

**AN ASSESSMENT OF THE ECONOMIC EFFECTS OF CATTLE
REARER'S ACTIVITIES ON CROP FARMERS IN KOGI STATE,
NIGERIA**

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OCTOBER, 2017

TITLE PAGE

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**AN M.Sc DISSERTATION SUBMITTED TO THE DEPARTMENT OF
AGRICULTURAL ECONOMICS, UNIVERSITY OF NIGERIA, NSUKKA IN
PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF
MASTERS OF SCIENCE (M.SC) DEGREE IN AGRICULTURAL ECONOMICS**

OCTOBER, 2017

CERTIFICATION

This is to satisfy that Ukwuteno, Adukwu Benson, a postgraduate student in the Department of Agricultural Economics, with registration number PG/M.Sc/14/76566 has satisfactorily completed the requirements for the award of Degree of Masters of Science (M.Sc) in Agricultural Economics. The work embodied in this dissertation, except where duly acknowledged, is an original work and has not been previously published in part or full for any other diploma or degree of this or any other University.

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Date

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(Head of Department)

Date

External Examiner

Date

DEDICATION

This work is dedicated to God Almighty for His protection throughout the course of this research.

ACKNOWLEDGEMENT

I am indeed grateful to God Almighty who has out of his infinite mercies and loving kindness kept me to successfully complete this research work. My profound and heartfelt gratitude goes to my supervisor Dr. A.A. Enete who taught me research, report writing skills and scientific attitude. I am indeed indebted to his patience, encouragement and special time devoted to me in the course of this research work. My profound gratitude goes to the head of department Prof. Noble.J Nweze, I deeply appreciate Prof. S.A.N.D Chidebelu for the fatherly role he played during the course of this study.

My profound gratitude also goes to Prof.C.J. Arene, Prof. (Mrs) A.I. Achike, Prof. F.U Agbo, Dr Ben Okpupara, Dr. E. Amachina, Dr (Mrs) P.I Opata, Dr. Anthony Onyekuru, Mrs. C.U Ike, Mr K.P Adeosun, Miss Amaka Nnaji, Mr I.C Ukwuaba, Mrs C.M Ifiorah, Mrs T.G Mbani, and other academic and non-academic staff of the Department of Agricultural Economics, University of Nigeria, Nsukka for their constructive suggestions at the proposal stage which had further helped a great deal to sharpen the focus of this study.

On a very important note, I wish to register my genuine appreciation to my parents, you are a rare gift to mankind, I am indeed thankful for your prayers and exceptional love that have marked a watershed in my life and academic pursuit.

My unreserved appreciation also goes to Nwofoke christain, Omeje Julius and Jimmy preye, my sincere appreciation equally goes to Adebayo Olusegun, Obayi Chukwudi, Ogbodo Chiamaka, Angela Mojekwu and the entire PG class of 2014. Similarly I will like to appreciate Adeyi Hassan, Okolo Emmanuel, Ocheja Benjamin(Depu), Nwachukwu Gift, Monica Aruwa, Okwoli Michael and Ojile David. Monica

This litany of thanks would not be complete without mentioning my God sent, Okwoli Ojonugwa Justin, Nwanakwere Preious, Uredo Umoru and Adeboh Enefolo Israel, may the good lord continue to uplift you both in all your endeavors.

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ABSTRACT

The study was designed to assess the economic effect of cattle rearers activities on crop farmers in Kogi State. Incidentally, the agricultural sector in Nigeria, particularly in Kogi State, has not been doing so well. Output has failed to keep pace with the rising population pressure. Similar studies have also been carried out on Fulani herdsmen but none addressed the economic effects of cattle rearers activities on crop farms in Kogi State, hence the existence of the knowledge gap which this study hope to fill. This and other economic issues was what this study addressed. In carrying out the study, survey research design was adopted. A multi-stage sampling technique was used. One local government area (LGA) was selected purposively from each of the four agricultural zone in the state based on its predominance in farmer-header conflict. In the second stage, from each of the four LGA, four villages were purposively selected, this gave a total of 16 villages. For a proportionate sampling, the third stage was a random selection of 160 farmers, consisting of 50 farmers each from Dekina and Ibaji, and 30 farmers each from Kaba/Bunu and Adavi respectively. This was because from the reconnaissance survey carried out, there were more crop farmers in Ibaji and Dekina than in Kaba/Bunu and Adavi. Primary data were generated by using a set of structured and pre-tested questionnaire. The questionnaire was validated by three experts from the Department of Agricultural Economics, university of Nigeria, Nsukka. And test of reliability was carried out using split-half method in which a reliability coefficient of 0.83 was obtained. Data generated were analysed with multiple regression analysis. Some results were presented using descriptive statistics. From the data analysed, the study found that Seventy percent of the respondents opined that destruction of crops (mean=3.83),competition for land (mean = 3.60),indiscriminate bush burning(mean = 3.48),stray cattle into crop farms(mean = 3.45) disregard for traditional authorities (mean = 3.41),contamination of streams (mean = 3.34) and sexual harassment of women by herdsmen (mean = 2.76) were the main reason for farmer-header conflict while loss of land (mean = 3.66), loss of crops (mean = 3.65), loss of properties (mean = 3.53),reduction in output (mean = 3.53), scarcity of food items (mean = 3.40), loss of produce in storage (mean = 3.37) and inability to repay loan (mean = 3.32) were the major agricultural losses incurred by the farmers. Similarly, level of education ($p<0.01$) positively affected farmers income while factors such as fear of going to farm as a result of conflict ($p<0.05$), size of crop farm lost to conflict ($p<0.01$), uncontrolled grazing ($p<0.05$), loss of crops ($p<0.05$) and female sexual harassment ($p<0.05$) were inversely related to farmers income. Eighty percent of the respondents used compensation from State Emergency Management Agency (SEMA) as the most viable form of coping strategy. Similarly, 70% of farmers used assistance from relations to ameliorate the effects of conflict, while acceptance of conflict situation as an act of fate was found to be the most (70%) commonly used emotion-oriented coping strategy by the crop farmers. The major strategies for resolving conflict include compensation (mean =3.60), peaceful resolution (mean = 3.53), and verbal warning (mean = 3.35) through traditional leaders (mean = 3.61), farmers association (mean = 3.35), police (mean = 2.26) and law court (mean = 2.17).

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The Agricultural sector has always been an important component of Nigerian economy with over 70% of the population engaged in agriculture and agriculture related activities (Obasi & Agu, 2000). Crop and livestock agriculture is important in the life of most Nigerians as 50% to 80% of Nigerians are involved in crop, livestock or crop and livestock agriculture (Powell & Williams 1995). Nigeria agricultural policy places the small scale farmers in central focus. This is because, the nation's agriculture have always been dominated by the small scale farmers who represent a substantial proportion of the total population and produce about 90-95 % of the total agricultural output in the country (Salau, 2013). Prior to the advent of the oil boom, Nigeria was noted for her high production performance in terms of food and cash crops, as well as the supply of most industrial raw materials, which was generally the product of our small scale farmers (Ogieve, 2003).

Agriculture provides primary means of employment for Nigeria and accounts for more than one third of total gross domestic product (GDP) and labour force (Olaoye, 1999). More than 70% of the working adult populations in Nigeria are employed in the agricultural sector directly or indirectly (Ogunwole, Bello & Owonubi, 2004). Under the right conditions, increase in agricultural productivity causes the income of both small and large farmers to increase and generate employment opportunities (Ogen, 2007). With agriculture embracing generally cultivation of crops or rearing of domesticated animals, agriculture can also be categorized as crop-based farming systems and animal-based systems. Consequently livelihood is attached to either of the two categories.

The cattle rearers, predominantly Fulanis falls into the animal-based system, they indisputably represent a significant component of the Nigerian economy. They constitute the major breeders of cattle, the main source of meat, the most available and cheap source of animal proteins consumed by Nigerians. They own over 90% of the nation's livestock population which accounts for one-third of agricultural GDP and 3.2% of the nation's GDP (Eniola, 2007). Furthermore, the contribution of the Fulani to the local food chain and national food security cannot be overstressed. The Fulani, with their dominance in the Sahel region, are the best known and most numerous of all the pastoral groups in Nigeria. The traditional and unique Fulani encampment (*ruga*) consisting of temporary structures made of stalks, closely knit family members and livestock is the natural habitat of the orthodox Fulani settlement (Eniola, 2007).

These Fulanis move about on a daily basis with their cattle in search of water and green pastures. They are on the streets in most of our cities and can also be found operating in most remote villages in various states of the country. These Fulani tribesmen were originally found in small communities scattered across the northern fringes of Nigeria and other countries in West Africa. By their culture, tradition and occupation, they have remained an itinerant race who neither owned lands nor had any permanent abode. (Nzeh, 2015).

The fulanis care less about land ownership because they are always on the move. They simply live with their cattle wherever there is abundance of fodder and absence of tse-tse-fly, (the blood sucking insect that threatens the existence of their flocks). The Fulani's use to embark on seasonal migrations from the North to the South but this movement has become an all season's affair due to factors like desertification and climate change (Ofem & Inyang, 2014). Initially, a symbiotic relationship existed between the herdsmen and the farmers in every new community they stopped over to take a rest. The host communities, usually farmers, derived organic manure from cow dungs and protein from the beef and dairy

products while the herdsmen relied on the farm produce for food. However, this ancient practice and many generation of coexistence have been threatened by many factors such as; population growth, advancement in technology, and climate change (Integrated Regional Information Network, 2004).

As a result, the activities of the Fulanis have led to serious farmers/herders conflict. Apart from the language and cultural barriers which usually spots out the nomads as strangers, the audacity with which they shepherd their flocks to graze on available vegetation on their route has often attracted protests from communities. (Okoli & Atelhe, 2014). The major cause of the conflict as observed by Haro and Dayo (2005) is that most times the Fulani herdsmen wander into the fields during growing season while their herds eat or trample on the crops due to the herdsmen's lack of attention or the cattle's stray movement, hence tension rises. In recent years therefore, Nigeria has witnessed series of clashes arising from the activities of these pastoralists which have given rise to an unhealthy rivalry between farmers and herdsmen leading to violence, loss of lives and property. In some cases, a whole community is wiped out and those fortunate to escape have become refugees in other places.

Conflict in resource use is not uncommon and perhaps not unnatural in human ecosystems. Moore (2005) noted that conflict per se, is not bad: it is perhaps a necessity in the evolution and development of human organizations. But when conflicts degenerate to violent, destructive clashes, they become not only unhealthy but also counter-productive and progress-threatening. Nyong and Fiki 2005; Onyekuru and Marchant, 2014 pointed out that resource-related conflicts are responsible for over 12% declines in per capita food production in sub- Saharan Africa.

Conflicts between pastoralists and farmers have existed since the beginning of agriculture though an increase or decrease in intensity and frequency depends on economic, environmental and other factors. For example, increases in the herd sizes, due to improved

conditions of the cattle, compel the pastoralists to seek for more pastures beyond their limited range. Climate change has also constituted a serious threat by putting great pressures on the land and thus provoking conflicts between herders and farmers. The prevailing thinking in this regard is that, climate change gives rise to certain ecological changes and outcomes, which often precipitate conflict (Blench, 2003; Onuoha, 2007). Some of the conditions are: environmental degradation, desertification/desert encroachment, loss of wetlands, inadequacy of rainfall (droughts) and extreme climate variability and volatility (Blench, 2004; Onuoha, 2007; Olorunfemi; 2009; & Nchi, 2013).

The aforementioned conditions interface to produce the dynamics of ecological misfortunes with far-reaching implications for the agrarian communities. For instance, the struggle for land in the semi-arid zones has caused a major migration of farmers southwards, both seasonally and permanently. Many uncultivated areas in river flood-plains are now farmed by migrants, leading to disputes with their traditional owners (Blench, 2004). With reference to the herder/farmer conflicts, Blench, observes that the ecological dynamics engendered by climate change tend to drag various land users into conflicting relations in the context of resource scarcity and want. This situation has been made worse by the claims and contestations over land ownership and/or tenure rights. Hence, as farmers take up more of the river-bank for farms, they come into conflict with the other users, especially the herders and fish-folk. The herders have been coming to the river for many years for the grass and tend to consider they have ownership rights. When they arrive and find their graze land now covered by tomatoes, they may become angry. The farmers, often desperate to feed their families in a situation where the old rain-fed systems no longer work regard the herders as dangerous and intrusive (Blench, 2004).

The relationship between climate change and farmer/herder conflicts is such that the former brings about conditions that make the latter not only possible but also more or less

compelling. As Fulani pastoralists undertake their movement to the southern part of the country due to climate change they regularly clash with farmers as herdsmen allow their cattle to enter tilled farms and eat up the crops. Altercations that follow usually end up in violence, with loss of lives and properties by both sides (Nchi, 2013). When the people's sources of livelihood are threatened as a consequence of the ecological vicissitudes and vagaries associated with climate change, desperate tactics are employed to ensure survival. This arguably explains the perennial pastoralist/farmer debacle in Kogi State.

Similarly, improvements in human health and population have enhanced a much greater pressure on land. Since the 1980s therefore, there has been a marked expansion of cultivation of the *fadama* (riverine and valley-bottom) areas. This means that both the farmers and pastoralists have engaged in fierce struggles for access to such valuable lands which, more often than not, results in increased conflicts and violence. This is supported by Nweze (2005) who stated that many farmers and herders have lost their lives and herds while others have experienced dwindling productivity in their herds and crops.

The types of conflicts for survival between the Fulani herdsmen and farmers in North-central Nigeria vary in form and intensity from one community to another. Social and economic factors continue to provoke violent conflicts among the Fulani herdsmen and farmers. The intensity and variations of the conflicts largely depend on the nature and type of the user groups where the herdsmen graze. These farmer-herder conflicts have constituted serious threats to the means of survival and livelihoods of farmers. The conflicts, through provocative claims over access rights to farmland and cattle routes (*labi*), have become ubiquitous and seem to have defied solutions (Abbas, 2009).

1.2 Statement of the problem

An important challenge facing agriculture and rural development in Nigeria is the problem associated with farmer-herders conflicts. According to Integrated Regional Information

Network (2005), over the last decade, clashes between farmers and Fulanis have increased in several parts of central Nigeria. Nigeria has witnessed series of violent communal clashes arising from the activities of the herdsmen who move about on a daily basis with their cattle in search of water and green pastures. These clashes have occurred several times in Plateau, Benue, Nassarawa, Kogi, Kwara, Edo, Delta, Enugu, Abia, Ebonyi, Ondo, Oyo, Osun and many other states. Kogi State has witnessed several infiltration of herdsmen due to the conducive weather condition, absence of tse-tse fly in most part of the state and its relatively long period of rainfall for most of the year, making the state attractive to the Fulanis leading to serious farmers-herders conflict. In some cases, due to the seriousness of farmer-herders conflicts, herdsmen were prevented from entry or forced out of some areas in the State. For instance, in 2007 they were driven out of Bassa Local Government Area after serious encounter with farmers (Okoli & Atelhe, 2014). A host of factors, most often, engineers these conflicts. This study will investigate the major causes of farmer-herder conflict in Kogi State.

Incidentally, the agricultural sector in Nigeria, particularly in Kogi State, has not been doing so well. Output has failed to keep pace with the rising population pressure. In addition, farm households have often been classified as the most poor in the society, with the level of their poverty increasing. Could the farmers-herders conflict be a contributing factor to this? This study aims to investigate the extent of agriculture losses due to the conflict and the effect of the conflict on the farmer's farm income.

Between 1996 to 2002, forty nine cases of farmer Fulani conflict were reported. Crops estimated at over 1 million naira were reportedly damaged (Ajuwon, 2004). This discourages the farmers and rural agricultural development, increasing frustration and impoverishment of farmers occasioned by perennial and extensive farm plot destruction and the ensuing bitter conflicts eroding the gains of agricultural and rural development interventions. There is therefore need to explore the coping strategies adopted by the farmers to combat this conflict.

Again, the continuous farmer-herders conflict may be due to lack of inadequate institutional and government strategies towards resolving the conflict. This study also aims at X-raying the government/institutional strategies towards tackling the menace.

Previous studies such as Nzeh, (2015) on “The Effects of Migration by Nomadic Farmers in the Livelihoods of Rural Crop Farmers”; Tenuche, (2009) on “Resource conflict among farmers and Fulani herdsmen, implications for resource sustainability in Kogi State”; Olabode, (2010) on “Environmental Induced Conflict and Sustainable Development a Case of Fulani-Farmers’ Conflict in Oke-Ero LGA, Kwara State”; Kehinde, (2014) on “Conflict Management Strategies to Reduce consequences on Livelihoods of Fulani Cattle Herders and Farmers in Kabba-Bunu, Kogi State”, did not address the economic effects of cattle rearer’s activities on farm households in Kogi State. Hence, the existence of the knowledge gap which this study hope to fill

The study hopes to address this research gap by providing answers to the following research questions:

- i. what are the socio-economic characteristics of farmers in Kogi State?
- ii. what are the major causes of the conflicts between herdsmen and farmers?
- iii. what is the extent of agricultural losses by crop farmers due to the conflict?
- iv. what is the effect of conflict on the farmer’s farm income?
- v. what are the coping strategies of the farmers to cushion the effect of the conflict?
- vi. what are the institutional and government strategies towards resolving the conflict?

1.3 Objectives of the Study

The broad objective of this study is to assess the economic effect of cattle rearer’s activities on crop farmers.

The specific objectives are to;

- i. describe the socio-economic characteristics of farmers, in Kogi State;

- ii. identify and describe the major causes of the conflict between herdsmen and crop farmers in Kogi State;
- iii. describe the extent of agricultural losses by crop farmers due to the conflict;
- iv. determine the effect of conflict on the crop farmers farm income;
- v. describe the coping strategies adopted by the crop farmers to cushion the effect of the conflict; and
- vi. describe the major institutional and government strategies towards resolving the conflict from the farmers perspective, in Kogi State.

1.4 Research Hypotheses

Ho₁: Conflict between cattle headers and crop farmers does not negatively have effect on farm income.

1.5 Justification of the Study

This study suggests policies that if adopted will curtail the differences existing between farmers and herders, subsequently leading to increased agricultural productivity and income of the farmers.

Empirical results of this research work will be beneficial to policy makers in the field of agriculture and related fields in accessing and formulating policies that can increase agricultural production. Those in the field of conflict resolution will also find the research result useful in settlement of dispute arising from the use of common resources especially by those in the rural area.

