. 2012 Conference, August 18-24, 2012, Foz do Iguacu, Brazil 126228 *International Association of Agricultural Economists.*

Baba, I. B., Zain, R.M. D., Idris, H. U. & Sanni, A. N. (2015). The role of women in *Agricultural Extension* 12 (2) Agriculture.http://www.un.org/womenwatch/daw/egm/gst_2010/Wakhungu-EP.2-EGM-ST.pdf

Babagana, M., Ismail, M., Mohammed, B. G., Dilala, M. A., Hussaini, I. & Zangoma, I. M. (2018). Impacts of Boko Haram insurgency on agricultural activities in Gujba Local Government Area, Yobe State, Nigeria. *International Journal of Contemporary Research and Review,* 9 (12), 20268 – 20282.

Baiphethi, M. N. & Jacobs, P. T. (2009).The contribution of subsistence farming to food security in South Africa. *Agrekon, 48* (4), 459-482.

Barungi, M., Edriss, A., Mugisha, J., Waithaka, M. & Tukahirwa, J. (2013). Factors influencing the adoption of soil erosion control technologies by farmers along the slopes of Mt. Elgon in Eastern Uganda, Kampala, Uganda: *Economic Policy Research Centre.*

Baumgart-Gertz, A., Prokopy, L. S. & Floress, K. (2012). Why farmers adopt best management practices in the United States: A meta-analysis of the adoption literature, *Journal of Environmental Management,* 96 (1), 17 – 25

Beatrice, E. A. (2015). Book Haram insurgency and the underdevelopment of Nigeria. *Research on Humanities and Social Sciences.*5 (6), 213 - 220

Bell, A. P. & Baron, A. R (1977). Aggression and ambient temperature: The facilitate and inhibiting effects of hot and cold environment. *Bulletin of Psychonomic Society*9960, 443-445

Bello, M. M., Sani, H. M., Bukar, A. & Rabiu, M. M. (2017). The economic effect of insurgency on smoked fish sellers in maiduguri metropolis of Borno State Nigeria. *Journal of Agricultural Extension,* 21 (3), 37 – 45

Berkowitz, L. (1989). Frustration-aggression hypothesis; *examination and reformulation psychological bulletin,* 106(1), 59-73.

Blanchard, L. P. (2014). Nigeria's Boko Haram; frequently asked questions. I*n: CRS, report for congress, congressional research service.*

Boomsma, M., Mur, R. & Mangnus, E. (2013). African agribusiness supplier development programme (AASDP) Toolkit: growing incilusive agricultural food value chains benefitting African farmers and SMEs. *UNDP Report, 34.*

Brown, R. (2000). *Group Processes*: Dynamics within and between groups. 2nd Ed. Oxford, Blackwell Publishers. http://www.studymode.com/essays/References-1579176.html.(Accessed 4th October 2016)

Bryson, J. C. (1981). Women and agriculture in sub-Saharan Africa: Implication for development (An explanatory study). *The Journal of Developmnt Studies.* 13 (3), 29-46

Central Bank of Nigeria (CBN) (2010). Economic and financial Review, 36(1), 8-12.

Central Bank of Nigeria, (1998). A profile of regional/zonal poverty in Nigeria: the case of Enugu zone, in measuring and monitoring poverty in Nigeria, *Proceedings of the seventh annual conference of Enugu Zone Research Units.* Pp. 23

Ckukwurah, D. C. & Eme, O. (2015) Implication of Boko Haram terrorism on Northern Nigeria. *Mediterranean Journal of Social Science* 6(3), 79-84

Commonwealth Secretariat (2001), Gender Mainstreaming in Agriculture and Rural Development, A Reference Manual for Governments and Other Stakeholders

Coser, L. (1956).The functions of social conflict. Published by *New York, the free Press*

Cottam, M. L. & Cottam, R. W. (2001).*Nationalism and politics:* the political behavior of nation states. London, Lynne Rienner.

Crises Group of Africa Report (2014). Retrieve from www.crisisgroup.org/africa/west-africa/nigeria/boko-haram-back-foot

Dahrendorf, R. (1959). Class and class conflict in industrial society. Stanford, CA, Stanford University Press: 1959. 336

Damisa, M. A. & Yohanna, M. (2007). Role of rural women in farm management decision household decision making and their contribution to agriculture and rural development in Nigeria. *IOSR Journal of Humanities and Social Science* 20, (5), 30-39. http://sahelcp.com/wpcontent/uploads/2016/12/Sahel-Newsletter-Volume-7.pdf
http://www.comminit/en/mode/126150/38

Datt, G. & M. Ravallion (1996). How important to India's poor is the sectoral composition of economic growth *The World Bank Economic Review*, 10 (1), 1 – 25.

Department of Agriculture, Forestry and Fisheries (DAFF). (2013). *Strategic Plan for Smallholder Support 20112014/15*.Department of Agriculture, Forestry and Fisherie s, Republic of South Africa development (an explanatory note). *Journal of Development Studies*, 17, 29-46.

Development Assistance Committee (DAC) on Development Evaluation (2007).Sourcebook for Evaluating Global and Regional Partnership Programmes: Indicative principles and standards. Washington DC: Independent evaluation group-

World Bank accessed from http://www.oecd.org/dataoecd/38/54/37981082.pdf (Accessed September 4th, 2016) development in Nigeria.

Dollard, J., Doob, L., Miller, N., Mowrer, O., & Sears, R. (1939).*Frustration and aggression*. New Haven, CT Yale University Press.

Doss, C. R. (1999). Twenty-five years of research on women farmers in Africa: lessons and implications for agricultural research institutes: with an annotated bibliography. CIMMY Economics Program Paper No 99-02. Mexico DF

Drafor, A. I., & Puplampu, K. P (2013). Women in agriculture; an assessment of the decisions in cocoa-based Agro-forestry households of Ekiti State, Nigeria. Field actions science reports http://Factsreport.revues.org/396

Dabugat, K. K. (2013). Special report on food security challenges in West Africa. A focus on agriculture. *West Africa Insight*

Ellis, F. (2000). The determinants of rural livelihood diversification in developing countries. *Journal of Agricultural Economics*, 51 (2), 289-302

Enete, A. A. & Amusa, T. A. (2010). Determinants of women contribution of to farming decisions in Cocoa based agroforestry households of Ekiti state, Nigeria. *The journal of Field Actions* 4 (2), 154-161

Federal Government of Nigeria (2004). National Economic Empowerment and Development Strategy .*National Planning Commission, Abuja.*

Fiaz, S., Noor, M. A. & Aldosari O. F. (2016). Achieving food security in the kingdom of Saudi Arabia through innovation: Potential role of agricultural extension. *Journal of Saudi Society of agricultural Sciences* 17 (4), 107-114

Fontana, M. & Paciello, C. (2010). Gender dimensions of rural and agricultural employment: differential pathways out of poverty: *a global perspective. in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty. FAO/IFAD/ILO, Rome.*

Food and Agriculture Organization (FAO) (2002). Focus: Women and food security. FAO, Rome, 98.

Food and Agriculture Organization (FAO) (2005). Building on gender, agro-biodiversity and local knowledge. Training manual. FAO, Rome. 2004.

Food and Agriculture Organization (FAO) (2011).The state of food and agriculture-women in agriculture: closing the gender gap for development, Rome. Available at: http:www.fao.org/docrep/013/12050c/12050c.pdf.Accessed on 16/12/2018.

Gaertner, S. L. (1999). Across cultural divides: The value of a super-ordinate identity. In: Deborah, A. P. and Dale T. M. (eds.), *Cultural Divides: Understanding and Overcoming Group Conflict, New York, Russell Sage Foundation.*

Geta, E, Bogale, A, & Elias E. (2013). Determinants of farmers decision on soil fertility management options for maize production in southern Ethopia. *American Journal of Experimental Agriculture,* 3 (1), 226 – 239.