Non-governmental organizations will also find this study handfull as the research will provide detailed empirical findings that exists on the needed capacities to help strengthen and stabilize institutions in order to support, influence and generate policies and practices that promote peace for increased agricultural productivity in Kogi State if adopted.

It is hoped that this research will provide information as reference point for researchers in similar field of study

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, relevant literatures were reviewed under the following sub-headings:

2.1 Agriculture and Farming Systems

Actual practice of agriculture is exercised through farming systems. There are many definitions for the word “farming systems”. Perhaps best ones are: “Decision making and land use units consisting of farm households, cropping and livestock systems that produce crop and animal products for consumption and sale (Fresco, 1986); “Units consisting of human groups (usually households) and resources they manage in their environments, involving the direct production of plant and/or animal products (Beets,1990); “Combinations of products and production factors applied by the farm households including all subsystems of land utilization (crops, forests, herds, hunting, gathering and so on. (Group for Tropical Agricultural Development Studies and Research (GERDAT),1982); “Complex of development, management and allocation of resources as well as decisions and activities that within an operational farm unit or a combination of such units results in agricultural production, and the processing, marketing (and utilization) of the products (Krantz, 1974); “Populations of individual farm systems that have broadly similar resource bases, enterprise patterns, household livelihoods and constraints, and for which similar development strategies and interventions would be appropriate (Dixon, 2001).

Thus a farming system is an in-depth description of agricultural practice, including all specifics of scenarios determining patterns of the practice. The way crops are cultivated or animals are reared, the organization of labour and relationships, resources available including land, species of crops and crop varieties; species of animals and animal breeds, intensities of resource use, motives persuading production, market links, utilization and value addition patterns, relationships with external environments of capital and expenditure, norms and

customs, traditions, weather and climate, soils and watershed characteristics, terrain and topography, policies, programmes and projects; the law, institutions of service and change; indigenous and formalized education systems; and what not, all these sum up into the existing farming system. None among them is perhaps less important. Farming systems are therefore real complexes. Any efforts to improve one element can lead to tremendous improvement of other elements. Agriculture we see is therefore an image or reflection of the interplay of the various elements (Dunstan, 2013).

Even though crop based system are predominant, animal or livestock based farming system are also a very important category of agricultural land use. Animal based systems can generally be described as pastoral farming systems based on natural pastures, and intensive livestock farming systems such as dairy systems, poultry, piggery and aquaculture, and mixed farming. Pastoral or in other words grazing farming systems vary in their settlement characteristics. They include pastoralism, agro-pastoralism and the more modern form: ranching. Pastoralism has been defined as a production system in which livestock owners depend solely on livestock and livestock products for sustenance and income, entailing seasonal movement in search of water and pasture (National Livestock Policy (NLP), 2006). Various forms of pastoralism are extensively explained in literature, they include nomadic pastoralism or nomadism, which involves no settlement but all-time movement with grazing livestock; semi-nomadic pastoralism; semi-settled pastoralism and settled pastoralism. When pastoralists depend on both livestock and crop farming for their sustenance and income generation, the system is known as agro-pastoralism (NLP, 2006). Two types of agro-pastoralism are generally known: Transhumance where the pastoralists cultivate crops at one area and move all or most of their livestock to other grazing areas during non-grazing season; and sedentary agro-pastoralism where the pastoralists keep livestock throughout the year near their cropping activities. Ranching is a modernized and commercial form of grazing or

pastoral system in which animals are demarcated on a rangeland that is privately owned or allocated for that purpose; usually involving large tracts of land and large herds of grazing animals (Pratt, 1997).

2.2 Farming Systems and Land Use

Farming systems are in other words land use patterns. They are representations of the relation of man to land; through farming systems the farmer is able to transform land into livelihood. The system tells about efficiency and success of land use. More precisely, of course, farming systems are agricultural land use patterns, considering other land uses like settlement, mining and other economic and infrastructural activities. Farming systems underscore at least the two most natural land uses, farming and the households or in other words farmers' settlement. Generally, study of land use categorizes land use into two broad types: rural (agricultural, forestry, game cropping) land use and urban (including industrial) land use (Benjaminsen, 2009). Agricultural land use then paves way for development of farming systems.

There are many different descriptions of the typology of farming systems. One of best known such classifications is one by Ruthenberg (1983) who describes tropical farming systems to belong to either of the following types: shifting cultivation systems, fallow systems, ley and dairy systems, systems with permanent upland cultivation, systems with arable irrigation farming, systems with perennial crops, and grazing systems, including ranching. With agriculture embracing generally cultivation of crops or rearing of domesticated animals, farming systems can also be categorized as crop-based farming systems and animal-based systems. Consequently livelihood is attached to either of the two categories. Arable crop based (cereals, grain legumes, oilseeds, roots and tubers, all staple food and to some extent industrial cash crops, usually of annual, at most semi-perennial

cropping cycles) farming systems are the predominant farming systems in most of the agricultural world.

2.3 Arable Cropping System in Nigeria

According to Lambrou & Laub (2006) 75% of today's food comes from 12 arable crops and five animal species, with just three arable crops (rice, maize and wheat) accounting for about 60% of the calories and proteins obtained from plants. Worldwide, arable crops enjoy remarkable dominance, playing significant roles in the socioeconomic lives of both rural and urban peoples. Arable crops include a wide range of annual crops of primary importance such as maize, rice, sorghum, millet, cassava, cowpea, wheat, soybeans, melon, groundnut, yam, vegetables and so on.

In Nigeria, production of arable crops is essentially the prominent feature of agricultural activities. Indeed, almost all farmers in Nigeria cultivate one or more arable crops for food and income. According to Fayinka (2004) Nigerian agricultural production is dominated by rural-based small scale arable crop producers, who account for about 80% of total food requirement. In a study on production of some major arable crops in Nigeria, revealed that the average farm size in arable crop production was 4.58 ha. (Central bank of Nigeria (CBN, 2005) reported that 36.25 and 82.41 million hectares of arable crops were cultivated in 2004 and 2005 respectively. The CBN report further stated that production of arable crops increased from 88.3million tones in 2001 to 111.8 million tones in 2005. By far the most widely grown arable crop in Nigeria is maize, accounting for 6.6 and 7.5 million hectares in 2004 and 2005 respectively. Maize is grown almost in every part of the country. Most arable crop farmers rely on rainfall to produce, with farming activities normally beginning as soon as the onset of rains. Apart from being veritable sources of income for farmers; arable crops are processed into other useful items at industrial and household levels.

2.4 The Cattle Herding System in Nigeria

Cattle herding is dominated by the Fulani tribe in Nigeria. Iro (1994) gave a vivid documentation of the herding system of the Fulani in Nigeria, and most of what is presented here under was derived from his account. According to Iro, herding is a daunting task, and contrary to widespread belief, it is not the delight of the Fulani's they herd not as a matter of choice but as a necessity. Iro (1994) found that about 75% of the sampled nomadic pastoralists maintained that cattle herding is not only toilsome, but also becoming increasingly strenuous. The optimum Fulani cattle herd size lies between 80 and 100 herds with a preponderance of male over female at ratio 4:1, the Fulani maintains a balanced functional species composition that is made up of 'beefers, milkers, breeders, carriers, and stock beautifiers'. Iro (1994) also stated that the slow-maturing Sokoto Red cow and the lyre-horned White Fulani cattle are the mainstay of the pastoral Fulani holdings. White and Wickens (1976) disclosed that the White Fulani, though less hardy, has higher milk and beef yield compared with the Sokoto Red. Cattle belonging to individual family members are usually herded together, with male family members assuming automatic rights to all cattle, making it difficult to determine cattle ownership by female family members. Fulani men possessing less than twenty cows are seen as poor, while women having six cows are considered as rich (Iro, 1994). Women, however, own most of the small ruminants and all of the poultry (Swinton, 1987). Most Fulani men who herd cattle are of middle age, herding is dominated by the youths, while decisions about grazing are mainly made by the elderly family members. The Fulani herdsman makes excellent use of sign language, the cane and verbal command to drive the animals, with faster animals occupying the front rows. During migration, a typical herd consisting of several family units move in a column of up to five meters wide and two kilometres long. And by the time it passes any given point, most crops on their route are been destroyed (Fricke, 1979; Vengroff, 1980)

Describing the annual herding cycle of the Fulani, Iro (1994) stated that the herding season begins with southward movement of the herd and along river banks and stream valleys from October to December marking the end of rainy season and beginning of dry season. January to February is the harmattan season that is characterized by longer grazing hours, herd splitting, and more frequent visits to stable water sources. These thus increase southward movement of the herds. The months of March and April are usually the toughest for the herdsman and his cattle, as it is the hottest period in the grazing calendar. Indeed, he now herds his cattle only in the evenings and nights (Riesman, 1977, as cited in Iro, 1994). May and June signify the end of dry season and vegetation begins to appear. This also marks the beginning of northward movement of cattle herds and their cattle. From this period up till September, which is the peak of rainy season, though characterized by cattle breeding, more milk production and shorter grazing hours, cattle herding coincides significantly with arable crop production. Farmer-herdsmen conflict therefore becomes prevalent during this period.

2.5 Crop-Livestock Land Use Consensus

Evolution of farming systems has not been without constraint of land use choices. The rule seems to have been intensification. Earliest man lived by hunting animals that were then living in the wild, and gathering food crop such as; fruits, roots and tubers, grains and herbs, all from the wild. Then he discovered agriculture, and domesticated the multitudes of crop plants and animals now used as food and other products. Domestication enabled settled livelihood, and through variation in intensity of crop cultivation and rearing of animals we now have modern agriculture, and urbanization (Dunstan, 2013)

These are changes in land use pattern. The changes are both ecological and economic adjustments responsive to human population changes both in rural and urban areas. In time vast wilderness diminished and land use became more and more competitive. Equilibrium must then be reached through more organized land use. There are times of rivalry in land use,

before land use plan is settled or equilibrium is reached. In Africa conflict between farmers and pastoralists, according to Moritz, (2009) can be traced back as far as four centuries ago (1600 AD) when “white warriors”, herders from the northern Sahel, continuously raided the black agricultural villages in south (for the sake of grazing land). In the Middle East there was an endless struggle between the nomadic Bedouin and the fellahin (peasants) in the Arab societies (Smith, 1969). Even in the western countries clashes have happened over grazing land, for example the Johnson County Range War of 1892 in the Great Plains of Wyoming, USA, between cattlemen and homesteaders (sedentary farmers). (Butler & Gates, 2010). In post-colonial Africa to-date innumerable violent conflicts have been happening between the two, essentially opposing land users, the farmers and pastoralists. In Bukina Faso, for example, IRIN, (2012) reported that about 600 conflicts occur each year between farmers and herders, involving human casualties, destruction of farms and death of animals; and that between 2007 and 2012 as many as 55 people were killed in 4000 recorded clashes between the two groups. Bloody rivalries have been reported quite in recent times in many other countries including Nigeria, Mali, Ethiopia and Kenya (Fujimoto, 2009).

2.6 Socio-Economic Characteristics of Farmers in Kogi State

Most of the farmers in Nigeria are of small to medium scale categories (Amaza & Maurice, 2005). Farming is the predominate occupation in Kogi State with mixed cropping as their major type of farming. According to Ibitoye (2012), the average farm size among the farmers in Kogi State is 1.8 ha. Onoja and Herbert (2012) noted in their study that the average age of traditional technology farmers is estimated to be 42 years while that of the improved technology is 45 years though their productivity declined with advancement in age. Average year of schooling for the traditional technology farmers is 7 years while that of the improved technology is 8 years. Mbah (2006) showed that most farmers (69%) were either illiterates or semi illiterates and that the level of education of rural households can have effect

on the proportion of total household income, good education expands alternative employment opportunities and divert people away from subsistence agriculture. Farmers in Kogi State have long years of farmers experience of about 10 to 20 years; and large family size of about 8 to 10 members, It is expected that family with large household size could have readily available family labour all things being equal, this could lead to timely operation on the farm and hence increase output (Ibitoye, Orebiyi, & Ekine, 2012).

2.7 Conceptual Discuss on Conflict

The word conflict is taken from the Latin word “conflictus” meaning “struck together”. Conflict means clash, contention, confrontation, a battle or struggle, controversy or quarrel (Nwolise, 1997). Conflict as an element of social interaction has evoked a lot of arguments. Suffice to say that there are as many definitions of conflict. Coser (1956), defines conflict as a struggle over values and claims over status, power and resources, in which the aims of the opponents are to neutralize, injure or eliminate their rivals. To Donohue and Kolt (1992), conflict has to do with the expression of differences by interdependent people in the course of achieving their needs and goals. However, to Deutsch (1973), conflict exists whenever incompatible activities occur: an action that is incompatible with another action prevents, obstructs, interferes, injures or in some ways makes the latter less likely to be effective. Bassey (2002), has contended that conflict arises as a result of incompatible or mutually exclusive goals or aims or values espoused by human beings. This definition sees conflict from goal perspective.

However, Pruitt and Rubin (1986) see conflict from perceptual point of view. To them conflict denotes the perceived divergence of interest(s), or aspirations that cannot be achieved simultaneously. Ross (1993), notes that conflict occurs when parties disagree about the distribution of material or symbolic resources and act because of the incompatibility of goals or a perceived divergence of interest. Some other scholars see conflict as a natural occurrence

in man, not necessarily in contest for resources, but still a deference of interest. Abel (1941) and Hibbs (1974) identify with this group. McEnery (1985) sees conflict as the overt coercive interactions of contending collectivities. Sills (1968) submits that conflict could arise in an atmosphere in which each party is likely to seek a maximum advantage that cannot be achieved without reducing the advantage of the other part. This materialist idea of conflict has been dominant among some scholars (Barongo, 1987). It has also been noted that conflict arises as a consequence of the striving of a man, the social being who in the course of promoting some of his objectives, either intentionally or unintentionally upsets or direct to negative uses, instead of strengthening along beneficial line, some of the arrangement that ought to be for the benefit of man. Hence, conflicts come up as a result of negative contradiction and are such irresolvable by peaceful means (Nwanegbo, 2005).

Omotosho (2004), avers that it is widely believed by scholars that a conflict situation crops up when two or more parties could not agree on an issue. The parties involved may not necessarily be governments or nations. Ekanola (2004) posits that the term conflict embodies notion of strife, struggle, differences, and disagreement. It is indeed the struggle for mutually exclusive rewards or the use of incompatible means to achieve a goal. Horowitz (1985) sees conflict as a struggle in which the aim is to get objective and simultaneously neutralize, injure or eliminate rivals. Omotosho (2004) view conflict as a situation in which one identifiable group of human beings which could be tribal, ethnic, linguistic, cultural, religious, socio-economic, political or otherwise is in a state of conscious opposition to one or more other identifiable human groups. This could be because those groups are pursuing what appears to be incompatible goals.

Though there exist avalanche of perspectives of the concept, but an examination of the various definitions and views shows that conflict is a fact of life. It is indeed an integral aspect of social existence brought about by contradictions arising from difference in ideas,

perceptions, goals and competition for acquisition of scarce resources. This lends credence to the statement credited to the Marxists in extant literature that to understand society is to understand social conflict. Thus, an ideal society is not noted for absence of conflict but rather its ability to manage conflicting interests constructively so that it will not snowball to violence that will threaten the continued existence of such a society. Opinions are divided among scholars as regard whether conflict only has negative aspect or there are some positive benefits derivable from conflict.

2.8 Causes of Conflicts Between Nomads and Farmers

The causes of farmer-herdsmen conflicts are often not far-fetched. However, there appears to be no consensus among both groups as to the causes of their mutual conflict. According to De Haan (2002), destruction of crops by cattle and other property (irrigation equipment and infrastructure) by the pastoralists themselves could be the main causes for conflicts cited by the farmers, whereas burning of rangelands and fadama and blockage of stock routes and water points by crop encroachment are important direct reasons cited by the pastoralists. Ingawa, Ega, and Erhabor (1999) reported that the key underlying causes of farmer-herdsmen conflict in Nigeria are:

Changing resource access rights, whereby traditional access rights to communal grazing and water resources are being obstructed by the individual tenureship of arable farmers. This is particularly severe on the traditional trek routes, which become favourite cropping sites because of their better soil fertility resulting from the concentration of animal manure from the trekking herds in these areas. Within the fadama areas, this is exacerbated by the fragmented nature of the crop plots, which makes prevention of animals straying in the crop plots difficult.

Inadequacy of grazing resources, as increasing crop cultivation (and increasing commercialization of the crop-residues) and poor management of the existing grazing

reserves have resulted in a significant reduction in available livestock feed resources, in particular in the Northern States. Moreover the high value crops introduced by NFDLP (tomatoes and onions) produce almost no crop-residues for livestock feeding. Finally, the regulation that twenty percent of the fadama would need to be set aside for grazing has not been adhered to (National Agricultural Policy, 1988).

Decline in internal discipline and social cohesion, as the adherence to the traditional rules regarding grazing periods, and the authority of the traditional rulers is breaking down. This is exacerbated by increased rent seeking of the formal and traditional authorities in managing resource access.

De Haan (2002), also noted that antagonistic perceptions and beliefs among farmers and herdsmen could compound conflict situation, especially due to failing institutions and fierce competition for resources. Another cause of farmer-herdsmen conflicts is increasing rate of cattle theft which, according to De Haan (2002), is often accompanied by violence. Other perceived causes of farmer-herdsmen conflicts include inequitable access to land, diminishing land resources, antagonistic values among user groups, policy contradictions, and non-recognition of rights of indigenous people (Adisa, 2011).

Other sources of conflict as identified by Ofem, (2014), includes; destruction of crops, contamination of stream by cattle, disregard for traditional authority, over-grazing of fallow land, sexual harassment of women by nomads, harassment of nomads by host youths, indiscriminate defecation on roads, theft of cattle, stray cattle and indiscriminate bush burning.

2.9 An Overview of Farmer-Herder Conflicts in Sub-Saharan Africa

A wide body of scientific literature on Sub-Saharan Africa has consistently acknowledged the historical co-existence of farmers and herders in symbiotic relationships (Bassett, 1988). Seddon and Sumberg (1997) also acknowledged the long historical record of

fluctuating conflict, competition and co-operation between settled farmers and pastoral or transhumant herders in the continent. Such relationships were realized through reciprocity, exchange and support (Moritz, 2010). This however, did not mean that conflicts between farmers and herders were non-existent (Bovin, 1990). Quite to the contrary, these relationships were characterized by both conflict and complementarity and were actually two faces of the same coin. Turner (2004), also reported that the relationships between farmers and herders in the Sub-Saharan Africa have always been multi-dimensional and like most social relationships they have involved both cooperation and conflict.

Hussein, (1998) further posits that the relationship between farmers and herders have always moved between cooperation, competition and conflicts. Tonah (2006), reports that in West Africa, for example, the conflicts between farmers and herders have been a common feature of economic livelihoods in the area. These conflicts, however, were contained by customary institutions that were functioning following the principle of reciprocity and resolutions which were found within the confinement of the local communities. In addition, intermarriage between groups played part in strengthening these systems and increased the incentives to resolve the conflicts (Sandford & Ashley, 2008). Only in very rare cases were these conflicts brought to state administrative authorities for resolutions.

In recent decades farmer-herder conflicts in many parts of Sub-Saharan Africa have escalated into widespread violence, loss of property, massive displacement of people and loss of lives (Hussein, Sumberg & Seddon, 2000). This situation has been caused by increasing pressure on resources and decreasing efficiency of traditional conflict-management mechanisms (Thebaud & Batterbury, 2001). Factors such as inadequate grazing reserve and stock routes; changes in land tenure system; insufficient legislation pastoralism; expansion in agricultural policies; economic factors and climate change have also been identified as the long-term causes of the conflicts. Hagberg (1998) argues that conflicts between farmers and

herders originate from competition for resources caused by population growth, migration and land degradation. Davidheiser and Luna (2008) also cited factors such as international development projects, demographic changes, and environmental degradation to have contributed to the conflicts. More emphasis is placed on changes in production systems and land tenure regimes as central to the aggravation of farmer-herder goal incompatibility and inter-communal strife. Further analysis of the causes revealed that the changes are deliberate results of interventions and legislation that were based on Western models and intended to increase production outputs and market integration.

In Northern Africa the relationship between herders and farmers has, for centuries, been shaped by both cooperation and violence (Shettima & Tar, 2008). Recently however, strong population growth, wide-spread food insecurity and a recent series of drought events have increasingly challenged traditional resource sharing mechanisms while fights for scarce land resources have intensified (Fratkin & Roth, 2005; Herrero, 2006; International Livestock Research Institute, 2004).

In addition to the demographic and environmental factors for the conflicts two issues also emerge. One is the weakening of the traditional institutions for managing the conflicts, and the second is the changes in regimes of tenure on land. Ahmadu, (2011) argues that in Nigeria as in many other parts of West Africa both farmers and herders believe that the evolution of modern state has altered their community-based traditional conflict management systems that developed on the sanctity of traditional norms and values, even the mechanisms of resolving the conflicts have been weakened and that the tendency is more toward calming down conflicts rather than solving them. There have been changes to communal land tenure regimes which have in turn, led to tensions and legal conflicts between farmers and herders. In most such situations the state actors are not neutral arbitrators but they are instrumental in the production of institutional uncertainty and create a discrepancy between resources in-flow

and weak regulations which in turn generate room for opportunistic behaviours and conflict emergence (Meur, Hochet, Shem, & Touré, 2006).

2.10 Herdsmen and Farmers Relationship in Kogi State

Initially, a symbiotic relationship existed between the herdsmen and the farmers in most new community they stopped over to take a rest. The host communities, usually farmers, derived organic manure from cow dungs and protein from the beef and dairy products while the herdsmen relied on the farm produce for food. However, this ancient practice and many generation of coexistence have been threatened by many factors such as; population growth, advancement in technology, struggle for grazing land, water points and climate change (Fratkin, 1997; Integrated Regional Information Network, 2004).

Gradually, the relationship became more complex as many more individuals are brought within the spectrum of controls and regulations. One of the manifestations of this complexity has been the emergence of friction and occasional violent confrontations among individuals, families and communities on land matters. The above implies that decisions affecting land use can have more serious implications on Nigerian farmers since land as a factor of production is the farmers major input – that is, achieving self-sufficiency in food production will be difficult (Chikaire, 2011). In order to maintain co-existence between crop farmers and Fulani herdsmen, measures was put in place, as observed by Olaosebikan (2009), most times Fulani herdsmen are asked to pay compensation or in case of excessive damages the state or local government comes in aid of the crop farmers who are mostly affected. Other measures put in place as identified by the local authorities include: restriction of grassland for cattle, construction of homes/settlement for herdsmen and peace-talk initiatives through stake-holders meeting. However, all these policies are often short lived, hence the conflict abates, and it is therefore pertinent to note that, this type of conflict can hinder growth rate in agricultural production.

2.11 Extent of Farmer/Herder's Conflict

Berger, (2003) considers that, pastures, woody vegetation, water resources and land are taken as a common property resource. However, the inevitability of conflict in the claim for scarce resource which is noted by Coser (2000), is considered here as the bane for struggles over the inestimable value for land and its resource, with the claim for ownership and the claim for its position as a common resource. Nevertheless, the complex land use system that has changed markedly overtime has culminated in the present day tension and conflicts between Fulani herdsmen and host communities.

Causes of the conflict as observed by Haro and Dayo (2005), is that most times the Fulani herdsmen wander into the fields during growing season while their herds eat or trample on the crops due to the herdsmen's lack of attention or the cattle's stray movement, hence tension rise. Schama (1996) concluded that crops, livestock, water resources and other vital resources played key roles in the development, maintenance and projection of socioeconomic strength of a society. These conflicts therefore stem from the need to preserve and protect individual belongings, while the Fulani herdsmen strategize on the protection and reservation of their livestock, the farmers on the other hand strategize on how to protect their crops and farm land which is their source of livelihood.

Another dimension of this conflict is its environmental impact on the society. Environmental degradation is said to have contributed enormously to the deterioration in the ecosystem services. Tonah (2006), opined that the factors that account for the increasing farmer-herder conflicts include the southward movement of pastoral herds into the humid and sub-humid zones, promoted by the successful control of the menace posed by disease, the widespread availability of veterinary medicine and expansion of farming activities into areas that hitherto serve as pasture land.

Economically, viable land has been a major cause of conflict between communities in Nigeria and especially between herders and crop farmers. (Areola, 1992; Gbehe, 2009) pointed out that the pursuit of access to a variety of limited resources which includes grasslands, water spots for animals, rival claims to land, and government policies by individuals, differentiated by different categories in defined socio-physical environments, give rise to conflicts. Cases of farmers-herders conflicts are widespread in recent times. For instance, in Densina local government of Adamawa state, 28 people were feared killed, about 2,500 farmers were displaced and rendered homeless in the hostility between cattle rearers and farmers in host community in 2005. Ajuwon (2005) Observed, that in Imo state for instance between 1996 and 2005, 19 people died and 42 were injured in farmers' herders' conflicts. This is supported by Nweze (2005) who also stated that many farmers and herders have lost their lives and herds while others have experienced dwindling productivity in their herds. In Yakurr local government area of Cross River State Nigeria, series of squabbles between Fulani herdsmen and youth of the area has been reported to the Police in the area. In the same way, a newspaper study of conflicts/crises in Nigeria between 1991 and 2005, by Fasona and Omojola (2005), found that farmer herdsmen conflicts accounted for 35% of the major clashes reported by selected Nigerian newspaper. Another study of 27 communities in central Nigerian by Nyang and Fiki (2005), showed that over 40% of the household surveyed had experienced agricultural land-related conflicts, with respondents recalling conflicts that were as far back as 1965 and as recent as 2005.

Also, in a study carried out by Olabode and Ajibade (2010); Fiki and Lee (2004), in the guinea Savannah area of Kwara State, 150 households were interviewed, 22 reported losses of livestock while eight household from both sides reported loss of human lives. Other studies as observed by Negedu (2005); and Micheal (2010), have also indicated that stores, barns, residences and households items were destroyed in many of the violent clashes.

Further studies by Ofuoku and Isife (2009), also revealed that at the south- south region of Nigeria, especially in Delta and Edo states, more than 40 million worth of crops are usually lost annually due to invasion of cattle. This has not only created an impediment on the survival of the host communities, but has for instance led to crop-farmers abandoning farming for lesser occupations like Okada riding and other artisan vocation.

2.12 Conflict and Farmers Income

Whatever the causes of farmer-herdsmen conflicts are, it is evident that the conflicts have been of great negative effects. These range from economic effects (such as loss of income/resources/yield) to physical (such as home/farm destruction, bodily injury or death of family member) and socio-psychological effects such as emotional exhaustion and job dissatisfaction (Adisa, 2011). Reduction in income and output of crop farmers occur as a result of indiscriminate bush burning and destruction of crops by cattle rearers which could lead to either partial or total loss of crops by the farmers, the effect on crop yield therefore could have negative impact on the affected farmer's income with its summary impact on the overall agricultural income. This tends to negatively affect farmer's savings, credit repayment ability, as well the food security and economic welfare of rural and urban dwellers that depend on these farmers for food supply, thus, farming and rural agricultural development could be discouraged (Okoli & Atelhe, 2014).

Similarly, farmer/herders conflict could also lead to displacement of farmers, internal displacement of farmers in communities occurs as a result of this conflict, women most especially are affected psychologically, as a result may decide to stop going to distant farm for fear of attack by nomads. The displaced farmers have therefore become a liability to other farmers who has become a source of providence for them and their families which has created a vicious cycle of poverty in the affected community. According to Okoli and Atelhe (2014) Killings, rape, destruction of properties by nomads and reprisal attacks on

communities, could drastically reduce agricultural labour force which in turn transcends to low income.

2.13 Farmers Coping Strategies to Herdsmen

Coping strategies are short-term measures used by households when confronted with unexpected events or stress (Thomas, 2007). Scholarly definitions of stress highlight that it is a combination of psychological and physical reactions to events that evoke individual responses (Franken, 1994). Research on stress has focused on the physiological expression of stress and its impact on the individual as well as on models of interaction between the environment and the individual coping and resilience (Franken 1994; Somerfield & McCrae; 2000). Immediate physiological responses to stress involve reactions from the autonomic nervous system, which is believed to allow a person a chance to react quickly to perceived danger (Mitchell & Everly, 1996). Conflict actors employ coping strategies in order to protect their psychological intactness. Effective strategies should enhance their psychological adaptation despite the traumatic stress (Howell, 1996 as cited in umar, 2013).

Lazarus and Folkman (1984) conceptualized two broad response dimensions among people facing stress: emotion focused coping involves modifying one's own feelings and controlling distress, and problem-focused coping activities are aimed at changing the stressful situation. Critics have noted that emotion- and problem-focused distinction between coping strategies may be simplistic (Lazarus, 2000). Multidimensional theory, involving the orientation and modality of coping, can correspond more accurately to resource use conflict actors' various efforts to deal with adversities and demands in their lives. Active coping involves direct problem solving, cognitive decision making, and restructuring. Distraction refers to replaced action and physical release of emotions. Avoidance involves behavioural (withdrawal) and cognitive (denial and refusing to think about the trauma) strategies. Support seeking consists of emotional sharing and solving the problem with the help of others.

2.14 Conflict Resolution, Management and Transformation

Conflict management by peaceful means has been very much in vogue for a long time. In most African societies there is preference for peaceful settlement of dispute along the lines prescribed by the institutions and values of the community. In a few instances where it may be tolerated, the community and not individual has to be the sanctioning authority. In fact, there exists a wide range of non-violent methods of managing conflict either at individual, family, group, community and international levels.

There are quite a number of approaches to conflict resolution and management which covers both personal as well as public dimensions as experienced in the developing and industrialized worlds. Fundamentally, two main approaches to conflict resolution are discernable they are peaceful negotiation or arbitration and use of force. The use of force may include war, genocide, forced mass population transfer, partition and secession (self-determination), integration or assimilation. On the other hand, peaceful conflict resolution implies approaching the conflict in a problem-solving, constructive and non-violent way, taking the values of all parties involved, their human needs and interest, rather than a violent, destructive solution or a mere settlement that freezes power distribution between opponents (Oyeshola, 2005).

2.14.1 Conflict Resolution

The primary aim of conflict resolution should be to sustain the peace and prevent future occurrence. This can be done by implementing enduring policies and programmes that are targeted at addressing the root causes of conflicts and providing supports to those affected by conflict, especially women, children and the disabled (Onyekuru & Marchant, 2014).

Conflict resolution encapsulates activities geared towards maintaining and promoting peace and security. It is the process that involves bridge building between hostile communities, clarifying issues which represent point of confrontation between them and

creating new opportunities for developing renewed relationships, based upon a process of peaceful change and grassroots reconciliation (Committee on Equal Opportunities for Women and Men, 2004). Miller (2003) sees it as a variety of approaches aimed at terminating conflicts through the constructive solving of problems, distinct from management or transformation of conflict. Miall, Oliver, and Tom (1999) argue that by conflict resolution, the deep rooted sources of conflict are expected to be addressed and resolved in such a way that behaviour is no longer violent, nor are attitudes hostile any longer, while the structure of the conflict has been changed. According to Mitchel and Banks (1996) conflict resolution denotes first, an outcome in which the issues in an existing conflict are satisfactorily resolved in such a way that is mutually acceptable to the parties, self-sustaining in the long run and productive of a new positive relationship between parties that were previously hostile adversaries; and second, any process or procedure by which such an outcome is achieved. Conflict resolution denotes the idea in which the parties to a conflict are mutually satisfied with the outcome of a settlement and in true sense the conflict is resolved. However, it is necessary to stress that not all conflicts can be resolved to mutual satisfaction of the warring factions. Best (2006) notes that, from the point of view of needs, it is possible to resolve conflict when the basic needs of parties have been met with necessary satisfiers, and their fears have been allayed. But others like over values, may not be resolved and can best be transformed, regulated or managed.

2.14.2 Conflict management

Every society manages her conflicts through a framework of laid-down conventions or rules. Either traditional or modern, each has a body of rules that defines and qualifies people's relationship with each other and the state. These rules and regulations constitute the law of the land (constitution). In societies where there are no written constitutions, the basic set of standards in which individual member has been socialized from youth to conform to

and from which other standards in the culture derive become the framework of conflict management (Oyeshola, 2005). Conflict management is the process of reducing the negative and destructive capacity of conflict through a number of measures and by working with and through the parties involved in that conflict (Best, 2006). The concept of conflict management comes to the fore as a result of the fact that conflict is inevitable and not all conflicts can be resolved, hence the need to manage or regulate them.

Africa's societies have different means of managing conflict. In Chad for instance, the traditional chiefs/ ruler are vested with power to intervene and effect conciliation between the parties in conflict residing within their own area of jurisdiction. In conflicts between nomads, cattle rearers and settled farmers, there exists a structure whereby traditional rulers quite frequently participate in the management of such conflicts. Through that platform, the traditional rulers do not limit themselves to conciliatory efforts; they equally carry out enlightenment campaigns and undertake measures to prevent future conflicts. Other traditional mechanisms for resolving conflict in Chad include Peace Dialogue Committees (Joshua, 2013).

Associations/Non-Governmental Organizations (NGOs) and the Role of Assemblies (Cofono) are well recognised. The "Cofono" is a fully representative gathering, which brings together not only the traditional rulers, but also customary council members from the surroundings, all interested men-young and old, as well as women groups of all ages (Zamtato, 2003). In Cameroun, the traditional method of conflict management involve three stages Before then, it is necessary to state that there is what is called "African Palaver" which is widely used in quite a number of communities to settle conflict "Palaver" simply mean talking things over, or the settlement of conflict through dialogue. The first stage is to persuade disputants to bring their case to the "Palaver" the second stage is hearing phase and the final stage is the point at which the elders, after taking evidence from witnesses and

listening to all the contributions from the floor, retire to a secluded place to take a decision on the conflict. As soon as they are ready with their decision, they return to give it and conclude the “palaver”. The palaver system is also used in Mali as a popular conflict management technique (Zamtato, 2003).

2.14.3 Conflict transformation

Conflict transformation, according to Best (2006), is traceable to John Lederach of the Eastern Mennonite School of Peace Building. The assumption is that it goes beyond conflict resolution as it aims at building longer standing relation through a process of change in perception and attitudes of parties. In essence, the aim of conflict transformation is to change the parties and relationship and the very condition that created the conflict. In a sense, conflict transformation entails the coming into being of new situations involving conflict issues, perception relationship and communication patterns (Jeong, 2000).

Lederach, (1995) put it more pungently that constructive transformation of conflict is: comprehensive set of lenses for describing how conflict emerges from, evolves within and brings about changes in the personal, relational, structural and cultural dimensions and for developing creative response that promote peaceful change within those dimensions through non-violent mechanism by limiting all action to collaborative behaviour, and interrupting negative cycles. This requires a commitment to seek non-coercive process of communication, negotiation, and dispute resolution even when there has been intense provocation. The commitment on both sides to act with restraint and mutual respect changes the dynamics of negotiation from mistrust to trust (Bassey, 2002).

According to Academic Associates Peace Work (AAPW, 2000 as cited in Bassey, 2002) conflict transformation involves three stages. The first stage has to do with attitudinal transformation “by change and redirecting negative perceptions, a commitment to see the other with goodwill, to define the conflict in terms of mutual respect, and to maintain

attitudes of collaborative and co-operative intent”. The third stage as explicated by (Bassey, 2002) involves seeking to discover, define and remove incompatibilities by creative design to facilitate mutual gain. Otite (1999) argue that in destructive conflicts negative attitudes and behaviour sustained by goal becomes divisive and alienating, a product of individual’s socialization and acculturation that is present in most persons behavioural repertoire from childhood. Thus, conflict transformation in this context is geared towards peace building through a shared vision of new patterns of sustainable relationship which go beyond resolving or ending particular conflict.

From the above it can be deduced that conflict resolution, management and transformation is not an ad hoc arrangement, neither is it a punitive measure that satisfies a short term emotional demand (Uji, 2005). In the management of conflict there are certain procedures of ideas that can be of vital use as postulated by Wilmot and Hocker (1998) These include clarification of communication and checking of perceptions which in turn involve the following: speaking out what is on one’s mind or heart, listening carefully, expressing strong feelings appropriately, remaining rational, asking questions, maintaining spirit of give and take, avoiding harmful statement, asking directly what is going on, telling others ones opinion, looking for flexible “shades of grey” solution, recognizing the process of initiating co-operative move, identifying conflict pattern and engaging in negotiations of agreements and settlements.