Gilbert, L. (2014) Prolongation of *Boko Haram* insurgency in Nigeria: The internationall dimentions. *Research on Humanities and Social Science.* 4 (11), 150 – 156

Gompert, D. C. & Gordon, J. (2008). War by other means: Building complete and balance capacities for counterinsurgency, *Rand Corporation, California*

Gordon, H. S. (1954). The economic theory of common property resources. *The Fishery Journal of Political Economy,* 62, 124-131

Grimm, M. & Klasen, S. (2014). Migration pressure, tenure security and agricultural intensification: Evidence from Indonesia. *Land Economic* 9 (3), 411-434

Hogg, M. A. & Vaughan, G. M. (2002).*Social Psychology*(3rd ed.) London, Prentice Hall.

Hunger Project (2012). The status of women is a major causative factor in the persistence o f hunger, New York; 1999

Innocent, E. O. & Ibietan, J. (2012).The cost of boko haram activities in Nigeria. Arabian *Journal of Business and Management Review* (OMAN Chapter) 2 (2), 12-20.

Johannes, B. & Malte, S. (2017). Frustration-agression theory. In book: The Wiley Handbook of Violence and aggression. *Publisher: Wley. Editor: Peter Sturmey*

Jongur, A. A. U. (2011). Performance of agricultural cooperative societies in Mubi zone of Adamawa State. *Global Journal of Agricultural Sciences,* 10 (2), 119 – 126.

Kamau M, Burger K, Giller, K. & Kuyvenhoven, A. (2014). Labour markets and labour allocative efficiency among farm households in western Kenya. *African Journal of Agriculture and Resource Economics* 3 (2), 144 – 158

Kansiime, M. K. & Wambugu, S. K. (2014). Determinant of farmers decision to adopt adaption technologies in eastern Uganda. *Journal of Economics and sustainable Development* 5 (3), 189-199

Kassahun, G. (2014). The role of small towns for surrounding rural development: The case of Metena northwest Ehtopia. *Open Access Library Journal* 1 (6), 45-51

Kassie, M, Jeleta, M., Shiferaw, B., Mmbando, F. & Mekuria, M. (2013). Adoption of interrelated sustainable agricultural practices in smallholder systems: Evidence from rural Tanzania, *Technological Forecast and Social Change,* (in press).available at http://dx.doi.org/10/1016/j.techfore.

Kilcullen, D. (2006). Counter-insurgency redux in survival. *International institute of strategic studies,* 48 (4), 111 – 130.

Knowler, D. (2015). Farmers adoption of conservation agriculture: A review and synthesis of recent research. *Food Policy, 32 (1), 25-48*

Knowler, D & Bradshaw, B. (2007).Farmers adoption of conservation agriculture: A review and synthesis of recent research, *Food Policy*, 32, 25 – 48

Koyenikan, M. J (2008). Issues for agricultural extension policy in Nigeria. *Journal of Agricultiure Extension 12 (2), 58-64*

Kulik, J. A. & Brown, R. (1979). Frustration, attribution of blame, and aggression *Journal of Experimental Social Psychology*, 15, 183-194

Kumaravel, p., Nisha, P. R., Senthilkumar, T. & Thirunavukkarasu, D. (2019) Innovative extension management for uplifting livelihood of farmer-status, initiatives and way forward. Compendium of international seminar held at Tamil Nadus Veterinary and Animal Science University, Chennai, India. 27th- 28 June, 2019, Pp. 377-386.

Kassahun, G. (2014). The role of small towns for surrounding rural development: A case of Meema town, Northwest Ethopia. *Open Access Liberary Journal* 1 (6), 27-36

Lambrecht I., Vanlauwe, B., Merckx R., & Maertens M. (2014). Understanding the process of agricultural technology adoption: Mineral fertilizer in eastern DR Congo. *World Water Conservation I59, 132 – 146*

Marenya, P. & Barrett, B. C. (2007). Household-level determinants of adoption of improved natural resources management practices among smallholder farmers in western Kenya. *Food Policy* 32 (4), 515-536

Maslow, A. H. (1941). Deprivation, threat and frustration. Psychological Reviews, 48 (4), 364-366

Merrick, M. & Li, Q. (2014). The effects of boko haram insurgency on business and trade.Http://Africabordermonitor.Com/Media.Php

Mgbada, J. U. (2000). Production of staple crops by rural women in Enugu and Ebonyi States.lessons for enhancing poverty alleviation programmes. In T.A. Olowu(eds). Agricultural extension and poverty alleviation in Nigeria. Proceedings of the 6th Annual National Conference of the Agricultural Extension Society of Nigeria. Pp. 11.

Muddassir, M., Zia-zia, M. A., Noor, M. A & Fiaz, M. (2016). Farmers perception of factors hampering maize yield in rain-fed region of pind Dadan Khan, *Pakistan Journal of Agricultural Extension.* 20 (2), 104-110

Mugwe J., Mugendi D., Mucheru-muna M. & Merckx R (2008). Determinants of the decision to adopt intergrated soil fertility management practices by small holder farmers in the central highland Kenya. *Experimental; Agriculture* 45, 61 – 75

Mustapha, M. (2015). Boko Haram insurgency gnawing at Nigeria's food supply. Bloomberg business. Retrieved from http://www.bloomberg.com

National Bureau of Statistics (2015).Annual Abstract report. Pp. 45-47

National Bureau of Statistics (NBS) (2014).Social and economic statistics in Nigeria. Annual report; 59 – 91.

Northeast Nigeria joint livelihood and market recovery assessment (2017). Mercy corps, in conjunction with action against hunger

OECD, (2010). Atlass of gender and development how social norms affect gender equality in non-OECD Countries: Pp 193

Ogundele, O. O. & Okoruwa, V. O. (2006).Technical efficiency differentials in rice production technologies in Nigeria. *Africa Economic Research Consortium,* 54

Ogunlela, Y. I. & Mukhtar A. A, (2009). Gender issues in agriculture and rural development in Nigeria: The role of women in humanity and social sciences *Journal of outlook* 4 (1), 19-30.

Ogunlela, Y. I. and Mukhtar, A. A. (2009) Gender issues in agriculture and rural development in Nigeria: The role of women in humanity and social sciences *Journal of Huminanity and Social Science* 8 (5), 104-197

Ohlmer, B. (2008) effect of credit constraint on production efficiency of farm households in southeastern Ethopia. *Ethiopian Journal of Economic* 15 (1), 1 – 34

Ojo, C. O., Bila Y. & Iheanocho A. C. (2008). Women accessibility to resources of agricultural productivity in Borno State. *Research on Humanities and Social Science.* 4 (10), 144 – 150

Ojo, M. A, Usman, M. A. Mohammed, U. S, Ojo, A. O. & Oseghale A. I. (2018). Effect of insurgency on food crop farmers' productivity in Borno and Gombe States, Nigeria. *Journal of Agriculture,* 30 (3), 43 – 55.

Olawoye, J. E., Odebode, S. O., Akinbile, L. A., Oladeji, J. O., Oyesola, O. B. & Olujide,O. M. (2016). The multi-dimentional impacts of insurgency and armed conflict on Nigeria. *Asian Journal of Social Science* 16, 29-39

Omeire, E. U. (2016). Rural women and Agricultural production in Im,o state souyh-eastern Nigeria: Problems and prospects. *International Journal in Management and Social Science* 4 (5), 105-111

Omilusi, M. (2016). The multi-dimensional impacts of insurgency ad armed conflict on Nigeria. *Global Journal of Human Social Science* 16 (1), 509-512.

Onubuogu, G. C., Esiobu N. S., Nwosu C. S & Okereke, C. N. (2014). Resource use efficiency of smallholder cassava farmers in owerri agricultural zone, Imo State, Nigeria. *Scholarly Journal of Agriculture science* 7 (8), 142 – 152

Onwuaroh, A. S. (2017). Assessment of the impact of insurgency on livelihoods of farmers in North eastern Nigeria. A thesis submitted to the school of postgraduate studies, Ahmadu Bello University, Zaria, in partial fulfillment of the requirements for the award of the degree of doctor of Philosophy in rural development. Pp 22 - 28

Onwuaroh, A. S., Yusuf, R. O., Yusuf, O. & Akpu, B. (2017).Impact of insurgency on income of farmers in Northeastern Nigeria. *Dutse Journal of Pure and Applied Sciences (DUJOPAS)* ,3 (2), 101 – 113

Onwusiribe, C. N., Nwaiwu, B. N. & Okpokiri, C. I. (2015).Assessment of north insurgency and performance of food dealers in Abia State, Nigeria. scientific papers series management, economic engineering in agriculture and rural development, 15 (3), 217–246.