In Nigerian, the approach of conflict handling is not different from that of colonial state which deals essentially with the use of coercive force in suppressing crisis and violence. According to (Albert, 1999) once a community becomes violent in Nigeria, the first thing government does in line with its constitutional duty of maintaining law and order is to deploy some policemen/soldiers to keep the peace in the area. Once the violence dies out, the Police is withdrawn from the area based on the assumption that the conflict is over. In many cases,

the violence escalates few days, weeks or months after the departure of the police. In some desperate situations, the government permanently stations a contingent of “peace keeping” policemen and even soldiers in the conflict-prone area. Cessation of physical violence in the feuding communities in Nigeria is usually followed by setting up commissions of inquiry to look into the civil disturbance. Such a commission would take evidence from all parties to the conflict. The report of the commission is presented to government at a widely publicized occasion and the people never hear anything after that until another round of violence breaks out in the area. As members of the public wait endlessly for the report of the panel to be released, those who want to keep the conflict alive would go to town once again with an analysis of “insider knowledge” of the content of the report. The party that considered itself to have been disadvantaged by the report will therefore start once again to mobilize towards redressing the “injustice” done to them. This popular way of responding to conflict shows that not much attention is given to problem-solving procedures by the Nigerian government. To experience sustainable peace, there must be attitudinal change to conflict.

2.15 Cattle Grazing and Lethal Violence: Analysis of Trends Across Nigeria (June 2006 to Date)

From June 2006 to May 2014, the Nigeria Watch database has recorded 615 violent deaths related to cattle grazing, out of a total of 61,314 violent fatalities in Nigeria. The analysis that follows was undertaken with 111 relevant cases, which were reported by the press across the 36 states of Nigeria from June 2006 to May 2014. It seeks to understand the frequency, the intensity, the patterns, and the geography of such violence, based on a study of 7 incidents in 2006, 9 in 2007, 6 in 2008, 13 in 2009, 9 in 2010, 15 in 2011, 17 in 2012, 27 in 2013, and 8 as at May 2014 (Bashir, 2014).

In the second half of 2006, 22 deaths resulting from cattle conflicts were recorded in the months of July (Imo and Kaduna), August (Zamfara and Rivers), and September (Kano,

Delta, and Rivers). September accounted for the highest number of incidents per month (3), while Kano State was the most affected, with 10 fatalities, followed by Rivers (5 deaths in August and 3 in September). The main stakeholders involved were the police, the army, armed gangs, political groups, and communities, with victims on all sides. On 15 September 2006, for instance, soldiers were reported to have invaded the Elele Community in Rivers to avenge the disappearance of the cattle belonging to their ‘fellow northerners’; yet another report claimed that these were herdsmen dressed in army uniform (Azubike & Ugborgu, 2006).

In 2007, the number of deaths resulting from cattle conflicts doubled to 54, spread across the months of January (Zamfara, Delta, and Osun), February (Jigawa), March (Cross River), June (Kebbi), July (Rivers), and December (Borno and Zamfara). Different weapons were used, from guns in Delta to bows, arrows, charms, cutlasses, and spears in Borno (Musa, 2007). The highest number of captured incidents was in January, across Zamfara, Delta, and Osun. However, the highest number of casualties was recorded in Delta State, which accounted for 17 deaths as against 14 in Borno. The protagonists in the violence were usually armed gangs, the police, and communities. The Zamfara episodes in January and December also involved Fulani reportedly coming from the Republic of Niger. In most cases, the Fulani were perceived as aggressors, with allegations of rape and murder alongside that of destruction. However, in Kebbi, Jigawa, and Osun, they were portrayed as victims, with their villages razed by neighbours and their cattle either stolen or killed (Habu, 2007).

In 2008, reported fatalities resulting from cattle conflicts dropped to 31, occurring in the months of January (Jigawa), April (Anambra), July (Jigawa), November (Taraba), and December (Katsina and Jigawa). The highest number of incidents (5) happened in the North (Jigawa, Kastina and Taraba). However, the highest number of fatalities accounted for was in Anambra, with 9 casualties, followed by Taraba and Jigawa, with 7 and 6 respectively. The

stakeholders in these clashes were largely Fulani herdsmen and farmers in communal-based conflicts. In all the reported cases, the Fulani were portrayed as aggressors because their cattle invaded farmland.

In 2009, the number of fatalities more than doubled the figures of the previous year, with 83 deaths spread over the months of April (Benue), June (Plateau and Jigawa), July (Jigawa and Benue), September (Borno), October (Kebbi), November (Imo), and December (Nasarawa, Oyo, and Zamfara). June, July, and December had the highest occurrence per month, while 11 of the 13 reported cases took place in the North. Jigawa again recorded the highest number of incidents, with 4 reported cases between June and July. Nasarawa had the highest number of deaths (47) in the most sustained crises, which lasted 2 days: in addition, mercenaries were allegedly hired from the neighbouring states of Taraba and Kogi. The reported case in Borno also reflected trans-border actors from the Republic of Niger and Chad; in this case, rebels dressed in military uniforms and armed with sophisticated weapons raided Fulani communities in Abadam and Mallam Fatori (Musa, 2009).

The 2010 incidents related to cattle grazing then dropped to 39 fatalities during the months of January (Adamawa and Oyo), February (Ogun), April (Plateau), May (Benue), June (Niger), July (Plateau), August (Adamawa), and October (Plateau). The highest number of reported incidents was 2 in January, while Niger State had the highest number of casualties (15). Out of a total of 9 cases, 7 occurred in the North. In Adamawa, where the international cattle market of Mubi attracted foreign robbers, the violence lasted for 7 days. This particular case involved suspected Cameroonian armed bandits with sophisticated weapons (Onah, 2010). The use of sophisticated weapons and the portrayal of the Fulani as victims was also captured in a report on Plateau State, by the spokesperson of the Miyetti Allah Cattle Breeders Association of Nigeria (MACBAN), as they clashed with Berom farmers, losing a young Fulani alongside 30 cows (Lalo, 2010).

The year 2011 saw a meteoric rise to 116 in the number of deaths resulting from cattle conflicts. These clashes occurred in January (Cross River and Plateau), February (Benue and Plateau), April (Abuja), May (Plateau), June, (Nassarawa and Benue), July (Imo), August (Plateau and Nasarawa), November (Kastina), and December (Zamfara). The highest number of incidents was in February and June, with the North accounting for the majority of the reported cases. The highest number of fatalities was recorded in Benue, with 38 in June and 27 in February. However, of the 15 reported cases in that year, Plateau State accounted for the highest number of occurrences with 4 incidents, while Benue and Nasarawa had 3 each. The most sustained violence lasted for 5 days in Benue, as against 3 in Nasarawa. The major cause of such conflicts was the invasion of farmland by cattle breeders, leading to attacks and reprisals from both groups. The high casualty figures recorded in Benue State were not unconnected with the spread of violence across different communities as people were displaced, and the alleged engagement of Fulani “mercenaries” from Lake Chad, together with the use of sophisticated weapons, bulletproof vests, military uniforms, horses, and motorbikes (Uja, 2011).

The highest number of deaths resulting from cattle conflicts was recorded in 2012, with the total number put at 128 during the months of January (Delta), February (Enugu, Taraba and Nasarawa), March (Benue, Borno and Delta), April (Nasarawa and Abuja), May (Nasarawa and Cross River), June (Taraba and Abuja), November (Jigawa), and December (Ogun). The highest number of incidents was 4 in February, while the highest number of fatalities was recorded in Cross River, with 40 casualties in May, though Benue had a total of 30 deaths in March. Also, of the 17 recorded cases, the North recorded 12, especially in Taraba and Nasarawa. The most sustained incident lasted for 3 days in Nasarawa and Benue, while the key actors included soldiers, the police, Fulani herdsmen, and local farmers. In Nasarawa, for instance, 50 armed Fulani were reported to have attacked a border town

(Shatse) at dawn, and both sides claimed casualties, including the loss of 500 cows. (Joseph, 2012). Some cases were even more complex. In Delta State, it was alleged that armed herdsmen, dressed in uniforms, were confronted by the locals after their cattle had destroyed farms, women were raped, and some headless bodies were found. However, the military were also reported to have killed 2 persons in their bid to restore peace, though this was denied by their spokesperson. The search for northerners by indigenes for retaliation then gave an ethno-political dimension to the crisis. Former Niger Delta militants joined the conflict, with other youths allegedly robbing travellers and overpowering the police (O'Neil, 2012).

The total figure for the reported casualties resulting from cattle conflicts dropped slightly in 2013 to 115 deaths spread across the 12 months: January (Benue), February (Delta), March (Benue and Kaduna), April (Plateau, Delta and Kogi), May (Zamfara, Nasarawa and Benue), June (Zamfara, Nasarawa and Kaduna), July (Benue and Oyo), August (Nasarawa), September (Benue), October (Benue, Jigawa, and Kastina), November (Kwara and Sokoto), and December (Akwa Ibom and Bayelsa). The two most deadly crises were recorded in Benue, with 20 fatalities in September and 17 in May. The longest clashes lasted 2 days in Delta (February) and Benue (September), while 22 of the 27 incidents took place in the North. In Benue State, Idoma farmers took revenge on Fulani cattle breeders for the alleged destruction of harvested farm products and pollution of water, while Tiv farmers allegedly collected N150,000 to allow cattle to graze in violation of the law which had abolished such land tax, leading to violent clashes and the displacement of women and children from the community (Duru, 2013). In Kaduna, there was also a case of armed bandits killing soldiers and vigilantes during an early morning raid, with thousands of Fulani fleeing their residence in the aftermath (Sabi, 2013).

As at 31 May 2014, a total of 27 deaths were recorded for 2014 from 8 reported incidents in the months of January (Oyo and Abuja), February (Delta), March (Taraba,

Benue, and Ebonyi) and May (Kaduna). The highest number of cases was in March (4), and the highest number of fatalities (10) was in Taraba, also in March. The major actors involved were armed gangs, the communities, and the army, the latter being reported to have perpetrated jungle justice against some Fulani herdsmen who were accused of carrying weapons and who were summarily executed in Saminaka, Southern Kaduna State. In contrast to the usual patterns of clashes between herdsmen and farmers, the soldiers were clearly identified as the aggressors by representatives of both groups (the chairman of the local government council and the president of MACBAN) (Bashir, 2014).

The violent activities of Fulani herdsmen have tarried for a while but it has always been scantily reported and in low dimensions. But in recent times, the record of their violent attacks in various parts of Nigeria is mounting daily and has continued to generate grave concerns amongst the well-meaning Nigerians. Oyeyipo, James & Sanda (2016), attempt to dissect the undercurrents of these rising attacks by so-called, yet heavily armed, cattle rearers. The height of their mindlessness however came to the fore on September 21, 2015, when herdsmen reportedly numbering over 20, abducted a former Secretary to the Government of the Federation (SGF) and chieftain of Afenifere, Chief Samuel Oluyemisi Falae on his 77th birthday after invading his farm in Ilado village, Akure North area of Ondo State. They returned to the farm in April 2016 to abduct one of his security guards and the victim was later found dead, two days later in a river near the farm. Falae was said to have had trouble with herdsmen, who grazed their cattle on his farm.

Less than 10 days after the Falae abduction, herdsmen numbering about five also abducted Oba Adebisi Obademi, the traditional ruler of Apaa-Bunu community in Kabba-Bunu local government area of Kogi State. Even before the issue started to assume a national threat, residents and travellers between Ondo and Kogi State have had encounters with the hoodlums, who carry out random attacks and retire to the bushes, where they reside. In June

2015. Oro-Ago, Ifelodun local government area of Kwara State was also attacked and the same herdsmen also attacked Ninji and Ropp villages in Plateau State, killing 27 persons. In September 2015, a middle-aged woman was raped and subsequently killed by three Fulani herdsmen in Edo State. Residents of Ulaja and Ojeh communities in Dekina local government area of Kogi State had their fair share of the violent activities of the herdsmen in November 2015, when the town was attacked and about 22 men and women hacked down. On December 1, 2015 a man was killed in Ofagbe community, Isoko North council area of Delta State. January 24, 2016, a Divisional Police Officer (DPO) and 29 others were killed in Adamawa State by suspected Fulani herdsmen, when they attacked Demsare, Wunamokoh, Dikajam and Taboungo in what was believed to be a vengeance mission over an existing feud with farmers. As the killing went on unabated, on February 8, 2016, herdsmen killed 10 persons in Tom-Anyiin, Tom-Ataan, Mbaya and Tombu in the Buruku local government area of Benue State and three days later, on February 11, 2016, they perpetrated another attack on Abbi community in Uzo-Uwani, Enugu killing two siblings, burnt houses and motorcycles (Oyeyipo, James & Sanda, 2016).

In one of the attacks with the highest casualty rate, on February 29, 2016, over 500 locals were killed and 7000 residents were displaced in an attack in Agatu LGA by the herdsmen. On March 9, 2016, eight residents were killed during attacks on Ngorukgan, Tse Chia, Deghkia and Nhumbe, Logo LGA, Benue State. A clash between herdsmen and farmers in Benue led to the killings of APC youth leader, Mr. Aondohemba Kasa and three others on April 5, 2016.

Following the killing of a 64-year old farmer, identified as Alex in Edo State on April 9, 2016, a Fulani camp was razed by an irate mob. On April 12, 2016, Fulani herdsmen attacked Dori and Mesuma villages in Taraba and killed at least 15 people and on April 19, 2016, a band of herdsmen invaded farms in Lagun village, Lagelu local council Oyo State

and killed one Mr. Jimmy Aido. Earlier in April, member representing Ethiope East constituency in the Delta State House of Assembly, Hon. Evans Iwhurie, said Fulani herdsmen shot dead a staff of the Delta State University (DELSU), Abraka and a farmer at their farms in cold blood.

Then more recently, on April 25, 2016, while the people of Enugu State were already disenchanted about the tension and disruption of their means of livelihood, disaster struck again in the sleepy Ukpabi Nimbo community in Uzo-Uwani council of Enugu State, when the herdsmen attacked the area, killing residents, particularly farmers. They destroyed property worth millions of naira. The number of people that lost their lives was put at about 48, while scores sustained varying degrees of injuries and a lot of houses were razed (Oyeyipo, James & Sanda 2016).

2.16 Theoretical Framework

The following theories are applicable to this work

2.16.1 Theory of Conflict

Over the years researchers have studied the conflict theory in order to understand what the root causes of conflicts, and their effects on rural development and how they can be managed for effective and sustainable development. According to Hornby (1995), conflict is a serious disagreement, argument, struggle and serious difference of opinions, wishes or a clash. The threat is directed towards limiting or eliminating the access of one party to some resource or goal (Robinson & Clifford 2010). This could be seen in cases of land disputes between crop farmers and grazers in the grass-fields where they share the same environment for farming and grazing.

The conflict theory attributes to a society the characteristics of coercion, division, hostility, dissension conflict, mal-integration and change. Klein and Ritti (1980) stated that conflict has various components which include; differences in tasks, values, attitudes and

goals priorities as groups try to gain control over scarce resources. According to Ekong (2003), conflict may arise where there is difference of opinion between group leaders or in situations where one group tends to be exploiting the other.

Every farming system such as nomadic cattle herding has a boundary, which separates it from the larger system, which make up the environment. The boundary represents the limits in the larger system. Farmers increasingly compete with nomadic herders for farmland, pastures, water, trees and the use of rangeland in general (Akpaki, 2002). There is clear demarcation between different types of conflict in farmer-nomadic herder relations. Hagberg (1998) has likewise made a distinction between the various types of conflicts in farmer-nomadic relations. He differentiates between disputes among individuals and groups, conflict of interest and violent conflicts. While dispute refers to disagreement between two or more persons or groups, a violent conflict involves mayhem, the destruction and killing of persons and livestock, arising from a dispute (Tonah, 2006). A conflict of interest, on the other hand, is seen as the adoption of opposing views and concerns by different actors, which usually takes the form of non -violent competition, for control of resources in a given area.

Farmer-herder differences are not only seen as resources conflict but are also sometimes represented as ethnic conflict involving the two groups. Since herder and farmer groups have very different values, customs, physical and cultural characteristics, disputes between them are frequently characterized as ethnic conflict (Tonah, 2006). The feeling of belongingness that is extant among the members of the group is focused around their economic interest and the protection of the values, culture and power of group. The Fulani nomadic cattle rearers being a minority in host communities have a unique culture and strong sense of solidarity. They are often isolated from the farming population. In such cases, conflict between them and the farming population of the host community is regarded as having an ethnic colour. Implicit in the theory and within the context of this study, conflict

between nomadic cattle herders and crop farmers in Nigeria, especially Kogi State, usually leads to huge losses in terms of human, agricultural and material resources. Hence an understanding of the causes and effects of conflict between nomads and farmers in host communities is an important pre-requisite for the realisation of the goals of agricultural development policies.

2.16.2 The Eco-Violence Theory

The theory of eco-violence is an emerging theoretical construct seeking to explicate the relationship between environmental factors and violent conflicts (Onuoha, 2007). Developed by Homer-Dixon (1999), the theory holds thus: Decrease in the quality and quantity of renewable resources, population growth, and resource access act singly or in various combinations to increase the scarcity, for certain population groups, of cropland, water, forests, and fish. This can reduce economic productivity, both for the local groups experiencing the scarcity and for the larger regional and national economies. The affected people may migrate or be expelled to new lands. Migrating groups often trigger ethnic conflicts when they move to new areas, while decreases in wealth can cause deprivation conflicts (Homer-Dixon, 1999). Implicit in the eco-violence theory is the assumption that competition over scarce ecological resources engenders violent conflict. This trend has been aggravated in contemporary times owing to the impacts of climate change, which has exacerbated ecological scarcity across the world (Blench, 2004; Onuoha, 2007).

In effect, ecological scarcity raises the competitive stakes and premium that the various societal groups may place on available ecological resources. This condition tends to precipitate violent conflicts. For the purpose of this study, the theory of eco-violence offers insights into the nature and dynamics of the herdsmen/farmers conflicts in Nigeria. In this regard, it is to be observed that the conflicts have been driven by the desperation of the affected groups to protect and advance their livelihood interests in the context of an ever

shrinking ecological space, characterized by resource-scarcity, livelihood crisis, population explosion, and resource competition. In the case of Kogi State, which is by design the focus of this research, the situation has been accentuated by the climate change-induced migration of pastoralists from the far North to the North-Central region of Nigeria in search of grazing fields (Blench, 2004). This trend has been succinctly captured thus:

As the population is increasing, definitely there will be as well increase in demand for land, water, forest products and grazing land within the territories inhabited by Fulanis and farmers; these groups are forced to find new ways to cope with different types of conflict at once because of competition over marginal resources (Adogi, 2013). The crux of the theory of eco-violence is that the desperate quest for survival by groups in a competitive and resource-scarce ecological sphere (eco-survivalism) is likely to precipitate violent conflict.

2.16.3 The Theory of Tragedy of the Commons

The concept of Hardin's (1968) tragedy of the commons is useful for understanding numerous environmental issues, short-term environmental crises or long-term energy and resources descents (De Young, 1999). In the work of Hardin (1968) titled tragedy of the commons, a common is a natural resources shared by many individual. In this context "shared" means that each individual does not have a claim to any part of the resource, but rather to the use of a portion of it for his/her own benefit. The tragedy is that, in the absence of regulation, each individual will have a tendency to exploit the commons to his/her own advantage, typically without limit. Under this state of affairs, the common is depleted and eventually ruined.

The theory of the tragedy of the commons states that individuals acting rationally and independently according to their own self-interest will deplete a shared resource, even if it is contrary to the best interest of the group. In the exploitation of the natural resource, people's collective behaviour is not initiated by malicious outside forces or misunderstanding among

individuals, but rather results from the apparently appropriate and innocent decisions of individuals and small groups, acting intentionally and often alone (De young, 1999). Hardin used cattle grazing on common property as an example of a situation where the cumulative effects of individual decisions result in degradation. Individuals are motivated to increase the size of their herds in order to increase personal wealth, because, every animal added to the herds degrades the commons a little and the degradation for each additional animal is small relative to the gain in wealth for the owner. Every rational individual will increase the size of his herds and if all owners follow this pattern, the commons will ultimately be destroyed, Hardin felt that this was a problem faced in many social aspects because each individual gains a direct benefit from exploiting a common resource while only experiencing a minimal cost. However, the theory depicts what is likely to happen should regulations be ineffective in controlling the behaviour of rational individuals who choose to promote their self-interest (Gilbert, 2014).

2.17 Analytical Framework

Various forms of analytical techniques have been developed and used by researchers for data analysis. According to Eboh (2009), the nature and purpose of a study determine the type of analysis that is required. While the calculation of rates, means, percentage table, graphs, charts, standard deviation, and frequency distribution, amongst others may be adequate for some explanatory studies, a more detailed and higher level of analyses will be required for some case studies and sample surveys especially those that deals with quantitative data. In this study, descriptive statistics will be used in addition to multiple regression analysis.

2.17.1 Likert Type Scale Rating Technique

The likert type scale was developed in 1932 by Rensis Likert. It uses the principle of measuring attitude or opinion by asking people to respond to a series of statements about a

topic, in terms of the extent/level of their agreement/disagreement with the statement. In the social sciences, common example of the Likert type scale is the 1-4 ratings scales in which a respondent selects the number which is considered to be true reflection of the perceived quality or opinion of the respondent on an item statement (Andrich & Nelson, 1984). This was used by Oni (2015), to determine the factors influencing farmers willingness to engage in agroforestry practice in Ekiti State, Nigeria. Likert type scale of 4-point rating was used in this study to measure the major causes of conflict between farmers and herdsmen in the area. The grading was in this order:

Strongly agree	=	4
Agree	=	3
Disagree	=	2
Strongly disagree	=	1

The values of the Likert type scale was added to get 10, which was divided by 4 to get a mean score of 2.5 (i.e. $4+3+2+1=10/4 = 2.5$) cut off point. The respondents mean score was obtained from each response item such that anyone higher or equal to 2.5 was categorized as agree while anyone less than 2.5 was categorized as disagree.

This tool has been used by several authors such Enete, Ignatius, Josephat, Anthony, Elizabeth, & Fidelis (2011), in assessing farmers' perception on climate change innovations and adaptation on food security. According to Osuala (1982), it is more likely the researcher will report the mean score on the scale. On the basis of this, the causes of conflict between farmers and herders in the area was ranked using weighted mean (X).

2. 17.2 Multiple regression analysis

Multiple regression analysis is an econometric method used to study relationships involving more than two variables. The variation in the dependent variable is explained by more than one independent variable (Awoke, 2001). Gujarati (2009) pointed out that most

regression models are multiple regression models because few economic phenomena can be explained by only one variable. The objective of multiple regression analysis is to predict the single dependent variable by a set of independent or explanatory variables. In order to carry out multiple regression analysis, researches use a variety of modern statistical methods, econometric models and analysis software (Eboh, 2009).

According to Barbra and Linda (2013), the goal of regression analysis is to arrive at a set of values called regression coefficient for dependent variables. The regression result is a generalization of equations below that represents the best prediction of dependent variables from several continuous independent variables.

Multiple regression analysis takes the following forms:

$Y = f(X_1, X_2, X_3, \dots, X_n), e$ (implicit form)

$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e$ (explicit form).

Where;

Y = dependent variable;

b_0 = intercept of Y (the value of Y when all the X values are zero);

b_1 - b_n = regression coefficients;

X_1 - X_n = independent variables; and

e = error term or random disturbance.

Multiple regression has been adopted in investigating the determinants of farm income in several studies.

Ibekwe, Eze, Onyemauwa, Henri-Ukoha, Korie & Nwaiwu (2010) used multiple regression to estimate the determinants of farm and off –farm income among farm households in South East Nigeira. Ibekwe,U.C (2010) also used multiple regression to analyse the Determinants of income among farm households in Orlu Agricultural Zone of Imo State, Nigeria.

Multiple regression analysis was employed in this study to determine the effect of conflict on the crop farmer's farm income in the study area.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 The Study Area

The study was conducted in Kogi State Nigeria, the area is chosen because it is one of the States in Nigeria that have recorded the highest number of herder/farmers conflict. It has very good vegetation for grazing as it is located on the fringe of the rain forest, the guinea savanna zone and on the flood plains of the rivers Benue and Niger (Tenuche & Ifatimehin, 2009). Kogi State was created out of Benue and Kwara States on 27th August, 1991 by the then military regime of President Ibrahim B. Babangida. The area is located in the heart of Nigeria and it has two great rivers, Rivers Niger and Benue forming a confluence in the state. It lies approximately within latitudes 7° 49'N and longitude 6° 45'E. It is bounded to the north by Niger State, federal capital territory and Nasarawa State, to the south by Delta, Edo and Ondo States, to the west by Ekiti and Kwara States and to the East by Benue, Enugu and Anambra States (National Population Commission 2007).

Kogi State is divided into four agricultural zones namely; Zone A, B, C and D. It consists of 21 Local Government Areas, it has a population of 3,278,487 inhabitants (National Population Commission, NPC, 2007). It covers a land area of 30,354,74 square kilometres(Km²). It comprises of the Igala, Ebira, Okun and Bassa as the main ethnic groups in the State (Zakari,1991).

Agriculture is the principal means of livelihood; over 85% of the working population are farmers engaged in crop production. Farming is the traditional occupation with main emphasis on cultivation of food crops and keeping of small livestock (sheep and goats) and poultry (fowls and ducks) on free-range basis.

Kogi State has fertile soil which supports a variety of crops which ranges from annuals to perennials. The important crops being grown in the area include yam, maize, rice,

cassava, groundnut, Bambara nut, sorghum, melon, sweet potato, cowpea, pigeon pea cocoyam, mango and citrus (Ukwuteno, 2011.)

Other occupation of the people in the state includes fishing and trading. Fishing is practiced or embarked upon mainly by people along the bank of river Niger and Benue and the hinterland. Grazing of cattle is also practiced by Fulani cattle rearers. Trading is carried out in the entire state with more women participating (Onucheyo, 1998; Abdulahi, 2004).

There are two main seasons in the area, dry and rainy season. The rainy season begins towards the end of March and ends toward the end of October. Dry season commences in November and last until late February, December, January are cold months due to the influence of the North-East trade wind that ushers in the harmattan.

The vegetation consists of rainforest and evergreen forest along riverbanks. Deciduous forest and wooded savannah are found in some areas. Some of the notable trees include the locust bean, baobab, sheabutter, iroko, mahogany, silk-cotton and so on; and some notable grasses *Pennisetum purpureum* (Elephant grass), *Panicum maximum* (guinea grass), *Andropogon tectorum* (southern gamba), *Imperata cylindrical* (spear grass) and so on. Though the influence of human activity has greatly modified the vegetation of the area.

3.2 Sampling Procedure

Multi-stage sampling technique was employed in the selection of respondents for this study. In the first stage, one local government area was purposively selected from each of the four agricultural zones, based on the level of experience of farmer/herder conflict.

In the second stage, purposive sampling was used to select four villages from each of the LGA depending on the level of farmer/herders conflict, making a total of 16 villages. In the third stage, simple random sampling technique was employed to select 50 farmers each from Dekina and Ibaji, while 30 respondents each were selected from kaba/Bunu and Adavi LGA respectively. This is because from the reconnaissance survey carried out, there were

more farmers in Ibaji and Dekina than in Kaba/Bunu and Adavi, which led to the proportional selection of farmers in the area. This gave a sample size of 160 respondents that was used for the study.

3.3 Method of Data Collection

Data for this study were collected mainly from primary source. Data were collected using questionnaire, administered to the farmers. An oral interview was also used in conversational manners to elicit information from the respondents. The questionnaire were designed to capture information on the socio-economic characteristics of farmers, major causes of conflict, farmers coping strategies to conflict and other relevant information.

3.3.1 Validation and reliability of instrument

The instrument for data collection in this study was validated by passing it through experts, who gave their independent opinions on the adequacy and relevance of the research instrument to ensure that it possess both face and content validity. Each of the experts was given a draft copy of the questionnaire accompanied with specific research objectives, research questions and hypothesis. The experts were from the department of Agricultural Economics University of Nigeria Nsukka, Nigeria. Their observations and comments were used in the production of the final copies of the instruments.

3.4 Data Analysis

The nature and purpose of study determines the types of data analysis to be employed (Chukwuone, 2009). Also, according to Eboh (2009), any study that requires a detailed analysis of quantitative relations needs a higher level of analyses other than descriptive statistical tools. Data for the study were analysed with descriptive and inferential statistics. Objective (i), (iii), (v) and (vi) were analysed with descriptive statistics such as frequency distribution tables, percentages, mean and frequency. Objective (ii) was analysed using a 4-point likert type rating scale.

3.4.1 Multiple Regression Analysis

Objective (iv) was achieved using multiple regression analysis. The model specification is as follows;

$$Y = f(X_1, X_2, X_3, X_4, X_5, \dots, X_n), e \text{ (implicit form)}$$

Where;

Y = farmers farm income(Naira)

X_1 - X_n = independent variables, and

e = error term or random disturbance

The hypothesized factors influencing household (farmers) farm income are

X_1 = farm location (km)

X_2 = number of times fear of herdsmen prevented you from going to farm(number)

X_3 = size of crop farms lost due to livestock grazing activities (ha)

X_4 = loss of crop due to bush burning (kg)

X_5 = contamination of stream by cattle (Dummy: Yes or No)

X_6 = number of times you fought with herdsmen in your farm area(number)

X_7 = has there been uncontrolled grazing in your farm area (Dummy: Yes or No)

X_8 = years of farming experience(years)

X_9 = female sexual harassment by herdsmen in your area (Yes or No)

X_{10} = educational status of crop farmers (years)

X_{11} = household size of crop farmers(number)

X_{12} = availability of credit for farming activities (Dummy: Yes or No)

3.4.2 Likert Type Scale Rating Technique

A likert scale is a psychometric scale in survey research. When responding to a likert questionnaire item, respondents specify their levels of agreement or disagreement on a symmetric agree –disagree scale for a series of item statement. The scale captures intensity of their feelings. This was used by Oni (2015), to determine the factors influencing farmers willingness to engage in agroforestry practices in Ekiti State, Nigeria. A 4-point rating scale was employed in this study. This was regarded as strongly agree (SA), agree (A), disagree (DA), and strongly disagree (SD), with corresponding values of 4, 3, 2, and 1 respectively. The mean score of the respondents based on the 4-point rating scale was computed as $4+3+2+1/4 = 2.50$ cut off point. Based on this, any score below 2.50 ($MS < 2.50$) was taken as a weak factor and may not be considered while those with mean score of above 2.50 ($MS > 2.50$) was taken as strong factors and considered.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

4.1.1 Age

Majority (61%) of the respondents were aged between 31 and 50 years while 30% were between 50 years and above. The average age of the respondents was 49 years. It could therefore be inferred that farming was predominantly carried out by middle aged people who were still energetic and hence productive and within the economically active age to carry out farming activities.

4.1.2 Gender

On gender of the respondents, the result presented in Table 4.1 showed that a greater percentage of the respondents (76%) were male while the remaining (24%) were female. This shows that more male were involved in farming activities in the study area.

4.1.3 Level of Education

The result showed that 14% of the respondents had no formal education, while over 80% of them had formal education. About 39% attended primary schools, 25% attended secondary school while about 21% attended higher institution at various level. It could be inferred that there was high level of literacy among the farmers in the study area.

4.1.4 Household Size

Majority of the respondents (80%) had household size of 6 to 10, while 14% of them fell within the range of 1 to 5 persons per household and only about 5% had above 11 persons per household. The average household size was 7 persons. The implication is that the relatively large family sizes may mean more people to cater for and more hands to work on the farm to further reduce hired labour.

4.1.5 Marital Status

The result showed that 4% of the sampled respondents were single. About 88.75% were married while 5% were widowed and 1.88% divorced.

4.1.6 Farming Experience

The result showed that 56.25% had between 16 and 30 years of farming experience, 41.25% had between 1 and 15 years of experience, 1.88% had between 31 and 45 years of experience, while 0.63% had above 45 years of experience. The average years of farming experience was 17 years. This shows that the farmers had adequate exposure to farming activities.

Table 4.1 Frequency Distribution of the Respondents by their Socio-economic Characteristics (n =160)

Variable	Frequency	Percentage (%)
Age		
20-30	11	6.88
31-40	17	10.63
41-50	83	51.88
>50	49	30.63
Total	160	100
Sex		
Male	123	76.88
Female	37	23.12
Total	160	100
Level of Education		
Never Attended	23	14.38
Primary	63	39.37
Secondary	40	25.00
Tertiary	34	21.25
Total	160	100
Household size		
1-5	23	14.38
6-10	128	80.00
>11	9	5.62
Total	160	100
Marital Status		
Single	7	4.38
Married	142	88.75
widowed	8	5.00
Divorced	3	1.88
Total	160	100
Farming Experience		
1-15	66	41.25
16-30	90	56.25
31-45	3	1.88
> 45	1	0.63
Total	160	100

Source: Field data, 2016

4.2 Major Causes of Conflict between Herdsmen and Farmers

The major causes of farmer-herder conflict were examined using a 4 point likert rating scale as shown in Table 4.2. From the respondent's perspective, the most important cause of conflict was the destruction of crops by cattle (mean = 3.83). This was followed by competition for land (mean = 3.60), indiscriminate bush burning by herders which causes destruction to crops on the field was also considered as a major source of conflicts between farmers and herders (mean = 3.48). During the dry season, grasses and forage dry up and the herdsmen believe that if the dried vegetation is burnt, fresh pasture would regenerate. In the process of burning, the fire spreads into adjoining farms. Disregard for the host traditional authority was equally seen as a major cause of conflict (mean = 3.41).

Another major cause of conflict as opined by crop farmers was contamination of streams by herds of cattle (mean = 3.34) and female harassment by the herdsmen especially when cases of rape were established (mean = 2.76). This finding is in agreement with the study done by Ofuoku and Isife (2009) which stated that destruction of crops, disregard for traditional authorities and contamination of stream were the major causes of conflict between herdsmen and crop farmers.

However crop farmers regarded encroachment of grazing land (mean = 2.01), harassment of herdsmen (mean = 1.93), indiscriminate defecation by cattle on roads (mean = 2.36) and burning of fadama houses (mean = 2.05) as minor causes of conflict essentially because farmers do not have the courage to harass or confront the herdsmen for fear of being maimed or killed. In addition, indiscriminate defecation by cattle on roads can be over looked as it does not constitute any direct economic loss, while burning of fadama houses seldom happens.

Table 4.2 Major Causes of Conflict between Herdsmen and Farmers

Variable	Mean	Standard Deviation	Remark
Destruction of crops	3.83	0.29	major cause
Competition for land	3.60	0.47	major cause
Indiscriminate bush burning	3.48	0.45	major cause
Stray cattle into crop farms	3.45	0.52	major cause
Disregard to traditional authorities	3.41	0.49	major cause
Contamination of stream	3.34	0.50	major cause
Sexual harassment of women by herdsmen	2.76	0.60	major cause
Indiscriminate defecation by cattle on roads	2.36	0.83	minor cause
Burning of range land, fadama and houses	2.05	0.90	minor cause
Encroachment of grazing land	2.01	0.83	minor cause
Harassment of nomads by host youths	1.95	0.77	minor cause

Source: Field data, 2016

4.3 Extent of Agricultural and Socioeconomic Loses Incurred by Crop Farmers

Agricultural losses took various forms including the loss of land, crops, properties, stored produce, and farm equipment among others as shown in Table 4.3. About 81% of the respondents lost between 40 to 70% of their land, 13% lost above 80% of their land while only 6.24% lost 0 to 30% of their land to farmer-herder conflict. About 86% of them lost between 40 to 80% of their crops to farmer-herder conflict. While 88% of them indicated to have lost 40 to 70% of their properties. About 74% of the respondents lost between 40 to 70% of their stored produce to farmer-herder conflict. While 14% of them lost about 80% of their farm equipment.

About 56% of them were unable to repay 80% of the loan they took. 75% of the respondents recorded above 80% decrease in output, while only 4.38% recorded 0 to 30% decrease in output.