Onyebu, C. M. (2016).Assessment of income generating activities among rural women in Enugu State, Nigeria. *European Journal of Business, Economics and Accountancy*, 4 (8), 74 – 81

Opio, F (2003). Gender mainstreaming in Africa with special reference to Uganda: Challenges and prospects. African crop science conference proceedings, 6, 669-703

Patton, M. Q. (1978). Factors affecting the allocation of time to farming: The case of women farmers in South-West of Nigeria, Ibadan: *International Institute for Tropical Agriculture*.45-85.

Pon, N. M. (2010*). Identity, image and ethnic conflict in Burma:* A case study of Mon people. Electronic dissertations and thesis-politics, philosophy and public affairs

Powel, C. H. & Abraham, G. (2006). Terrorism and international humanitarian law, 1st African Yearbook of International Humanitarian Law 118:127

Prokopy, L. S., Floress, K., Klotthor, W. & Baumgart, G. (2008). Determinants of agricultural best management practice adoption: evidence from the literature. *Journal of Soil and Water Conservation,* 63 (5), 300 -311.

Pulido J, & Bocco, G. (2014). Local perception of land degradation in developing countries: A simplified analytical framework of driving forces, processes, indicators and coping strategies. *Living Reve. Landscape Res., 8*.

Rahman, S. A. & Usman, J. I. (2004). Comparative analysis of women participation in agricultural production in northern and southern Kaduna State, Nigeria. Proceedings of the 38th annual conference of the Agricultural Society of Nigeria, held at college of agriculture, Lafia, Nasarawa State, Nigeria, Oct. 17th – 21st Pp.103 – 113.

Rogers, E. M. (1995). Diffusion of innovations.4th edition New York City, The free press publishers, Pp. 3-75

Sahel Capital Partners & Advisory Limited, (2014). http://sahelcp.com/wpcontent/uploads/2016/2/sahel-Newsletter-Volume-7.pdf

Salkida, A. (2012). Counting the cost of Boko Haram crisishttp://desertherald.com/country-thecost-of-Boko Haram-Crisis/(accessed November 09, 2014).

Sanginga, N. & Woomer, P.L. (2007). Intergrated soil fertility management in Africa*:* Principles, practices and development process. Nairobi: tropical soil biology and fertility institute of the international centre for tropical agriculture. Pp. 31

Sanginga, P. C., Adesina, A. A., Manyong, V. M., Otite, O. & Dashiel, K. E. (1999). Social impact of soya bean in Nigeria's Southern Guinea Savannah, Nigeria: Published by IITA Ibadan

Sanginga, N. & Wommer, P (2009). Integrated soil fertility management in Africa: Principles, practices and development process, Nairobi. Tropical Soil Biology and Fertility Institute of the International Centre for Tropical Agriculture, TSBF-CIAT.

Shettima, A. G. (2016). Seeds of famine: The Boko Haram insurgency and agricultural production in North-Eastern Nigeria. Third ISA forum of sociology, University of Maiduguri, Nigeria

Stephen, H. & Sharmarke, F. (2014).Assessment report on Somalia economic growth strategic assessment. Pp. 5 – 8

Steunou, C. (2009). An immense love the mandate a magazine for mission awareness. No 1/2009-2010.Pp 8-9 systems in Cameroon. *Agriculture and Food Security*, 1 (1), 19

Tajfel, H. & Turner, J. C. (1979).An integrative theory of intergroup conflict. In: Austin, W. MG. & Worchel, S. (eds.), *The social psychology of intergroup relation.* Monterey, CA: Brooks-Cole publishers.

Tajfel, H. (1978). Social categorization, social identity and social comparison. In: Tajfel, H. (ed.),*Differentiation between social groups*. San Diego, CA: Academic Press. 63.

Teklewold, H., Kassie, M, & Shferaw, B, (2013). Adoption of multiple sustainable agricultural practices in rural Ethopia. *Journal of Agricultural Economics* 64 (3), 597 – 623

Teshome, A, Rolker, D. & Graaf, J. (2014). Financial viability of soil and water conservation technologies in North- western Ethiopia highlands. *Applied Geography* 37, 139-149. Doi: 10.1016/j.apgeog.2012.007

Towobola, W. L., Luqman, R., Kolade, T. T., Ogunwale, A. B. & Olakojo, S. A. (2014).Entrepreneurship: A vehicle for sustainable food production in Nigeria. *Journal of Poverty, Investment and Development,* 5, 23 – 24

Ukinze, J. A. & Olaitan, S. O. (2010). Competency improvement needs of women of women in agriculture in processing cocoyam into flour and chips for food society in south east Nigeria. *Journal of African Teacher Education* 1 (1), 149 - 157

Umar, A. M. & Abba, M. W. (2012).The effect of Agricultural Development Project (ADP) on the rural farmers in Adamawa State, Nigeria. *Asian Journal of Agriculture and Rural Development,* 2 (3), 405 – 410.

Umar, I. S., Jacob, A. I. & Ibrahim, M. (2019).Effect of farmer-herders conflict on activities of extension field workers of Agricultural Development Programmes (ADPs) in Benue and Nassarawa States, Nigeria.

UN Women, 2016.Women and Sustainable Development Goals. https://sustainabledevelopment.un.org/content/documents/2322UN%20Women%20Analysis%20on%20Women%20and%20SDGs.pdf

United Nation (UN) (2001).Substantive issues arising in the complementation of the international covenant in economic social and cultural rights. New York: UN.

United Nations Development Program (UNDP), (2013). Sustainable livelihoods; Concept, Principles and Approaches to Indicator Development-Draft. Available online: www.Undp.org/sl/docs. (Accessed on February 19, 2016).

UNICEF annual report (1992). World summit for children (1990: New York)

Usman, G. G. (2009). Report of the administrative committee of inquiry into the boko haram insurgency in Borno State. Maiduguri, 2 (2),8-12.

Uwakwe, M. O. (2004). Factors affecting women participation in the labour force in Nigeria, *Journal of Agriculture and Social Resources* 4 (2), 156 - 162

Van Averbeke, W., & Khosa, T. B. (2007).The contribution of smallholder agriculture to the nutrition of rural households in a semi-arid environment in South Africa. 33 (3), 413-418.

Wakhungu, J.W, (2010). Gender dimensions of science and technology: African women in Agriculture. http://www.un.org/womenwatch/daw/egm/gst

Wiggins, S. & Keats, S. (2013). Smallholder agriculture contribution to better nutrition. Agriculture for impact, imperial college and overseas development administration, overseas development institute, 203 Blackfriars Road, London, SEI

Winters, P., Davis, B., Carletto, G., Covarrubias, K., Quinones, E. J., Zezza, A., Azzarri, C. & Stamoulis, K. (2009). Assets, activities and rural income generation: evidence from a multi-country analysis of World Development, 37 (9), 1435 -1452

Wofan, (2003).Women farmers' advancement network-Nigeria. Last updated 2 July 2003 women in agriculture in processing cocoyam into flour and chips for food society in south-East Nigeria. Journal of African teacher education.1 (1),149-157

Yengoh, T. G. (2012). Determinants of yield differences in small-scale food crop farming system in Cameroon. *Journal of Agriculture and Food Security,* 1 (1), 21-27

APPENDIX 1

**DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT,
SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY,
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA,
NIGER STATE, NIGERIA**

RESEARCH QUESTIONNAIRE

Dear respondent,
I am a Postgraduate student of the above stated Department and University. I am conducting a research to determine **"the effects of insurgency on crop farming activities of rural women in Adamawa State, Nigeria"**. This questionnaire aims at gathering relevant information that would assist the researcher to effectively carry out the study. All the information supplied here shall be solely for research purposes and will be treated as confidential. You are therefore required to fill in the answers to the following questions and mark or tick as appropriate.
Yours Faithfully,