Table 4.3 Agricultural Losses Incurred by Crop Farmers

Land lost to farmer herder conflict			Crop lost to farmer herder conflict		
Losses (%)	Frequency	Percentage	Losses (%)	Frequency	Percentage
0-30	10	6.24	0-30	10	6.24
40-70	129	80.63	40-70	137	85.63
>80	21	13.13	>80	13	8.13
Total	160	100	Total	160	100
Properties lost to farmer/herder conflict			Stored produce lost to conflict		
Losses (%)	Frequency	Percentage	Losses (%)	Frequency	Percentage
0-30	12	7.50	0-30	19	11.88
40-70	141	88.13	40-70	119	74.38
>80	7	4.38	>80	22	13.75
Total	160	100	Total	160	100
Loans unable to repay			Recorded decrease in output		
Losses (%)	Frequency	Percentage	Losses (%)	Frequency	Percentage
0-30	7	4.38	0-30	11	6.88
40-70	63	39.38	40-70	29	18.13
>80	90	56.25	>80	120	75.00
Total	160	100	Total	160	100
Farm equipment lost to farmer/herder conflict					
Losses (%)	Frequency	Percentage			
0-30	17	10.63			
40-70	120	75.00			
>80	23	14.38			
Total	160	100			

Source: Field data, 2016

To examine further, the extent of agricultural and socioeconomic losses, a 4 point likert rating scale was used as shown in Table 4.4. Majority of the respondents suffered various losses from farmer-herder conflict, especially economic losses. Many of the losses were categorized by the respondents as high extent; These were, loss of land (mean = 3.66), loss of crops (mean = 3.65), reduction in output (mean = 3.53), loss of properties (mean = 3.53), scarcity of food (mean = 3.4), loss of produce in storage (mean = 3.37) and inability to repay loan (mean = 3.32). These losses implied reduction in farm production and income of the crop farmers. From the analyses, displacement (mean = 2.35), interruption to children's education (mean = 2.48), impairment and disability (mean = 2.35), and loss of farm

equipment (mean = 2.18) were not regarded as severe economic losses as compared to the major ones. This is in agreement with similar studies by Okoli and Atelhe (2014) who reported that the economic effect of the conflict situation could be seen in terms of losses associated with destruction of homes, farmlands, community assets, loss of produce in storage and household properties. This shows that there is diminishing fortunes of agricultural productivity in the study area.

Table 4.4 Extent of Agricultural and Socioeconomic Loses Incurred by Crop Farmers

Variable	Mean	Standard Deviation	Remarks
Loss of land	3.66	0.42	High extent
Loss of crops	3.65	0.45	High extent
Loss of properties	3.53	0.46	High extent
Reduction in output	3.53	0.46	High extent
Scarcity of food item	3.40	0.51	High extent
Loss of produce in storage	3.37	0.53	High extent
Inability to repay loan	3.32	0.47	High extent
Interruption to education of children	2.48	0.87	low extent
Displacement	2.35	0.90	low extent
Impairment and disabilities	2.35	0.90	low extent
Loss of farm equipment	2.18	0.88	low extent

Source: Field data, 2016

4.4 Determinants of the Effect of Conflict on the Farmers Farm Income

Table 4.5. Present the results of multiple regression analysis of the effect of the conflict on farmer's farm income. The semi-log functional form was chosen as the lead equation. The coefficient of multiple determination (R^2) of 0.69 implied that 69% of the variation of the farmers' farm income were accounted for by the independent variables. The F-value of (22.38) indicated that the overall equation was highly significant at ($p < 0.01$). Six of the variables tested were statistically significant; the variables were number of times the

fear of herdsmen prevented crop farmers from going to farm, size of crop farm lost, loss of crops due to bush burning, uncontrolled grazing, female sexual harassment, and education.

Table 4.5: Regression Result Showing the Factors Influencing Farmers Farm Income

Variables	Linear	Semi-Log++	Double Log	Exponential
Constant	-69894.2 (-0.80)	11.34576 (39.27)	10.06746 (15.23)	274445 (5.31)
Farm location	872.9684 (0.17)	0.0048573 (0.30)	0.2064458 (-1.47)	79916.81** (-1.84)
Fear of going to farm	1238.923 (0.35)	-0.6467767** (-2.23)	-1.08202.3** (2.67)	-0.1843172** (2.42)
land lost	119585.3*** (4.11)	-0.355153*** (-3.70)	-0.711486 (-0.78)	-24902.86 (-0.89)
Crop lost	-154619.8** (-2.32)	-0.5104033** (-2.33)	-0.0122677 (0.21)	3558.558 (0.20)
Contamination of stream	-20338.84 (-0.72)	-0.0029622 (-0.30)	-0.0433998 (0.61)	-6917.717 (-0.32)
Fight with herdsmen	-7382.599 (-1.48)	-0.139768 (-0.85)	-0.2025571** (-1.85)	-5161.988 (-0.16)
Uncontrolled grazing	-26022.01 (-0.35)	-0.6645899** (-2.07)	-0.0791136 (-0.71)	-14944.08 (-0.44)
Farming Experience	2275.875 (1.03)	0.0032197 (0.44)	0.2687874** (2.05)	0.9026562*** (6.09)
Sexual harassment	-1793.244*** (-0.06)	-0.1848491** (-2.02)	-76640.3** (-2.26)	-411389.6** (-2.02)
Educational level	30736.26 (6.63)	0.105008*** (6.87)	0.8622357*** (5.15)	0.0236281** (2.39)
Household size	9953.977 (1.33)	0.0199651 (0.81)	0.2348109 (1.24)	-25206.22 (-0.70)
Credit availability	22726.27 (0.56)	0.1016452 (0.76)	0.0077772 (0.07)	1.837694 (1.03)
R ²	0.450	0.695	0.603	0.495
Adjusted R ²	0.405	0.646	0.546	0.446
F-Ratio	10.02	22.38	4.70	9.87
Root MSE	1.605	0.5106	0.58199	0.5406

Note:***, **, denote significance at 1% and 5% respectively.

Figures in parenthesis are t-values

++: Lead equation

Computed from field data, 2016

Educational level attained was positive (0.105008) and statistically significant at 1% level of probability. This implied that the more educated a farmer is the more enlightened he or she is in managing conflict and adopting coping strategies. This result is in agreement with

Nwankwo (1999), who stated that level of educational attainment is likely to affect the degree of one's business alertness and ability to seize business initiatives and advantages, hence increased income.

Number of times the fear of herdsmen prevented crop farmers from going to farm had a negative (-0.6467767) effect on farmers income and was statistically significant at 5% level of probability. The result is in consonance with *a priori* expectation. The sign implied that the more farmers avoided farming due to fear of herdsmen, the less their farm income. Crop farmers were scared of going to their farms for fear of being killed, maimed or sexually harassed, this has resulted in decreased agricultural production and consequently, reduction in farm income.

Size of crop farm lost was negative (-0.3551538) and was statistically significant at 1% level of probability. The sign of the variable is in consonance with *a priori* expectation. The result implied that as size of crop farm lost increased, the income of farmers decreased and vice versa. Land lost has not only created an impediment on the survival of the host communities, but has for instance, led to crop-farmers abandoning farming for other occupations like Okada riding and trading.

Loss of crops due to bush burning was negative (-0.5104033) and was statistically significant at 5% level of probability. The sign of the variable is in agreement with *a priori* expectation. The result implied that as loss of crops due to bush burning increased, the income of farmers decreased and vice versa. Reduction in income and output of crop farmers may also occur as a result of indiscriminate bush burning and destruction of crops by herdsmen which led to either partial or total loss of crops by the farmers. The effect on crop yield, therefore has negative impact on the affected farmer's income. This tends to negatively affect farmer's savings, credit repayment ability, as well the food security and economic

welfare of rural and urban dwellers that depend on these farmers for food supply, thus, farming and rural/agricultural development is discouraged. This finding is consistent with that of Ofuoku and Isife (2009) who reported that many farmers lost part or the whole of their crops as result of bush burning.

Uncontrolled grazing by herdsmen was negative (-0.6645899) and was statistically significant at 5% level of probability. The sign of the variable is in consonance with *a priori* expectation. The result implied that as uncontrolled grazing increased, the farmer's income decreased and vice versa. This is because herdsmen most often allow their cattle to graze on fallow land continuously and over-grazing emanates there off. This causes erosion on the plot of land thereby making it infertile and difficult to cultivate by the farmers.

Female sexual harassment was negative (-0.1848491) and statistically significant at 5% level of probability. It agrees with *a priori* expectation that as female sexual harassment increased, their farm income decreased, this is because female farmers were scared to go to farm for fear of been maimed or raped. This has drastically reduced agricultural labour force and hence farm production and income in the area.

Therefore, the result meant that the activities of herdsmen significantly influence farmer's farm income. Hence, the null hypothesis was rejected and the alternative accepted.

4.5 Farmers Coping Strategy

The result presented in Table 4.6 showed the descriptive statistics of the use of coping strategies among the respondents. Farmers generally used a combination of strategies, as no single strategy is enough to bring the needed succor to the farmers as a result of the conflict. In the institutional measure, 80.8% of the respondents depended on compensation from State Emergency Management Agency (SEMA) to cushion the effect of farmer-herder conflict,

while 75.5% used borrowing of loan to diversify means of livelihood. About 75% used selling of asset and 60% resorted to short term migration. Sixty five percent used shifting to other jobs, while 30% of the farmers used sowing less as coping strategy.

In support seeking measures, it was found that assistance from relatives (70%) was the most commonly used measure in ameliorating the effects of conflict, seeking help from traditional institutions was 60%. A vast majority of the respondents did not use litigation as a coping strategy, despite the fact that there are regulations regarding the use of agricultural land in the study area. This may be due to the respondents' decision to accept the situation as their fate. Seeking help from local governments (20%) was the least adopted coping strategy by farmers, perhaps because there was no enabling environment for that to occur.

Accepting the conflict situation as act of fate (70%) was found to be the most commonly used emotion oriented coping strategy. The ability to accept the situation with equanimity among farmers is not only a psychological coping strategy, but is also capable of reducing the escalation of violent conflict between the crop farmers and herdsmen. Sixty percent resorted to praying for peace, indicating their level of religious attachment. While only 10% pretended that the conflict was not bad, indicating that pretence was not a common coping strategy among the respondents.

Table 4.6: Frequency Distribution of Farmers Coping Strategies.

Variables	Frequency	Percentage
Institutional Measures		
1. Compensation of losses from SEMA	129	80.8
2. Borrowing of loan to diversify means of livelihood	120	75.5
3. Selling of asset	120	75.0
4. Shifting to other jobs	104	65.0
5. Short term migration	94	60.0
6. Sowing less	49	30.0
Support Seeking Measures		
7. Help from relations	110	70.0
8. Help from village leaders	94	60.0
9. Help from local Government	49	30.0
Emotion-oriented Measures		
10. Accepting conflict as fate	110	70.0
11. Praying for peace	94	60.0
12. Pretending the conflict wasn't bad	17	10.0

Multiple Responses*Source: Field data, 2016**

To examine further, the degree of use of the aforementioned Institutional, support seeking and Emotion-oriented measures, the level of intensity of use of the measures were examined using a 4 point likert rating scale as shown in table 4.7 respectively. The following measures were highly intensified by the respondents with their mean score greater or equal to 3 (i.e $MS \geq 3$); compensation from SEMA (mean = 3.65), borrowing of loan to diversify means of livelihood (mean = 3.50), and selling of asset (mean = 3.49). The remaining institutional measures were intensified with their mean score below 3 (i.e $MS \leq 3$) these were

short term migration (mean = 2.95) and shifting to other jobs (mean = 2.80) while sowing less was not intensified (mean = 2.20).

In the support seeking measures, help from relations (mean = 3.46), and help from village leaders (mean = 3.40) were very much intensified while help from local government (mean = 2.30) was not intensified.

In the emotion-oriented measures, accepting conflict as fate (mean = 3.35) praying for peace (mean = 3.20) were very intensified while pretending conflict was not bad (mean = 1.9) was not intensified by the respondents as coping strategy to farmer-herder conflict.

Table 4.7: Mean and Standard Deviation of Level of Intensity of Coping Strategies Used by Crop Farmers in Kogi State

Variables (Institutional measures)	Mean	Standard Deviation	Remarks
1. Compensation from SEMA	3.65	0.53	very intensified
2. Borrowing of loan to diversify means of livelihood	3.50	0.38	very intensified
3. Selling of asset	3.49	0.51	very intensified
4. Short term migration	2.95	0.46	Intensified
5. Sowing less	2.20	0.64	Not intensified
6. Shifting to another job	2.80	0.56	Intensified
Support Seeking Measures			
7. Help from relations	3.46	0.50	very intensified
8. Help from village leaders	3.40	0.60	very intensified
9. Help from Local Government	2.30	0.61	Not intensified
Emotion-oriented Measures			
10. Accepting conflict as fate	3.35	0.51	Intensified
11. Praying for peace	3.20	0.53	Intensified
12. Pretending the conflict was not bad	1.90	0.75	Not intensified

Source: Field data, 2016

4.6 Institutional and Government Strategies towards Resolving Conflict

Institutional and governmental strategies towards resolving conflict were examined using a 4 point likert rating scale. From the analysis, Table 4.8a showed that most of the respondents (mean = 3.61) reported traditional rulers as the major arbitrator of conflict involving crop farmers and herdsmen in the study area. This was followed by farmers association (mean = 3.35) and police (mean = 2.62) while law court was (mean = 2.17). Ordinarily, one would have thought that the formal means of social control (Police and Court) will be the most preferred conflict resolution agencies due to their being more specialized, informed, and neutral.

However, results of this study showed that almost half of the respondents reported traditional rulers as the major arbitrator of conflict involving Farmers and herdsmen. This is in agreement with similar studies by Adebayo and Olaniyi (2008), and Kehinde, (2014), who reported that traditional leader, was mostly used by crop farmers to resolve conflict. The reason for this choice may not be unconnected with the fact that valuable time is usually lost when cases are taken to the police or court in investigation and prosecution which sometimes defeats the purpose. This result shows that informal traditional mechanisms for conflict resolution are still functional in the study area.

Table 4.8a Institutional and Government Strategies towards Resolving Conflict

Variable	Mean	Standard Deviation	Remark
Traditional rulers	3.61	0.27	Major institution
Farmers association	3.35	0.49	Major institution
Police	2.62	0.64	Major institution
Law court	2.17	0.68	Minor institution

Source; Field data, 2016

Strategy towards resolving farmer/herders conflict was examined using a 4 point likert rating scale. The result in Table 4.8b showed that, the respondents received compensation (mean = 3.60) in return for the losses suffered due to damages to their crops and farm land. This was followed by peaceful resolution with mean of (mean = 3.53), while verbal warning followed with mean of (mean = 3.35). The choice of compensation by farmers as a way of settling conflict may be to reduce the loss suffered and to prevent future likelihood of the conflict being repeated.

Table 4.8b Strategies towards Resolving Farmer/herders Conflict

Variable	Mean	Standard Deviation	Remark
Compensation	3.60	0.40	Major strategy
Peaceful resolution	3.53	0.53	Major strategy
Verbal warning	3.35	0.46	Major strategy

Source; Field data, 2016

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1: Summary

This study assessed the economic effects of cattle rearers activities on crop farmers in Kogi State. A multi-stage random sampling technique was used to select 160 respondents. Structured questionnaire was developed to obtain the required information from the respondents. Data collected were analysed using descriptive and inferential statistics such as frequency, percentage, mean, likert scale, and multiple regression model. The result of the analysis showed that about 51% of the respondents were between the ages of 41 to 50 years with an average of 49 years. About 76% of the respondents were male while 24% were females. Greater percentage of about 39% had primary education; about 25% and 21% had secondary and tertiary education respectively, while 14% had no formal education. On the household size, it was found out that about 14% of the respondents had between 1 to 5 persons, while 80% had above 5 to 10 persons. About 88.75% were married only 4% were single while 5% and 1% were widowed and divorced respectively.

Information on the causes of conflict as perceived by the farmers indicated 11 possible causes of farmer-herder conflict. Their level of importance was examined using a 4 point likert scale and their mean value ranged from 1.95 to 3.83, the result showed the conflict in order of importance, destruction of crops (mean = 3.83), competition for land (mean = 3.60), indiscriminate bush burning (mean = 3.48), stray cattle into crop farms (mean = 3.45), disregard for traditional authorities (mean = 3.41) contamination of stream (mean = 3.34) sexual harassment of women by herdsmen (mean = 2.27), indiscriminate defecation by cattle on roads (mean = 2.36), burning of range land, fadama and houses (mean = 2.05), encroachment of grazing land (mean = 2.01) and harassment of nomads by host youths (mean = 1.95)

The result of the extent of agricultural losses due to farmer-header conflict showed that 80% of the respondents lost over 70% of their land, 85% of the respondents lost over 80% of their crops, 88% lost 70% of their properties, 74% lost over 70% of their stored produce. Similarly, 56% were unable to repay loan while 75% recorded over 80% decrease in output.

The regression result on the effect of conflict on farmers farm income showed a statistically significant relationship between size of crop farm lost, number of times the fear of herdsmen prevented crop farmers from going to farm, loss of crops due to bush burning, uncontrolled grazing, female sexual harassment, and education.

The findings of this study showed that crop farmers coping strategies were compensation from SEMA (mean = 3.65), borrowing of loan to diversify means of livelihood (mean = 3.50), selling of assets (mean = 3.49), assistance from relatives (mean = 3.46), assistance from village leaders (mean = 3.40), accepting conflict as fate (mean = 3.35), praying for peace (mean = 3.20) and short term migration (mean = 2.95) were employed by the crop farmers to reduce the effect of farmer-herder conflict on them.

Similarly, a 4-point likert rating scale was used to measure institutional and government strategy towards resolving conflict, the respondents identified compensation (mean = 3.60), peaceful resolution (mean = 3.53), and verbal warning (mean = 3.35) as the most strategy in resolving conflict in the study area through major institutions like traditional leaders (mean = 3.61), farmers association (mean = 3.35), Police (mean = 2.62) and law court (mean = 2.17) were not seen as viable means of resolving conflict in the study area. This is because valuable time is usually lost when cases are taken to the police or court in investigation and prosecution which sometimes defeats the purpose.

5.2 Conclusion

The study assessed the economic effect of cattle rearers activities on crop farmers in Kogi State. The phenomenon of herder-farmer conflict in Kogi State typifies what is known as resource conflict in contemporary literature. This thrives in an atmosphere of ecological scarcity and competition, as well as livelihood crisis. The problem has been accentuated by the global trend of climate change which has led to the shrinking of ecological space and resources, leading to intense pressure on, and competition for, the available resources.