GARNVWA, Gloria Joshua
08036124707

Name of respondent (optional):……
Phone number: ……
Local Government Area:……
Name of Village:…...……
Questionnaire No:……

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENT

1. Age……..…..years
2. Marital Status:
(a) Single [ ] (b) Married [ ] (c) Divorced [ ] (d) Widowed [ ] (e) Separated [ ]
3. Head of household: (a) Yes [ ] (b) No [ ]
4. Number of household members…….……
5. What is your level of formal education?
(a) Primary [ ] (b) Secondary [ ] (c) Tertiary [ ] (d) Non-formal [ ] (e) Others (Specify)..…

5. How many years did you spend in schooling? ……..……..
6. For how long have you been into crop farming? ……
7. What is your level of involvement in rice farming? (a)Full Time [ ] (b) Part Time [ ]

8. What is your primary occupation?
(a)Farming [ ] (b)Gathering [ ] (c) Trading [ ] (d) Civil Servant [ ] (e) Artisan [ ]
(f) Agro-processing[ ] (g) Others (specify)
……
9. What is your Secondary occupation?
(a)Farming [ ] (b)Gathering [ ] (c) Trading [ ] (d) Civil Servant [ ] (e) Artisan [ ]
(f) Agro-processing[ ] (g) Others (specify)
……
10. Do you have contact with extension agent? (a) Yes [ ] (b) No [ ]
11. If yes, indicate frequency of contact with the extension agent(s).
(a) Weekly [ ] (b) Fortnightly [ ] (c) Monthly [ ] (d) Quarterly [ ] (e) Annually [ ]
12. Do you have access to credit facilities? (a) Yes [ ] (b) No [ ]
13. If yes, from which source are you access credit last cropping season?
(a) Commercial Bank [ ] (b) Bank of Agric. [ ] (c) Cooperative [ ] (d) Friends/Relatives [ ] (e) Government Programmes [ ] (f) Others (specify)……..…
14. How much did you access as credit from the source in the last cropping? ₦.....
15. Do you belong to any association or cooperative societies? (a) Yes [ ] (b) No [ ]
16. If yes, how many groups do you belong to presently?.....
17. If yes, how many years have been in cooperative societies?.....
18. What is the total size of your farmland(s) in hectares?.....
19. What is the sources of your farm labour?
(a) Family [ ] (b) Hired [ ] (c) Communal [ ] (d) Others (Specify)……
20. What is the means of your land acquisition?
(a) Inheritance [ ] (b) Purchase [ ] (c) Rent/Lease [ ] (d) Gift [ ] (e) Others (Specify)……

21. Kindly indicate you labour usage in crop production in man-days.

	Family labour						**Hired labour**					
	Adult male		**Adult female**		**Children**		**Adult male**		**Adult female**		**Children**	
Operations	No.	Days	No.	Days	No.	Days	No.	Days	No.	Days	No.	Days
Land clearing												
Ploughing												
Ridging												
Planting												
Fertilizer app.												
Weeding												
Harvesting												
Others specify...												

22. Kindly indicate the cost of labour usage incurred in crop production last cropping season.

Operations	**AM**	**AF**	**CH**	**Total**
	Wage (₦)	**Wage (₦)**	**Wage (₦)**	**Wage (₦)**
Land clearing				
Ploughing				
Ridging				
Planting				
Fertilizer application				
Weeding				
Harvesting				
Others specify..				

Note: AM – Adult Male, AF = Adult Female, CH = Child

SECTION B: ACCESSIBILITY TO AGRICULTURAL INPUTS

23. Did you have access to production inputs last cropping season? (a) Yes [ ] (b) No [ ]

24. Kindly indicate the production inputs you accessed last farming season.

Production inputs	**Yes**	**No**	**Quantity**
Improved seeds			
Fertilizer (Kg)			
Herbicides			
Pesticides			
Cutlass			
Hoe			
Ridger			
Plough			
Machineries (Tractors)			
Pumping machines			
Others (Specify)…….			

25. Kindly indicate your level of accessibility of the following production inputs

Production inputs	**High**	**Moderate**	**Low**
Improved seeds			
Fertilizer (Kg)			
Herbicides			
Pesticides			
Cutlass			
Hoe			
Ridger			
Plough			
Machineries (Tractors)			
Pumping machines			
Others (Specify)…….			

SECTION C: INCOME GENERATION OF THE RESPONDENTS

26. What is your estimated income last cropping season? ₦……

27. Kindly fill in the table provided below on your various crop grow and output realized

Crop Produce	**Tick**	**Quantity harvested (kg)**	**Quantity sold (kg)**	**Price (₦)**	**Amount (₦)**
Maize	( )				
Sorghum	( )				
Rice	( )				
Millet	( )				
Guinea corn	( )				
Cowpea	( )				
Soybean	( )				
Groundnut	( )				
Others……					

28. Kindly indicate your income from the following non-agricultural sources

Non-Farming	**Tick**	**Amount (₦)**
Civil service		
Farming		
Marketing		
Petty trading		
Tailoring		
Agro-processing		
Knitting		
Soap/Cosmetic making		
Traditional midwifery		
Weaving		
Sales of herbs/local medicines		
Others (specify)……		

SECTION D: PERCEIVED EFFECT OF INSURGENCY IN CROP PRODUCTION BY THE RESPONDENTS

29. Kindly indicate your perception of insurgency on crop production

Perception Statements	**SA**	**A**	**U**	**D**	**SD**

Insurgency has led to loss of farmland					
Insurgency has led to relocation of farmer					
Fear of being killed have made farmers to abandon their farming					
Insurgency has led to decrease production					
Insurgency has increase the food insecurity status of the area					
Insurgency has led to the death of several farmers					
Problem of insurgency causes poor access to production inputs					
Insurgency activities have led to low yield of crops					
Insurgency activities have led to loss of farm produce in storage					
Contribution of crop production to economy have been reduced due to insurgency					

Note: SA = Strongly Agreed, A = Agreed, U = Undecided, D = Disagreed and SD = Strongly Disagreed.

30. What are your perceived causes of insurgency in your community?

Causes	**Strongly agreed**	**Agreed**	**Undecided**	**Disagree**	**Strongly disagree**
Unemployment					
Poverty					
Loose borders					
Ignorance					
Religious bigotry					
Youth unrest					

31. Was there security intervention during attack(s)? (a) Yes [ ] (b) No [ ]
32. How successful was security intervention?
(a) Very successful [ ] (b) Successful [ ] (c) Not sure [ ] (d) Unsuccessful [ ]

SECTION E:CONSTRAINTS FACED BY THE RESPONDENTS IN THE AREA

33. Kindly tick appropriately the constraints faced in crop production as a result of insurgency insurgency.

Constraints	**Very severe**	**Severe**	**Not severe**
Lack of access to fertilizer			
Lack of access to credit			
Lack of access to farmland			
Lack of access to machineries			
lack of access to farming tools			

lack of access to water			
No accessible road to farmland			
Stealing of farm produce			
Destruction of farmland			
No central market point			
Fear of being attack and abduction			
Exposure to bombs and explosives			
Others (Specify)……..			

APPENDIX II

Frequencies

Notes

Output Created		05-MAR-2020 14:39:55
Comments		
Input	Data	C:\Users\Mal. Yakubu\Documents\Gloria Data.sav
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	232
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.