Some possible causes of farmer-herder conflict were identified such as destruction of crops, competition for land, contamination of stream, sexual harassment of women by herdsmen and stray cattle into crop farms amongst others. The empirical result indicated that agricultural losses associated with farmer-herder conflict include, loss of crop, loss of farmland, loss of stored produce, loss of farm equipment, loss of properties and inability to repay loan. To this effect a list of farmers coping strategies such as selling of assets, borrowing of loan, short term migration and shifting to other jobs amongst others were used by the crop farmers to cushion the effect of farmer-herder conflict in Kogi State. Policies that will eliminate and address farmers-herder conflict should be formulated by government at various levels as well as Non-Governmental Organizations (NGOs)

5.3 Recommendation

1. Enlightenment campaign programmes aimed at educating the people on the origin, nature and effects of conflicts on their socioeconomic life and the need to safeguard their natural resource base should be made effective at Local Government level. This will also expose the people to early warning signs of conflicts in order to nip them in bud.

2. Governmental agencies/ministries responsible for agriculture, lands, geographical information systems, forestry and natural resources should ensure proper delineation and regular revision of stock routes.
3. The herdsmen should adopt a viable and intensive system of grazing in order to cope with the rapid demographic pressure on the grass fields across the country. They should embark on greater fodder production to feed the cattle especially in times of scarcity during the dry season.
4. The government at different levels should intervene and carryout periodic sensitization workshops for both crop farmers and herdsmen.
5. There is need for the institution of a community security system with emphasis on training of people to effectively participate in the act of preventing, resolving and managing conflict at the communal level and strengthen them where they exist.
6. Financial institutions, such as rural development and microfinance banks, and agricultural insurance companies, should work towards financial assistance for victims of farmer-herdsmen conflicts.
7. In view of the rapid population pressure and declining farmlands there is the need to adopt improved farming techniques. The farmers should adopt intensive cultivation by using improved seeds and farm inputs.

REFERENCES

- Abbas, I. M. (2010). No retreat no surrender: Conflict for survival between Fulani pastoralists and farmers in Northern Nigeria. *European Scientific Journal*, 8(1), 331-346.
- Abel, T. (1941). The element of decisions in the pattern of war, *American Sociological Review*, 1 (6).
- Abdullahi, E. (2004). Tomato marketing in Ankpa Local Government Area of Kogi State. Project Submitted to Department of Agricultural Economics and Extension, Kogi State University, Anyigba. 22-26.
- Adisa, R. S. (2011). Management of farmer-herdsmen conflict in North-Central Nigeria: Implications for collaboration between agricultural extension service and other stakeholders. *Journal of International Agricultural Education and Extension*, 18 (1), 60-72.
- Adogi, M. (2013). *Fulani-farmers conflicts in Nasarawa State: The ecology, population and politics*. Abuja: Murry Greens Consult.
- Ahmadu, H. J. (2011). Farmer-herder conflict: Exploring the causes and management approaches in the Lake Chad region Nigeria: being a dissertation submitted in fulfilment of the requirements for the award of Doctor of Philosophy, College of Law, government and international studies, University Utara Malaysia.
- Ajuwon, S.S. (2004). Managing Conflicts of Interests In Community Development: Conflict in Fadama Communities – Case study on Fadama Conflicts Issues, <http://info.worldbank.org/etools/docs/library/39228/Conflict%20management.doc>, [file// local host/f:/Conflicts%20in%20fadama%20Areas%20srpeache.htm](file://local%20host/f:/Conflicts%20in%20fadama%20Areas%20srpeache.htm)
- Akpaki, A.Z. (2002). *Ackerbauern and mobile tierhatter in Zentral & Nord-Benin*. Berlin: Dietrich Reiner Verlag.
- Albert, I.O. (1999). “New directions in the management of community conflicts in Nigeria: Insights from the activities AAPW” in Albert, O.I and Otite, O. (eds) community conflicts in Nigeria: management resolution and transformation, Ibadan: Spectrum Books Ltd.
- Aldrich, J. & Nelson, F. (1984). *Linear probability, Logit and probit models*, Beverly Hills: Sage Publications.
- Amaza P.S, & Maurice, D.C (2005). Identification of factors that influence technical efficiency in rice-based production systems in Nigeria. Paper presented at Workshop on policies and strategies for promoting rice production and food security in sub-Saharan Africa: 7- 9 November 2005, Cotonou (Benin).
- Awoke, M.U.(2001). *Econometrics: Theory and application*. Rose and apple seed Abakiliki.

- Azubike & Ugborgu. (2006, 2 October). Murder at Midnight. *Newswatch*. p 64; CEHRD Monitor. Soldiers Kill Policeman, two Others over missing Cattle. Accessed from 2936&rang=1
- Barbra, G.T, & Linda, S.F. (2013). *Using multi-variate statistics*. (6th edition).
- Barongo, Y.B. (1987). *Ethic Pluralism and Democratic Stability: The basis for conflict and conflict and consensus* in S.E Oyovbaire (ed), democratic experiment in Nigeria: Interpretative essay, Omega Publishers, Benin.
- Bassey C.O. (2002). Framework for the conflict transformation Project in Warri in Imobighe, T.A.; Bassey, C.O. and Asuni, J.B. (Eds) *Conflict and instability in the Niger-Delta: The Warri case*, Ibadan: Spectrum Books Limited.
- Bashir, M. (2014, May 23). Soldiers kill six migrant herders in Saminaka. *Daily Trust*. P. 8.
- Bassett, T.J. (1988). The political ecology of peasant-herder conflicts in the Northern Ivory Coast', *Annals of the Association of American Geographers* 78(3), 453-472.
- Beets, W.C. (1990). *Raising and sustaining productivity of smallholder farming systems in tropics*. AgBe Publishing, Alkmaar.
- Benjaminsen, T.A., Maganga, F.P. & Moshi, A.J. (2009) The Kilosa killings: Political ecology of a farmer-herder conflict in Tanzania. *Development and Change*, 40, 423-455.
- Best, S. G.(2006). The methods of conflict resolution and transformation. In Shedrack Gaya Best (Ed.) *Introduction to Peace and Conflict Studies in West Africa: A Reader*. Ibadan: Spectrum Books Limited, pp. 65-95.
- Blench, R. (2004). *National resources conflict in North-Central Nigeria: A handbook and case studies*. Mallam Dendo Ltd.
- Blench, R. M. (2003). The transformation of conflict between pastoralists and cultivators in Nigeria. Paper in press for a special issue of the Journal Africa.ed.M.Montz. Retrieved From [http://www.rogerblench.infor/Development/Nigeria Livestock survey.pdf](http://www.rogerblench.infor/Development/Nigeria%20Livestock%20survey.pdf) on December 19, 2012.
- Bovin, M. (1990). 'Nomads of the drought: Fulbe and Wo'daabe nomads between power and marginalization in Sahel of Burkina Faso and Niger Republic' in M. Bovin & L. Manger (eds) *Adaptive Strategies in African arid Lands*, The Scandnavian Institute of African Studies, Uppsala, pp 29 -59.
- Central Bank of Nigeria, CBN, (2005). Annual reports and statement of accounts. Abuja, Nigeria.
- Central Bank of Nigeria. (2006). CBN Banking supervision annual report December, 31.
- Chikaire, J., Atala, T.K., Akpoko, J.G. & Nnadi F.N. (2011). Factors influencing agricultural land-use conflicts in ohaji Area of Imo State, Nigeria Report and Opinion.3(5) <http://www.sciencepub.net/report>

- Chukwuone, N.A. (2009). Socioeconomic determinant of cultivation of non-wood forest product in southern Nigeria. *Journal of biodiversity and conservation*, 18(2), 339-353.
- Collins Dictionary (2013). Ranching. 10th Edition, Collins English Dictionary—Complete and Unabridged. <http://dictionary.reference.com/browse/ranching>
- Coser, L.A. (1956). *The Functions of Social Conflict Glencoe III: The Free Press*.
- Davidheiser, M. & Luna, A.M. (2008). From complementarity to conflict: A historical analysis of farmer-Fulbe relations in West Africa. *African Journal on Conflict Resolution* 8 (1), 77-104.
- De Haan, C. (2002). Nigeria Second Fadama Development Project (SFDP), Project preparation mission report, livestock component, World Bank. Pp1-13.
- Deutsh, M. (1973). *The resolution of conflict: constructive and destructive Processes*. New Haven, CT: Yale University Press.
- De Young, R. (1999). Tragedy of the commons. DOI: 10.1007/1-4020-4494_328 Retrived from <http://www.researchgate.net/publication/25949630>
- Dixon, J., Guliver, A.& Gibbon, D. (2001). Farming systems and poverty. Improving farmer's livelihood in a changing world (summary). FAO and World Bank, Rome and Washington DC.
- Donohue, W.A.& Kolt, R. (1992). *Managing interpersonal conflict*. Newberry, Park Calif: Sage Publications.
- Dunstan, G. M. (2013). Farming systems and crop-livestock land use consensus. Tanzanian perspectives. *Open Journal of Ecology*, 3(2), 473-481.
- Eboh, E.C. (2009). Developing conceptual framework for empirical research. In Anya Koha,E.U(Ed). *Developing research skills: concepts and conceptual frameworks*. Nsukka:Great Ap express publishers ltd.
- Ekanola, B.A. (2004). Beyond isolation, towards cooperative relations and the resolution of ethnic conflicts in contemporary society. *CODESRA Bulletin*, (3 & 4).
- Ekong, E.E. (2003). *Introduction to Rural Sociology*. Dove Educational publishers, Uyo Nigeria.70-85.
- Enete,A., Ignatius,I.M., Josephat, C.M., Anthony, N.O., Elizabeth, A.O., & Fidelis, E. (2011). Indigenous agricultural adaptation climatic change: Study of Southeast Nigeria. Research paper, African technology policy studies network (ATPS) Nairobi,Kenya.
- Eniola, F. (2007). Key issues in livelihoods security of migrant fulani pastoralists: Empirical evidence from Southwest Nigeria”. AEGIS European Conference on African studies – African Alternatives: Initiative and Creativity beyond Current Constraints – 11-14July 2007 African Studies Centre, Leiden, the Netherlands.

- Farlex (2013) Ranch. The free dictionary by Farlex. Farlex Inc., Huntingdon Valley, Pennsylvania.
- Fasona, M. J. & Omojola, A. S. (2005). Climate change, human security and communal clashes in Nigeria. Paper at international workshop in human security and climate change, Holmen Fjord Hotel, Oslo Oct. 21-23, 2005.
- Fayinka, F. A. (2004). Food security in Nigeria: Challenges under democratic dispensation. Paper Presented At 9th Agriculture and rural management training institute annual Lecture, March 24, 2004.
- Fiki C, & Lee, B. (2004). Conflict generation, conflict management and self organising capabilities in drought-Prone rural communities in North Eastern Nigeria; A case study of social development in Africa. *Journal of social development in Africa*, 19 (2) 25-48.
- Food and Agricultural Organization (FAO) (2012). Urban and peri – Agriculture. Food and Agricultural Organization (FAO) of the United Nations, pp 19-23. Retrieved 19 January, 2013 from Integrated Regional Information Network, IRIN, (2010, April 30). Nigeria: Farmer-pastoralists' clash leaves 32 dead. IRIN News.
- Fratkin, E. (1997). Pastoralism: governance and development issues. *Annual Review of Anthropology* 26:235-261.
- Franken, R. E. (1994). Human motivation, 3rd ed. Belmont: Brooks/Cole. pp21.
- Fratkin, E., & Roth, E. A. (2005). The Setting. In: Fratkin, E., Roth, E. A., and Nathan, M. (Eds.): *As Pastoralists Settle*; New York (NY, USA): Kluwer Academic/Plenum Publisher pp. 29 –52.
- Fresco, L.O.(1986). Cassava in shifting cultivation: A systems approach to agricultural technology development in Africa. Royal Tropical Institute, Amsterdam.
- Fricke, W. (1979). Cattle husbandry in Nigeria: A study of its ecological conditions and social-geographical differentiations. Translated by J. Hellen and G. Cockburn. Heidelberg:13-20.
- Fujimoto, T. (2009). Armed herders, unarmed farmers, and the state. An analysis of violent conflicts in the middle Omo valley with reference to case of Malo, south west Ethiopia. *Nilo-Ethiopian Studies*, 13, 63-77.
- Gbehe, N.T. (2007). Geo-political perspectives on resource control in the middle belt regions of Nigeria: Periscoping agriculture in Benue economy, Makurdi, pp.132 – 157.
- Group for Tropical Agricultural Development Studies and Research (GERDAT) (1982). *Le gazette des systemes* (Mission systemes agraires). Groupment d'Etudes et de recherches pour le developpement de l'agronomie tropicale [The systems gazette (agricultural systems mission)]. Montpellier.
- Gilbert, S. (2014). The tragedy of the commons. *Toxipedia connecting science and people*.

- Gujarati, D. N., & Porter (2009). *Basic Econometrics*. 5th edition. McGraw-Hill/Irwin: New York.
- Habu, I. (2007, December 26). 2 Policemen, five Others die in Communal Clash. *Daily Champion*. Accessed from http://www.nigeriawatch.org/index.php?urlaction=evtView&id_evt=
- Hagberg, S. (1998). Between peace and justice dispute settlement between Karaboro agriculturalists and fulbe agro-pastoralists in Burkina Faso. Uppsala: Uppsala Studies in Cultural Anthropology. P 25.
- Hardin, G. (1968). The tragedy of the commons. Retrieved from <http://www.jstor.org/stable/1724745>
- Haro, G.O, & Doyo, G.J. (2005). Linkages between community, environmental, and conflict management: Experiences from Northern Kenya. *Journal of World Development*. 33 (2), 285-299.
- Herrero, S. (2006). Desertification and environmental security. The case of conflicts between farmers and herders in the arid environments of the Sahel. In: Kepner, W. G., Rubio, J. L., Mouat, D. A., and Pedrazzini, F. (Eds.): Desertification in the Mediterranean Region. A Security Issue; pp. 109 –132. NATO Security through Science Series C. Environmental Security.
- Hibbs, W.C. (1974). The defective pressure cooker: Dispute processes in the university”. *Journal of Higher Education*, 65.
- Homer-Dixon, T.F. (1999). *Environment, scarcity, and violence*. Princeton: University Press.
- Hornby, A.S. (1995). *Oxford advanced learners dictionary of current english*, 5th Edition. Oxford University Press, New York.
- Horowitz, D. L. (1985). *Ethnic groups in conflict*. Berkeley and Los Angeles: University of California Press.
- Hussein, K. (1998). Conflict between Farmers and herders in the semi-arid Sahel and East Africa: A Review. Pastoral Land Series 10. London: IIED/OD Group.
- Hussein, K., J. Sumberg, & D. Seddon (2000). Increasing violent conflict between herders and farmers in Africa: claims and evidence. *Development policy review* 17, 397-418.
- Ibekwe, U.C.(2010). Determinants of income among farm households in Orlu Agricultural Zone of Imo State, Nigeria. *Report and Opinion*, 2(8), 32-35.
- Ibekwe, U.C., Eze, C.C, Onyemauwa, C.S, Henri-Ukoha, A., Korie, O.C & Nwaiwu, I.U. (2010). Determinants of Farm and off-farm income among farmhouse holds In South East Nigeria. *Academia Arena*, 2(10), 58-61
- Ibitoye, S. J. (2014). Economic analysis of palm oil marketing in Dekina Local Government area of Kogi State, Nigeria. *Asian Journal of Social Sciences, Arts and Humanities*, 2(1), 5.

- Ibitoye, S.J, Orebiyi, J.S., & Ekine, D.I. (2012). Socio-economic variables of farmers and their profitability levels in maize production in Kogi State, Nigeria. *International Journal of Agriculture and Rural Development*. 15 (2), 1008 – 1013.
- International Livestock Research Institute, (2006): Exploring farmer-herder relations and conflict management in Niger. <http://www.ilri.org/ilrinews/index.php/archives/474>
- Ingawa, S. A; Ega, L. A; & Erhabor, P. O. (1999). Farmer-pastoralist conflict in core-states of the National Fadama Project, FACU, Abuja.
- Integrated Regional Information Network (IRIN) (2004). Africa: Diminishing water resources could fuel conflicts – experts, integrated regional information Network, 5 November.
- Integrated Regional Information Networks (IRIN), (2012). Bukina Faso: Preventing conflict between farmers and herders. IRIN, Kano.
- Iro, I. (1994). Grazing Reserve Development: A panacea to the intractable strife between farmers and herders, file:localhost:Conflicts-%20fulani-farmers%20 Fulani 8.htm J.IsawaElaigwu and R.A. Akindele – 1996, foundations of Nigerian Federalism 1960-1995.
- Jeong, H.W. (2000). *Peace and Conflict Studies: An Introduction*, Aldershort : Ashgate
- Joseph, H. (2014, October 14). Four killed in renewed Farmers/Herders Feud in Nasarawa. *Daily Trust*. Accessed from http://www.nigeriawatch.org/media/doc_acc/DT2012-02-17h_2.pdf.
- Joshua, S. (2013). Politics and conflicts: a study of Ebiraland, Nigeria (1977-2007). A thesis submitted to the department of political science and international relations, school of social sciences, college of development studies, Covenant University, Ota.
- Kehinde, E. A. (2014). Conflict management strategies to reduce consequences on livelihoods of fulani cattle herders and farmers in Kabba-Bunu, Kogi State, Nigeria. *Nigerian Journal of Rural Sociology*, 14 (2), 15-21
- Klein, S.M. & Ritti, R.R. (1980). *Understanding Organizational Behaviour. The conflict process*, Kent Publishing Company. Boston, Massachusetts, U.S.A. pp. 50-65.
- Krantz, B.A. (1974). Cropping patterns for increasing and stabilizing agricultural production in the semi-arid tropics. International Workshop on Farming Systems, International Center for Research in Semi-Arid Tropics (ICRISAT), Hyderabad, 18-21 November 1974.
- Lalo, M. (2010, October 21). Fulani Herdsman, thirty Cows Killed in Jos. *Daily Trust*.P.2
- Lambrou, Y. & Laub, R (2006). Gender, local knowledge, and lessons learnt in documenting and Conserving agrobiodiversity. WIDER Research Paper; RP2006/69. Helsinki. UNU-WIDER.
- Lazarus R. S. (2000) *American Psychologist* pp 665-673.

- Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York, Springer.
- Lederach, J. P. (1995). *Preparing for peace: Conflict transformation across cultures*; New York: Syracuse University Press.
- Lederach, J. P. (1997). *Building Peace: Sustainable reconciliation in divided societies*, Washington, D.C.: United States Institute of Peace Press.
- Meur, P.L., Hochet, P., Shem, M. & Touré, O. (2006). Conflict over access to land & water resources within sub-saharan dry lands: Underlying factors, conflict dynamics and settlement processes GRET-FAO LEAD Final Report.
- Mbah, S.O. (2006). Resources management for rice production in Ishiagu, Ivo L.G.A. of Ebonyi State.
- McEnery, J. H. (1985). Towards a new concept of conflict evaluation, *Conflict All Welfare Short of War* 6(1). New York: Crane Russak.
- Miall, H., Oliver R, & Tom W. (1999). *Contemporary Conflict Resolution*, Cambridge: Polity.
- Miller, C. A. (2003). A glossary of terms and concepts in peace and conflict studies Geneva: University for Peace.
- Mitchel, C. & Banks, M. (1996). *Handbook of conflict resolution: The analytical problem-solving approach*, london: Printer.
- Mitchell, J. T., & Everly, G. S. (1996). *Critical incident stress debriefing: an operations manual*. Ellicott City: Chevron. Pp 31.
- Moore, K. M. (2005). *Conflict, social capital and managing resources: A West African case study*. CABI Publishing, Cambridge, USA.
- Moritz, M. (2009). Farmer-herder conflicts in Sub-Saharan Africa. The encyclopaedia of Earth. http://www.eoearth.org/article/Farmer-herder_conflicts_in_Sub-Saharan_Africa?topic=49530
- Moritz, M. (2010). Understanding herder-farmer conflicts in West Africa: Outline of a processual approach human organization. 69(2),
- Musa, N. (2009, September 20). Bandits Attack Three Communities, Kill One. *The Guardian*. P.5
- National livestock policy (NLP), (2006). The United Republic of Tanzania Ministry of Livestock Development. 2006.
- National Population Commission (2007). Population census. Federal Republic of Nigeria official Gazette 94(24), 182-183.
- Nchi, S.I. (2013). *Religion and politics in Nigeria: The constitutional issues*. Jos: Greenworld.

- Nwanegbo, C.J. (2005) Them Against Us: A Critical Appraisal of the Bourgeois/State Sponsored Conflicts in Anambra” in Yakubu, A.M.; Adegboye, R.T.; Ubah, C.N. and Dogo, B. (eds) *Crisis and Conflict Management in Nigeria since 1980. Vol.2.* Kaduna: Nigeria Defence Academy.
- Nweze N.J. (2005). Minimizing farmer-herder conflicts in Fadama Areas through Local Development Plans: Implications for increased crop/livestock productivity in Nigeria. Paper presented at the 30th Annual Conference of the Nigerian Society for Animal Production, held 20th – 24th March.
- Nwolise, O.B.C. (1997). “ECOMOG Peace-Keeping Operation in Liberia: Effect on Political Stability in the West African Sub-Region” *African Review, Journal of National Defence College*, April 1(1).
- Nyong, A., & Fiki, C. (2005). Droughts-related conflicts, management and resolution in the West African Sahel. Human security and climate change International Workshop. Oslo; GECHS, CICERO and PR20. Pp 5-16
- Nzeh, E. (2015). The effects of migration by nomadic farmers in the livelihoods of rural crop farmers in Enugu State. *Global Journal of Science Frontier Research: Agriculture and Veterinary*, 15 (3), 21-27.
- Obasi, F. C. & Agu, S. E. (2000). Economic of small scale rice farmers under different production system in South Eastern Nigeria. *Journal of Agriculture, Business and rural development*, 1(2), 17.
- Ofem, O. & Inyang, B. (2014). Livelihood and conflict dimension among crop farmers and Fulani herdsman in Yakurr region of Cross River State. *Mediterranean Journal of Social Sciences*, 5(8), 512.
- Ofuoku, A.U.& Isife B. I. (2009) Causes, effect and resolution of farmers: Nomadic cattle herders conflict in Delta state, Nigeria. *International Journal of Sociology and Anthropology*, 1(2), 47-54.
- Olabode, A.D. & Ajibade, L.T. (2010). Environment induced conflict and sustainable development a case of fulani-farmers’ conflict in Oke-Ero LGA, Kwara State, Nigeria. *Journal of Sustainable Development in Africa*, 12(5), 259.
- O’Neil, S. (2012, October 14). Two dead as fulani, Indigenes clash in Delta. *The Nation*. Accessed from http://www.nigeriawatch.org/media/doc_acc/N2012-01-31p9.pdf
- Oni,F.O. (2015). Factors influencing farmers willingness to engage in agroforestry practice in Ekiti State, Nigeria. An unpublished thesis submitted to the Department of Agricultural Economics University of Nigeria, Nsukka.
- Ogen, O. (2007). The agricultural sector and Nigeria's development: A comparative perspective from the Brazilian agro-industrial economy: 1960- 1995.
- Ogieve E. (2003). *Comprehensive agricultural science*. Lagos: A. Johnson publishers Ltd.
- Ogunwole J., Bello, A.L., & Owonubi (2004). Environmental characterisization of cereal producing areas of Nigeria. 285-290.

- Okoli, A.C, Atelhe, G.A. (2014). Nomads against natives: A Political ecology of herder/farmer conflicts in Nasarawa State, Nigeria. *American International Journal of Contemporary Research*, 4 (2), 76-88
- Olaoye, O. (1999). Developing drought tolerant varieties for the savannah agro-ecologies of Nigeria in 25th year commemorative publication of Genetic Society of Nigeria. 173-182.
- Omotosho, M. (2004). Evaluating conflict and conflict management: A conceptual understanding. *African Journal of International Affairs and Development*, 9 (1&2),
- Onah, M. (2010, August 18). Trans-border bandits kill ten in Adamawa. *Thisday*. P. 8
- Onoja, A. O, & Herbert B. C. (2012). Econometric evaluation of rice profitability determinants in Kogi State, Nigeria. *Journal of Agricultural Extension and Rural Development*, 4(5), 107-114.
- Onucheyo, E. (1998). Women in Agriculture in Political Decisions in the Nigerian Agricultural Industry. Published by Tamaza Publishing Co. Ltd. No. 9 old Jos Road, Kongo, Zaria. Pp 98-99.
- Onuoha, F.C. (2007). The state and water conflict in Africa: A focus on the Lake Chad, 1960 – 2007. M.Sc. Thesis submitted to Department of Political Science, University of Nigeria, Nsukka.
- Onyekuru, A.N & Marchant, R. (2014). Resource use conflict in West Africa: Developing a framework for resilience building among farmers and pastoralists. *African journal of agricultural resource*, 9(52), 3825-3837.
- Osuala,E.C. (1982). *Introduction to research methodology*. African FEB publ., Onitsha, Nigeria.
- Otite, O. (1999). On Conflicts, their management, resolution and transformation In Albert O.I and Otite .O. (eds) *Community Conflicts in Nigeria: Management Resolution and Transformation*, Ibadan Spectrum Books Ltd.
- Oyeshola, D.O.P. (2005). *Conflict and Context of Conflict Resolution*, Ile-Ife, Nigeria: Obafemi Awolowo University Press Ltd.
- Oyeyipo, S. James, S. & Sanda, J. (2016, June 20). The new terror threat. *Thisday*. P 10.
- Powell, J.M. & Williams T.O. (1995). An overview of mixed farming systems in sub-Saharan Africa. Pages 21–36 in Livestock and sustainable nutrient cycling in mixed farming systems of sub-Saharan Africa. Volume II. Technical Papers, edited by J.M.Powell, S. Fernández-Rivera, T.O. Williams and C. Renard. International Livestock Centre for Africa (ILCA), Addis Ababa, Ethiopia.
- Pratt, D.J., Le Gall, F. & de Haan, C. (1997). Investing in pastoralism. Sustainable natural resource use in Arid Africa and the Middle East. World Bank, Washington DC.<http://dx.doi.org/10.1596/0-8213-3943-5>.

- Pruitt, D.G., & Rubin, J.Z. (1986). *Social conflict*. New York: McGraw-Hill.
- Rimando, T. J. (2004). Fundamentals of crop science. U.P.los Banos; University publication office.p.1
- Robinson, J. & Clifford A. (2010). Conflict management in community groups. Urbana University of Illinois. Cooperative Extension services. 100-120.
- Ross, M.H. (1993). Oil, drugs, and diamonds: The Varying roles of natural resources in civil war in Karen Ballentine and Jake Sherman, eds. *The Political Economy of Armed Conflict: Beyond Greed and Grievance*. Boulder, Co: Lynne Rienner.
- Ruthenberg, H. (1983). *Farming systems in the tropics*. 3rd Edition, Clarendon Press, Oxford.
- Sabiu, M. (2013, June 22). Blood, Tears in Zamfara, Kaduna: IGP deploys Armed Policemen. *Saturday Tribune* p. 5
- Salau, S.A. (2013). Determinants of technical inefficiency among maize-based farming households in Niger State, Nigeria. *Ethiopian Journal of Environmental Studies and Management*, 6 (5), 17
- Sandford, J & S. Ashley (2008). Livestock livelihoods and institutions in the IGAD Region
- Schama, S. (1996). Landscape and memory. Harper Collins, London. 231.
- Seddon, D & J. Sumberg (1997). Conflict between farmers and herders in Africa: an analysis-project Semi-Arid (Rangelands) Production System - Department for International Development.
- Shettima, A. G., & Tar, U. (2008). Farmer-pastoralist conflict in West Africa: Exploring the causes and consequences. *Information, Society and Justice* 1(2), 163 –184.
- Sills, D. (1968). Modernization: Political aspect, *The International Encyclopedia of Social Science*, 5. New York: The Macmillan Company Free Press.
- Smith, T.L. (1969). Agricultural-pastoral conflict: A major obstacle in the process of rural development. *Journal of Inter-American Studies*, 11, 16-43.
- Swinton, S. (1987). Drought survival tactics of subsistence farmers in Niger. *Human Ecology*, 1(2), 108 - 122.
- Tenuche, M. & Olarenwaju, I.(2009). Resource conflict among farmers and Fulani herdsmen: implication for resource sustainability. *African journal of political science and international relations*, 3(9), 360-364.
- Thebaud, B., & S. Batterbury (2001). Sahel pastoralists: Opportunism, struggle, conflict and negotiation. A case study from Eastern Nigeria. *Global environmental change* 11, (69 – 78)
- The Shell Petroleum Development Company of Nigeria Limited (2006). Diary.

- Thomas, D.S.G.; Twyman, C.; Osbahr, H.; & Hewitson, B. (2007). Adaptation to climate change and variability: Farmer responses to intra-seasonal precipitation trends in South Africa *Climate Change*, 83, 301–322.
- Tonah, S. (2006). Farmer –herder conflict in volta region of Ghana. *Journal of social sciences*. 2(1), 6-10
- Turner, M. (2004). Political ecology and moral dimensions of resource conflicts: The case of farmer-herder conflict in the Sahel. *Political Geography*, 23, 863-889.
- Uja, E. (2011, February 15). Eighteen killed in Dawn raid of Benue Communities. *The Nation*, P 3
- Uji, W.T. (2005). Appraisal of the use of coercive instrument in the management of conflict in the Benue valley in Yakubu A.M, Gogo B., Adegboye, R.T. (eds) *Crisis and Conflict Management in Nigeria Since 1980*, Nigeria Defence Academy Kaduna: Book Series 2 (1).
- Ukwuteno, S.O. (2011). Economics of small-scale oil palm production in Kogi state, Nigeria. A Ph.D thesis presented to the Department of Agricultural Economics, Faculty of Agriculture, University of Nigeria, Nsukka.
- Vengroff, R. (1980). *Upper Volta: Environmental Uncertainty and Livestock Production*. Texas:
- White, L., & Wickens, G. (1976). Land-use in the Southern margins of the Sahara In management of semi-arid ecosystem. Edited by B. Walker. Amsterdam:Elsevier Scientific Publishing Company: 26
- Wilmot,w.w., & Hocker, J.L.(1988) *Interpersonal conflict*, 5th ed.Boston, Mass. McGraw-Hill.
- Zamtato, G.B. (2003). Civil society and ethnic conflict management: Lessons from other African States In Imobighe, T.A. (Ed) *Civil Society and Ethnic Conflict Management in Nigeria*, Ibadan: Spectrum Books Limited.
- Zakari, M.D. (1991). *My Mission, My Vision: Kogi State of Nigeria - Magazine*.

Department of Agricultural Economics
University of Nigeria,
Nsukka.
November, 2016

Dear Respondent,

REQUEST FOR RESPONSE TO QUESTIONNAIRE

I am a postgraduate student in the above named Department and institution, undertaking a research work on “an assessment of the economic effects of cattle rears activities on farm households in Kogi State, Nigeria.

Please kindly provide objective answers to the questions herein. All information provided will be treated with utmost confidentiality as they are meant for academic purposes only.

Thanks for your patience and cooperation.

Yours faithfully,
Ukwuteno, A. Benson
(Researcher)

ANSWER ALL QUESTIONS AND TICK (✓) IN THE APPROPRIATE SPACE PROVIDED

Zone:

Local Government Area:

Ward/ Village:

SECTION A: Socio- economic Characteristics of Farmers

1. Name (optional)

2. Gender: (a) Male [] (b) Female []

3. Age:

4. Marital status: (a) Married [] (b) Single [] (c) widowed [] (d) Divorced []

5. How many years did you spend in formal education.....

6. Number of people in your Household:

7. Farm Size (ha):

8. What is the distance of your house to the farm?km

9. Years of farming Experience

10. Do you have any other occupation outside farming? Yes [] No []

11. If yes specify: (a) artisan [] (b) civil service [] (c) trading [] (d) others []

12. Type of Farming: (a) Crop Farming [] (b) livestock Farming [] (c) Both crop and livestock []

13. Annual Income ₦:

SECTION B

Major Causes of the Conflict between Herdsmen and Farmers

14. How many times have you experienced conflict with herdsmen since you started farming.....?

15. What do you think has been the cause(s) over the years?

SA = strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

S/N	Major Causes of Conflict	SA	A	D	SD
1.	Destruction of crops				
2.	Burning of range land, Fadama and houses				
3.	Competition for land				
4.	Contamination of stream				
5.	Indiscriminate bush burning				
6.	Sexual harassment of women by herdsmen				

7.	Indiscriminate defecation by cattle on roads				
8.	Stray cattle into crop farms				
9.	Harassment of nomads by host youths				
10.	Disregard to traditional authorities				
11.	Encroachment of grazing land				

Any other causes please specify

1.....

2.....

SECTION C

Extent of Agricultural and Socioeconomic Losses Incurred by Crop Farmers

16. To what extent do you incur agricultural losses?

VHE = Very high extent; HE =High extent; LE = low extent; VLE = very low extent

S/N	Agricultural losses incurred by farmers	VHE	HE	LE	VLE
1.	Loss of land				
2.	Loss of properties				
3.	Loss of crops				
4.	Scarcity of food item				
5.	Loss of produce in storage				
6.	Inability to repay loan				
7.	Reduction in output				
8.	Displacement				
9.	Interruption to education of children				
10.	Impairment and disabilities				
11.	Loss of farm equipment				

Any other losses please specify

1.....

2.....

Extent of Agricultural losses in percentage

1. What is the percentage of your land lost.....

2. What is the percentage of your crop lost.....

3. What percentage of your properties did you lost

4. What percentage of your stored produce did you lost

5. What is the percentage of your farm equipment lost.....

6. What is the percentage of people displaced.....

7. What is the percentage of people impaired and disabled.....

8. What is the percentage of those who were unable to repay loan.....

SECTION D

Determine the effect of conflict on the farmer's farm income

17. Do you experience indiscriminate bush burning on your farm land? Yes [] No []
18. Has the fear of herdsmen ever prevented you from going to farm? Yes [] No []
19. If yes what are your reasons?
- i. Fear of been killed Yes [] No []
- ii. Fear of been sexually harassed Yes [] No []
20. How many times has this fear prevented you from going to farm
21. Have you lost farm land due to grazing activities Yes [] No []
- i. If yes what is the estimated size in hectares.....
22. Did you loss farm produce due to indiscriminate bush burning? Yes [] No []
- i. if yes what is the estimated size in kg.....
23. Do herdsmen contaminate stream/river in your farm area? Yes [] No []
- i. How many times has this contamination or farm encroachment lead to fight?
24. Do you have access to formal credit? Yes [] No []
25. Are you a member of any farmer's cooperative society? Yes [] No []

SECTION E

Farmers Coping Strategies

26. Have you used any form of coping strategy to minimize the effect of conflict on your agricultural activities? Yes [] No []
27. If yes which of the following coping strategy are you using to reduce the effect of conflict on your farming activities?

Use the following options to state their importance;

Very important (VI) =4 Important (I) =3 Slightly Not important (SNI) =2 Not Important (I) = 1

S/N	Institutional measures	VI	I	SNI	NI
1.	Compensation of losses from state emergency management agency				
2.	Borrowing of loan to diversify means of livelihood				
3.	Selling of asset/farm				

4.	Short term migration				
5.	Borrowing money				
6.	Sowing less				
7.	Buying of food				
8.	Shifting to another job				
	Support seeking	VI	I	SNI	NI
9.	Help from village leaders				
10.	Help from relations				
11.	Sought litigation				
12.	Help from Local Government				
	Emotion-oriented	VI	I	SNI	NI
13.	Praying for peace				
14.	Transferring of aggression				
15.	Accepting conflict as fate				
17.	Pretending the conflict wasn't bad				

Any other strategy please specify

1.....

2.....

Section F

Institutional and government strategies towards resolving the conflict

28. Is there any form of institutional or government strategy towards resolving the conflict in your area? Yes [] No []

29. If yes what are the major strategy towards resolving the conflict

S/N	How conflict was resolved	Strongly Agree	Agree	Disagree	Strongly disagree
1.	Compensation				
2.	Peaceful resolution				
3.	Verbal warning				

Any other strategy please specify

1.....

2.....

30. Who were the major actors responsible for the resolution of this conflict?

S/N	People responsible for conflict resolution	Strongly Agree	Agree	Disagree	Strongly disagree
1.	Farmers association				
2.	Traditional rulers				
3.	Law court				
4.	Police				

Any other actor please specify

1.....