Syntax		FREQUENCIES VARIABLES=Age Marital HHS Edu_SExpFarming_SOccup_POccup_SExtnExtn_FreqCredit_A Credit_S Coop FarmsizeLabour_SFarmland_Aq Cons1 Cons2 Cons3 Cons4 Cons5 Cons6 Cons7 Cons8 Cons9 Cons10 Cons11 Cons12 /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

OBJECTIVE ONE (1)

Age of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 26	24	10.3	10.3	10.3
	26 - 35	54	23.3	23.3	33.6
	36 - 45	95	40.9	40.9	74.6
	46 - 55	43	18.5	18.5	93.1
	> 55	16	6.9	6.9	100.0
	Total	232	100.0	100.0	

Marital status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	30	12.9	12.9	12.9
	Married	173	74.6	74.6	87.5
	Divorced	8	3.4	3.4	90.9
	Widowed	16	6.9	6.9	97.8
	Separated	5	2.2	2.2	100.0
	Total	232	100.0	100.0	

Household size of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 6	90	38.8	38.8	38.8
	6 - 10	104	44.8	44.8	83.6
	11 - 15	32	13.8	13.8	97.4
	> 15	6	2.6	2.6	100.0
	Total	232	100.0	100.0	

Educational status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	78	33.6	33.6	33.6
	Secondary	75	32.3	32.3	65.9
	Tertiary	17	7.3	7.3	73.3
	Non-Formal	62	26.7	26.7	100.0
	Total	232	100.0	100.0	

Farming experience of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 6	55	23.7	23.7	23.7
	6 - 10	47	20.3	20.3	44.0

	11 - 15	46	19.8	19.8	63.8
	> 15	84	36.2	36.2	100.0
	Total	232	100.0	100.0	

Farming status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full term	139	59.9	59.9	59.9
	Part term	93	40.1	40.1	100.0
	Total	232	100.0	100.0	

Primary occupation of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farming	138	59.5	59.5	59.5
	Gathering	1	.4	.4	59.9
	Trading	20	8.6	8.6	68.5
	Civil Servant	43	18.5	18.5	87.1
	Livestock rearing	19	8.2	8.2	95.3
	Agro-processing	11	4.7	4.7	100.0
	Total	232	100.0	100.0	

Secondary occupation of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farming	93	40.1	40.1	40.1
	Gathering	4	1.7	1.7	41.8
	Trading	25	10.8	10.8	52.6
	Civil Servant	46	19.8	19.8	72.4
	Livestock rearing	35	15.1	15.1	87.5
	Agro-processing	29	12.5	12.5	100.0
	Total	232	100.0	100.0	

Extension contact by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	147	63.4	63.4	63.4
	Yes	85	36.6	36.6	100.0
	Total	232	100.0	100.0	

Frequency of extension contact by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	147	63.4	63.4	63.4
	Weekly	4	1.7	1.7	65.1
	Fortnightly	4	1.7	1.7	66.8
	Monthly	27	11.6	11.6	78.4
	Quarterly	7	3.0	3.0	81.5
	Annually	43	18.5	18.5	100.0
	Total	232	100.0	100.0	

Access to credit by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	162	69.8	69.8	69.8
	Yes	70	30.2	30.2	100.0
	Total	232	100.0	100.0	

Sources of credit by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	162	69.8	69.8	69.8
	Commercial Bank	7	3.0	3.0	72.8
	Bank of Agriculture	8	3.4	3.4	76.3
	Cooperatives	13	5.6	5.6	81.9
	Family and Friends	34	14.7	14.7	96.6
	Government Programme	8	3.4	3.4	100.0
	Total	232	100.0	100.0	

Cooperative membership by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	126	54.3	54.3	54.3
	Yes	106	45.7	45.7	100.0
	Total	232	100.0	100.0	

Farm size of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 2.1	131	56.5	56.5	56.5
	2.1 - 4.0	78	33.6	33.6	90.1
	4.1 - 6.0	16	6.9	6.9	97.0
	> 4.0	7	3.0	3.0	100.0
	Total	232	100.0	100.0	

Labour sources of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Family	102	44.0	44.0	44.0
	Hired	115	49.6	49.6	93.5
	Communal	15	6.5	6.5	100.0
	Total	232	100.0	100.0	

Farmland acquisition by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Inheritance	171	73.7	73.7	73.7
	Purchase	19	8.2	8.2	81.9
	Rent/Lease	39	16.8	16.8	98.7
	Gift	3	1.3	1.3	100.0
	Total	232	100.0	100.0	

Objective Two

Frequencies

Notes

Output Created		06-MAR-2020 08:29:13
Comments		
Input	Data	C:\Users\Mal. Yakubu\Documents\Gloria Data 1.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	232
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Input_Access Input1 Input2 Input3 Input4 Input5 Input6 Input7 Input8 Input9 Input10 Level_A1 Level_A2 Level_A3 Level_A4 Level_A5 Level_A6 Level_A7 Level_A8 Level_A9 Level_A10 Effect_P1 Effect_P2 Effect_P3 Effect_P4 Effect_P5 Effect_P6 Effect_P7 Effect_P8 Effect_P9 Effect_P10 Cause_P1 Cause_P2 Cause_P3 Cause_P4 Cause_P5 Cause_P6 Income /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

OBJECTIVE TWO (2)

Access to production inputs by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	15.1	15.1	15.1
	Yes	197	84.9	84.9	100.0
	Total	232	100.0	100.0	

Access to improved seeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	67	28.9	28.9	28.9
	Yes	165	71.1	71.1	100.0
	Total	232	100.0	100.0	

Access to fertilizer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	16.4	16.4	16.4
	Yes	194	83.6	83.6	100.0
	Total	232	100.0	100.0	

Access to herbicides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	17.7	17.7	17.7
	Yes	191	82.3	82.3	100.0
	Total	232	100.0	100.0	

Access to pesticides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	142	61.2	61.2	61.2
	Yes	90	38.8	38.8	100.0
	Total	232	100.0	100.0	

Access to cutlass

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	54	23.3	23.3	23.3
	Yes	178	76.7	76.7	100.0
	Total	232	100.0	100.0	

Access to hoe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	21.1	21.1	21.1
	Yes	183	78.9	78.9	100.0
	Total	232	100.0	100.0	

Access to ridger

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	202	87.1	87.1	87.1
	Yes	30	12.9	12.9	100.0
	Total	232	100.0	100.0	

Access to plough

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	184	79.3	79.3	79.3
	Yes	48	20.7	20.7	100.0
	Total	232	100.0	100.0	

Access to knapsack sprayer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	130	56.0	56.0	56.0
	Yes	102	44.0	44.0	100.0
	Total	232	100.0	100.0	

Access to pumping machines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	179	77.2	77.2	77.2
	Yes	53	22.8	22.8	100.0
	Total	232	100.0	100.0	

Level of accessibility of improved seeds

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Low	44	19.0	19.0	19.0
	Moderate	138	59.5	59.5	78.4
	High	50	21.6	21.6	100.0
	Total	232	100.0	100.0	

Level of accessibility of fertilizer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	27	11.6	11.6	11.6
	Moderate	172	74.1	74.1	85.8
	High	33	14.2	14.2	100.0
	Total	232	100.0	100.0	

Level of accessibility of herbicides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	24	10.3	10.3	10.3
	Moderate	154	66.4	66.4	76.7
	High	54	23.3	23.3	100.0
	Total	232	100.0	100.0	

Level of accessibility of pesticides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	98	42.2	42.2	42.2
	Moderate	59	25.4	25.4	67.7
	High	75	32.3	32.3	100.0
	Total	232	100.0	100.0	

Level of accessibility of cutlass

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	43	18.5	18.5	18.5
	Moderate	47	20.3	20.3	38.8
	High	142	61.2	61.2	100.0
	Total	232	100.0	100.0	

Level of accessibility of hoe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	62	26.7	26.7	26.7
	Moderate	49	21.1	21.1	47.8
	High	121	52.2	52.2	100.0
	Total	232	100.0	100.0	

Level of accessibility of ridger

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	177	76.3	76.3	76.3
	Moderate	39	16.8	16.8	93.1
	High	16	6.9	6.9	100.0
	Total	232	100.0	100.0	

Level of accessibility of plough

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	157	67.7	67.7	67.7
	Moderate	51	22.0	22.0	89.7
	High	24	10.3	10.3	100.0
	Total	232	100.0	100.0	

Level of accessibility of Knapsack sprayer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	170	73.3	73.3	73.3
	Moderate	45	19.4	19.4	92.7
	High	17	7.3	7.3	100.0
	Total	232	100.0	100.0	

Level of accessibility of pumping machines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	173	74.6	74.6	74.6
	Moderate	41	17.7	17.7	92.2
	High	18	7.8	7.8	100.0
	Total	232	100.0	100.0	

Objective Three (3)

Total income of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 200,001	29	12.5	12.5	12.5
	200,001 - 400,000	29	12.5	12.5	25.0
	400,001 - 600,000	46	19.8	19.8	44.8
	600,001 - 800,000	36	15.5	15.5	60.3
	800,001 - 1,000,000	46	19.8	19.8	80.2
	> 1,000,000	46	19.8	19.8	100.0
	Total	232	100.0	100.0	

GINI COEFFICIENT RESULT

Income (₦)	Freq.	Proportion of Resp. (X)	Cumm. Proportion of Resp.	Total Income (₦)	proportion of Incomes	Cumm. proportion of incomes (Y)	∑XY
< 200,001	29	0.13	0.13	5800000.00	0.04	0.04	0.00
200,001 - 400,000	29	0.13	0.25	8700014.50	0.06	0.10	0.01
400,001 - 600,000	46	0.20	0.45	23000023.00	0.15	0.25	0.05
600,001 - 800,000	36	0.16	0.60	25200018.00	0.17	0.42	0.06
800,001 - 1,000,000	46	0.20	0.80	41400023.00	0.28	0.69	0.14
> 1,000,000	46	0.20	1.00	46000000.00	0.31	1.00	0.20
Total	**232**	1.00		**150100078.50**	**1.00**		**0.47**

GI = 1 – 0.47 = 0.53

Objective Four (4)

Perceived Effect of Insurgency (Insurgency has led to loss of farmland)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	3	1.3	1.3	1.3
	Undecided	1	.4	.4	1.7
	Agreed	114	49.1	49.1	50.9
	Strongly Agreed	114	49.1	49.1	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency has led to relocation of farmer)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	5	2.2	2.2	2.2
	Disagreed	2	.9	.9	3.0
	Undecided	6	2.6	2.6	5.6
	Agreed	53	22.8	22.8	28.4
	Strongly Agreed	166	71.6	71.6	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Fear of being killed have made farmers to abandon their farming)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagreed	2	.9	.9	.9
	Undecided	1	.4	.4	1.3
	Agreed	86	37.1	37.1	38.4
	Strongly Agreed	143	61.6	61.6	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency has led to decrease production)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	4	1.7	1.7	1.7
	Disagreed	2	.9	.9	2.6
	Undecided	5	2.2	2.2	4.7
	Agreed	106	45.7	45.7	50.4
	Strongly Agreed	115	49.6	49.6	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency has increase the food insecurity status of the area)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	4.7	4.7	4.7
	Disagreed	15	6.5	6.5	11.2
	Undecided	12	5.2	5.2	16.4
	Agreed	117	50.4	50.4	66.8
	Strongly Agreed	77	33.2	33.2	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency has led to the death of several farmers)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	2	.9	.9	.9
	Undecided	5	2.2	2.2	3.0
	Agreed	155	66.8	66.8	69.8
	Strongly Agreed	70	30.2	30.2	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency causes poor access to production inputs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	1	.4	.4	.4
	Disagreed	2	.9	.9	1.3
	Undecided	9	3.9	3.9	5.2
	Agreed	157	67.7	67.7	72.8
	Strongly Agreed	63	27.2	27.2	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency activities have led to low yield of crops)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	1	.4	.4	.4
	Disagreed	11	4.7	4.7	5.2
	Undecided	79	34.1	34.1	39.2
	Agreed	85	36.6	36.6	75.9
	Strongly Agreed	56	24.1	24.1	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Insurgency activities have led to loss of farm produce in storage)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagreed	5	2.2	2.2	2.2
	Undecided	42	18.1	18.1	20.3
	Agreed	105	45.3	45.3	65.5
	Strongly Agreed	80	34.5	34.5	100.0
	Total	232	100.0	100.0	

Perceived Effect of Insurgency (Reduction in the contribution of crop production to the economy)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	5	2.2	2.2	2.2
	Disagreed	5	2.2	2.2	4.3
	Undecided	32	13.8	13.8	18.1
	Agreed	103	44.4	44.4	62.5
	Strongly Agreed	87	37.5	37.5	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Unemployment)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	8	3.4	3.4	3.4

	Disagreed	5	2.2	2.2	5.6
	Undecided	87	37.5	37.5	43.1
	Agreed	71	30.6	30.6	73.7
	Strongly Agreed	61	26.3	26.3	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Poverty)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	5	2.2	2.2	2.2
	Disagreed	3	1.3	1.3	3.4
	Undecided	1	.4	.4	3.9
	Agreed	156	67.2	67.2	71.1
	Strongly Agreed	67	28.9	28.9	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Loose border)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	8	3.4	3.4	3.4
	Disagreed	13	5.6	5.6	9.1
	Undecided	21	9.1	9.1	18.1
	Agreed	49	21.1	21.1	39.2
	Strongly Agreed	141	60.8	60.8	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Ignorance)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	4.3	4.3	4.3
	Disagreed	3	1.3	1.3	5.6
	Undecided	12	5.2	5.2	10.8
	Agreed	59	25.4	25.4	36.2
	Strongly Agreed	148	63.8	63.8	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Religious bigotry)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	4.7	4.7	4.7
	Disagreed	14	6.0	6.0	10.8
	Undecided	101	43.5	43.5	54.3
	Agreed	56	24.1	24.1	78.4
	Strongly Agreed	50	21.6	21.6	100.0
	Total	232	100.0	100.0	

Perceived Causes of Insurgency (Youth unrest)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	45	19.4	19.4	19.4
	Disagreed	87	37.5	37.5	56.9
	Undecided	15	6.5	6.5	63.4
	Agreed	51	22.0	22.0	85.3

	Strongly Agreed	34	14.7	14.7	100.0
	Total	232	100.0	100.0	

Objective Five (5)

(R)

/__ / ____/ / ____/

___/ / /___/ / /___/ 15.0 Copyright 1985-2017 StataCorp LLC

Statistics/Data Analysis StataCorp 4905 Lakeway Drive

MP - Parallel Edition College Station, Texas 77845 USA

800-STATA-PC http://www.stata.com

979-696-4600 stata@stata.com

979-696-4601 (fax)60-user 2-core Stata network license expires 1 Dec 2017: Serial number: 501509257369 Licensed to: Muhammed Yakubu FUT Minna

Notes:

1. Unicode is supported; see help unicode_advice.

2. More than 2 billion observations are allowed; see help obs_advice.

3. Maximum number of variables is set to 5000; see help set_maxvar.

*(34 variables, 232 observations pasted into data editor)

. describe

Contains data

obs: 232

vars: 34

size: 22,272

-storage display value

variable name type format label variable label

--

cropoutput long %8.0g Crop Output

farmsize	byte	%8.0g	Farmsize
labour	int	%8.0g	Labour
seeds	float	%8.0g	Seeds
fertilizer	int	%8.0g	Fertilizer
agrochemical	float	%8.0g	Agro-chemical
age	byte	%8.0g	Age
household	byte	%8.0g	Household
education	byte	%8.0g	Education
experience	byte	%8.0g	Experience
insurgency	byte	%8.0g	Insurgency
lossoffarmland	byte	%8.0g	Loss of farmland
lossofasset	byte	%8.0g	Loss of asset
lossoflives	byte	%8.0g	Loss of lives
lossofanimals	byte	%8.0g	Loss of animals
relocation	byte	%8.0g	Relocation
frequencyofat~k	byte	%8.0g	Frequency of attack
logoutput	float	%8.0g	LogOutput
logfarmsize	float	%8.0g	LogFarmsize
loglabour	float	%8.0g	LogLabour
logseeds	float	%8.0g	LogSeeds
logfert	float	%8.0g	LogFert
logagrochem	float	%8.0g	LogAgrochem
logage	float	%8.0g	LogAge
loghousehold	float	%8.0g	LogHousehold
logeducation	float	%8.0g	LogEducation
logexperience	float	%8.0g	LogExperience
loginsurgency	float	%8.0g	LogInsurgency

logfarmlandloss float %8.0g LogFarmland loss

logassetloss float %8.0g LogAsset loss

loglivesloss float %8.0g LogLives loss

loganimalsloss float %8.0g LogAnimals loss

logrelocation float %8.0g LogRelocation

logattackfreq float %8.0g LogAttack freq

Sorted by:

Note: Dataset has changed since last saved.

. summarize

Variable	Obs	Mean	Std. Dev.	Min	Max
cropoutput	232	7885.565	10598.89	900	58000
farmsize	232	2.521552	1.57069	1	10
labour	232	41.47414	50.7171	2	576
seeds	232	10.79612	24.5052	1	200
fertilizer	232	102.6681	222.5448	1	2500
agrochemical	232	8.079741	8.079361	1	80
age	232	40.03448	10.4475	20	78
household	232	6.788793	3.511669	1	16
education	232	7.637931	4.008425	2	15
experience	232	13.14655	7.77303	2	35
insurgency	232	43.14224	5.322624	22	100
lossoffarm~d	232	4.448276	.642571	1	5
lossofasset	232	4.12069	.7746545	2	5

lossoflives | 232 4.25431 .5810711 1 5

lossofanim~s | 232 3.793103 .8779871 1 5

---

relocation | 232 4.607759 .7765671 1 5

frequencyo~k |232 4.594828 .5501428 2 5

logoutput | 232 8.286214 1.146658 6.802395 10.9682

logfarmsize | 232 .7502718 .5919152 0 2.302585

loglabour | 232 3.258134 .9445663 .6931472 6.356108

---

logseeds | 232 1.398118 1.311425 0 5.298317

logfert | 232 3.063406 1.91303 0 7.824046

logagrochem | 232 1.790788 .7445263 0 4.382027

logage | 232 3.654654 .2698733 2.995732 4.356709

loghousehold | 232 1.745796 .6554683 0 2.772589

---

logeducation | 232 1.871592 .5980908 .6931472 2.70805

logexperie~e | 232 2.364684 .699657 .6931472 3.555348

loginsurge~y | 232 3.758217 .1098103 3.091043 4.60517

logfarmlan~s | 232 1.476776 .2041266 0 1.609438

logassetloss | 232 1.396222 .2063789 .6931472 1.609438

---

loglivesloss | 232 1.435471 .1763247 0 1.609438

loganimals~s | 232 1.303356 .2542916 0 1.609438

logrelocat~n | 232 1.502665 .264742 0 1.609438

logattackf~q | 232 1.51662 .1352184 .6931472 1.609438

****LINEAR REGRESSION ANALYSIS (OBJECTIVE FIVE)

****LINEAR REGRESSION

variable name type format label variable label

---

logcropout float %8.0g LogCropOut

lossoffarmland byte %8.0g Loss of farmland

lossofcrops byte %8.0g Loss of crops

lossofanimals byte %8.0g Loss of animals

lossofasset byte %8.0g Loss of asset

lossoflives byte %8.0g Loss of lives

relocation byte %8.0g Relocation

frequencyofat~k byte %8.0g Frequency of attack

peopledisplaced byte %8.0g People displaced

deathofsevera~s byte %8.0g Death of several farmers

exposuretobombs byte %8.0g Exposure to bombs

fearofbeingki~d byte %8.0g Fear of being killed

fearofabduction byte %8.0g Fear of abduction

fearofattack byte %8.0g Fear of attack

Sorted by:

Note: Dataset has changed since last saved.

. summarize

Variable	Obs	Mean	Std. Dev.	Min	Max
logcropout	232	8.286216	1.146659	6.80239	10.9682
lossoffarm~d	232	4.465517	.6020317	1	5
lossofcrops	232	4.211207	.7913243	2	5

lossofanim~s | 232 3.758621 .9635854 2 5

lossofasset | 232 4.12069 .7746545 2 5

---+---

lossoflives | 232 4.25431 .5810711 1 5

relocation | 232 4.439655 1.000336 1 5

frequencyo~k | 232 4.594828 .5501428 2 5

peopledisp~d | 232 4.185345 .8654758 2 5

deathofsev~s | 232 4.375 .7158533 1 5

---+---

exposureto~s | 232 .3663793 .4828566 0 1

fearofbein~d | 232 .3017241 .4599986 0 1

fearofabdu~n | 232 .5 .5010811 0 1

fearofattack | 232 .512931 .5009135 0 1

. regress logcropout lossoffarmland lossofcrops lossofanimals lossofasset lossoflives relocation frequencyofattack peopledi

> splaced deathofseveralfarmers exposuretobombs fearofbeingkilled fearofabduction fearofattack

Source | SS df MS Number of obs = 232

---+--- F(13, 218) = 14.07

Model | 138.592368 13 10.6609514 Prob > F = 0.0000

Residual | 165.132612 218 .757489044 R-squared = 0.7563

---+--- Adj R-squared = 0.7239

Total | 303.724979 231 1.31482675 Root MSE = .87034

---

logcropout | Coef. Std. Err. t P>|t| [95% Conf. Interval]

```
---------------------+------------------------------------------------------------------
     lossoffarmland |  -.3000796   .1039252    -2.89***0.004    -.5049063   -.0952529
       lossofcrops |   .1096077   .0787283     1.39   0.165    -.0455584    .2647738
     lossofanimals |  -.2447108   .0656902    -3.73***0.000    -.3741799   -.1152416
       lossofasset |  -.5604775    .097318    -5.76***0.000    -.7522821    -.368673
       lossoflives |  -.0595933   .1277186    -0.47   0.641    -.3113146     .192128
        relocation |  -.1448974   .0645013    -2.25** 0.026    -.2720234   -.0177714
   frequencyofattack |    -.75816   .1217905    -6.23***0.000    -.5181223   -.9981976
    peopledisplaced |   -.166078   .0685256    -2.42** 0.016    -.3011354   -.0310206
deathofseveralfarmers |  -.0084208   .0908412    -0.09   0.926    -.1874602    .1706186
    exposuretobombs |  -.2547972   .1286539    -1.98*  0.049    -.5083619   -.0012324
   fearofbeingkilled |   .1501974   .1675865     0.90   0.371    -.1800997    .4804945
    fearofabduction |   .0500634    .124111     0.40   0.687    -.1945477    .2946745
       fearofattack |  -.1267504   .1313833    -0.96   0.336    -.3856945    .1321937
            _cons |   10.62713   .8084117    13.15   0.000     9.033832    12.22044
------------------------------------------------------------------------------
```

OBJECTIVE SIX

Inadequate access to fertilizer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	12	5.2	5.2	5.2
	Severe	38	16.4	16.4	21.6
	Very Severe	182	78.4	78.4	100.0
	Total	232	100.0	100.0	

Inadequate access to credit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	11	4.7	4.7	4.7
	Severe	48	20.7	20.7	25.4
	Very Severe	173	74.6	74.6	100.0
	Total	232	100.0	100.0	

Poor access to farmland

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Not Severe	19	8.2	8.2	8.2
	Severe	164	70.7	70.7	78.9
	Very Severe	49	21.1	21.1	100.0
	Total	232	100.0	100.0	

Poor access to farm machineries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	14	6.0	6.0	6.0
	Severe	155	66.8	66.8	72.8
	Very Severe	63	27.2	27.2	100.0
	Total	232	100.0	100.0	

Inadequate access to farming tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	76	32.8	32.8	32.8
	Severe	122	52.6	52.6	85.3
	Very Severe	34	14.7	14.7	100.0
	Total	232	100.0	100.0	

lack of access to irrigation water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	142	61.2	61.2	61.2
	Severe	71	30.6	30.6	91.8
	Very Severe	19	8.2	8.2	100.0
	Total	232	100.0	100.0	

Poor accessible road to farmland

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	109	47.0	47.0	47.0
	Severe	88	37.9	37.9	84.9
	Very Severe	35	15.1	15.1	100.0
	Total	232	100.0	100.0	

Stealing of farm produce

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	119	51.3	51.3	51.3
	Severe	75	32.3	32.3	83.6
	Very Severe	38	16.4	16.4	100.0
	Total	232	100.0	100.0	

Destruction of farmland

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	140	60.3	60.3	60.3
	Severe	52	22.4	22.4	82.8
	Very Severe	40	17.2	17.2	100.0
	Total	232	100.0	100.0	

Poor linkages to urban market

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	73	31.5	31.5	31.5
	Severe	116	50.0	50.0	81.5
	Very Severe	43	18.5	18.5	100.0
	Total	232	100.0	100.0	

Fear of being attack and abduction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	109	47.0	47.0	47.0
	Severe	57	24.6	24.6	71.6
	Very Severe	66	28.4	28.4	100.0
	Total	232	100.0	100.0	

Exposure to bombs and explosives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Severe	125	53.9	53.9	53.9
	Severe	59	25.4	25.4	79.3
	Very Severe	48	20.7	20.7	100.0
	Total	232	100.0	100.0	

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviati
Mean age of the respondents	232	20	78	9288	40.03	10.4
Mean household size of the respondents	232	0	16	1558	6.72	3.6
Mean year of education by the respondents	232	2	15	1772	7.64	4.0
Mean farming experience of the respondents	232	2	35	3050	13.15	7.7
Mean amount of credit accessed by the respondents	70	10000	500000	8706000	124371.43	93723.9
Mean number of cooperative membership by the respondents	106	1	3	181	1.71	.6
Mean year of cooperative membership by the respondents	106	2	16	853	8.05	3.7
Mean farm size of the respondents	232	1	10	585	2.52	1.5
Mean number of people used in land preparation	214	1	100	1070	5.00	8.1
Mean number of days spent in land preparation	214	1	35	1183	5.53	5.8
Mean number of people used in ploughing	163	1	100	764	4.69	8.4
Mean number of days spent in ploughng	163	1	26	677	4.15	3.4
Mean number of people used in ridging	55	1	100	480	8.73	13.7
Mean number of days spent in ridging	55	1	30	417	7.58	6.6
Mean number of people used in planting	191	1	100	1160	6.07	8.8
Mean number of days spent in planting	191	1	32	1026	5.37	5.7
Mean number of people used in fertilizer application	184	1	100	909	4.94	8.4
Mean number of days spent in fertilizer application	184	1	26	743	4.04	4.5
Mean number of people used in weeding	198	1	100	1259	6.36	8.5
Mean number of days spent in weeding	198	1	455	1910	9.65	32.8
Mean number of people used in harvesting	201	1	100	1614	8.03	9.8
Mean number of days spent in harvesting	201	1	80	2010	10.00	12.6
Mean cost of land preparation	178	500	80000	1696403	9530.35	12351.4
Mean cost of ploughing	164	500	90000	3249606	19814.67	17195.2
Mean cost of ridging	54	2000	110000	1108806	20533.44	21828.7
Mean cost of planting	178	400	100000	2406606	13520.26	14343.7
Mean cost of fertilizer application	178	500	160000	2141812	12032.65	23852.2

Mean cost of weeding	176	1000	180000	3767112	21404.05	22270.2
Mean cost of harvesting	172	1000	200000	3728912	21679.72	25047.3
Inadequate access to fertilizer	232	1	3	634	2.73	.5
Inadequate access to credit	232	1	3	626	2.70	.5
Poor access to farmland	232	1	3	494	2.13	.5
Poor access to farm machineries	232	1	3	513	2.21	.5
Inadequate access to farming tools	232	1	3	422	1.82	.6
lack of access to irrigation water	232	1	3	341	1.47	.6
Poor accessible road to farmland	232	1	3	390	1.68	.7
Stealing of farm produce	232	1	3	383	1.65	.7
Destruction of farmland	232	1	3	364	1.57	.7
Poor linkages to urban market	232	1	3	434	1.87	.6
Fear of being attack and abduction	232	1	3	421	1.81	.8
Exposure to bombs and explosives	232	1	3	387	1.67	.7
Valid N (listwise)	54					

Hypotheses of the study

___ ____ ____ ____ ____ (R)

/__ / ____/ / ____/

___/ / /___/ / /___/ 15.0 Copyright 1985-2017 StataCorp LLC

Statistics/Data Analysis StataCorp 4905 Lakeway Drive

MP - Parallel Edition College Station, Texas 77845 USA

800-STATA-PC http://www.stata.com

979-696-4600 stata@stata.com

979-696-4601 (fax)

60-user 2-core Stata network license expires 1 Dec 2017:

Serial number: 501509257369

Licensed to: Muhammed Yakubu

FUT Minna

Notes:

1. Unicode is supported; see help unicode_advice.
2. More than 2 billion observations are allowed; see help obs_advice.
3. Maximum number of variables is set to 5000; see help set_maxvar.

. *(18 variables, 232 observations pasted into data editor)

. describe cropoutput age marital household education experience farmsize perceivedlevelofaccesstoproducti perceivedeffecto

>finsurgencyoncro

storage display value

variable name type format label variable label

---

cropoutput long %8.0g Crop Output

age byte %8.0g Age

marital float %8.0g Marital

household byte %8.0g Household

education byte %8.0g Education

experience byte %8.0g Experience

farmsize byte %8.0g Farmsize

perceivedleve~i byte %8.0g Perceived level of access to production inputs

perceivedeffe~o byte %8.0g Perceived effect of insurgency on crop poduction

. summarize cropoutput age marital household education experience farmsize perceivedlevelofaccesstoproducti perceivedeffect> ofinsurgencyoncro

Variable	Obs	Mean	Std. Dev.	Min	Max
cropoutput	232	7885.565	10598.89	900	58000
age	232	40.03448	10.4475	20	78
marital	232	.7711207	.392773	.1	1
household	232	6.788793	3.511669	1	16
education	232	7.637931	4.008425	2	15
experience	232	13.64655	7.518813	2	35
farmsize	232	2.521552	1.57069	1	10
perceivedl~i	232	18.15517	3.767263	10	30
perceivede~o	232	42.78017	5.27913	22	100

****REGRESSION RESULT OF HYPOTHESIS I

. regress cropoutput age marital household education experience farmsize, noconstant

---

cropoutput | Coef. Std. Err. t P>|t| [95% Conf. Interval]

---+---

age | 378.6306 131.3435 2.88***0.004 119.816 637.4451

marital | 3854.936 1700.552 2.27** 0.024 503.9712 7205.901

household | 1232.099 423.9285 2.91***0.004 2067.457 396.7411

education | 72.24553 191.1917 0.38 0.706 -304.5009 448.992

experience | 56.7644 212.9017 0.27 0.790 -362.762 476.2907

farmsize | 1326.055 443.8161 2.99***0.003 2200.602 451.5078

****PPMC CORRELATION RESULT OF HYPOTHESIS II

. pwcorr perceivedlevelofaccesstoproducti perceivedeffectofinsurgencyoncro

| percei~i percei~o

---+---

perceivedl~i | 1.0000

perceivede~o | 0.0622 1.0000

. correlate perceivedlevelofaccesstoproducti perceivedeffectofinsurgencyoncro

(obs=232)

| percei~i percei~o

---+---

perceivedl~i | 1.0000

perceivede~o | 0.0622 1.0000

****Z-TEST RESULT OF HYPOTHESIS II (This is optional if one is considering the significant difference of the hypothesis)

. ttest perceivedlevelofaccesstoproducti == perceivedeffectofinsurgencyoncro

Paired t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
percei~i	232	18.15517	.2473329	3.767263	17.66786	18.64249
percei~o	232	42.78017	.3465919	5.27913	42.09729	43.46306
diff	232	-24.625	.4130732	6.291744	-25.43887	-23.81113

mean(diff) = mean(perceivedlevel~i - perceivedeffec~o) t = -59.6141***

Ho: mean(diff) = 0 degrees of freedom = 231

Ha: mean(diff) < 0 Ha: mean(diff) != 0 Ha: mean(diff) > 0

Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000