

*An Analysis of the Impact of Cattle  
Rustling on Agricultural Output*

**A Case Study of Magami Area Development  
Council (ADC)**

BY

**IBRAHIM MUHAMMAD**

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**OCTOBER, 2018**

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AGRICULTURAL OUTPUT: A CASE STUDY OF MAGAMI AREA  
DEVELOPMENT COUNCIL (ADC)**

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**A PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
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**DEPARTMENT OF ECONOMICS  
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FEDERAL UNIVERSITY GUSAU.**

**October, 2018**

## DECLARATION

I, certify that this project work is carried out by Ibrahim Muhammad of the Department of Economics Federal University Gusau, is an embodiment of original work and has not been submitted in part or full to this university or any higher institution of learning.


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
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### CERTIFICATION

The project work titled "*The Impact of Cattle Rustling on Agricultural Output*" carried out by Ibrahim Muhammad meets the requirements governing the award of Bachelor Of Science Economics of Federal University Gusau, and is approved for its contribution to knowledge and literary presentation.

  
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Date

## DEDICATION

This project work is dedicated to  
Almighty Allah (S.W) for His Blessings,  
Guidance and Mercies over me.

## ACKNOWLEDGEMENT

First and foremost, my gratitude goes to Almighty ALLAH S.W.A who has been guiding me and blessing me with everything in life, May peace and blessings be upon to the best of creations, the prophet Muhammad (s.a.w), and his companions and Righteous till the last day.

My appreciation goes to my parents, most especially my mother Aishatu Aliyu Muhammad for her support and prayers, May God accept it as sadaqat-aljariya for them amin.

When a tedious job has been done, one has to refer back and think who and who contributed towards the success of the job. As a matter of fact, I must acknowledge my debt of gratitude to my project supervisor, **MAL. HUSSAINI DEMBO**, without whose diligent guidance and advice this study would not have seen the light of the day I also wish to thank and appreciate the effort made by **MAL. RUFAI DANSADAU** staff Ministry for local government and chieftaincy affairs Zamfara state for his effort toward the success of the work may Allah reward you all amin.

I wish to place on record the commitment and sacrifice made by my lecturers such as prof. Zakari, prof. Tukur, prof. H. I Aleiru, prof. N. Gatawa, Dr. Mikailu, Mal. Mustapha Kanoma, Mr. Sunday Elejah, Mal. Abdulganu, Mal. Mansir A. Mal. Namadina and the entire staff of Economics Department May Almighty ALLAH reward you all amin.

I will not side line the effect of my friends like Nura Ahmad, Nasiru Yahuza Anka, Hamza Oelakin, Surajo Tukur, Muhammad Sani, Ibrahi Jinjiri, Shamsudden D. Usman, Haruna Bello, Samuel Iorver, Bashir Sani Lawal, Abbakr I. Yaya Amin Ayuba Madada, Fatima I, Sakina S. Marvelous Oga, Goodness C. Berakat Y.

Also I must acknowledge the contribution given to me by entire family and all others who contributed in one way or the other toward the completion of this programme, May ALLAH reward you all Amin

## ABSTRACT

*This study is to analyze the impact of cattle rustling on agricultural output in Magami ADC. The data for the study for the period 2011 to 2018 were collected mainly from primary sources. The data were analyzed and presented using tables, percentages using the Spss statistics software and the hypothesis were tested using Chi-Square method of data analysis. The findings shows that cattle rustling has significantly affected the agricultural output in Magami ADC therefore the study suggested that there is need for government to provide a lasting solution to prevailing cattle rustling not only in Magami ADC but through the country. This will help to improve production of agricultural output and attain food security.*





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## CHAPTER ONE

### 1.1 Background to the Study

Cattle rustling is past becoming a major crime in Nigeria recently with Northern region being hit the hardest. In the past few years rustling activities have resulted in the theft of huge number of cows, destruction of lives and properties, daily report across the northern region and some research findings supported this view, Rustlers' activities are now characterized by the use of modern weapons, and their operations are both trans-location and transnational (Alemika, 2013). It has been reported that in 2013, gunmen armed with automatic weapons attacked the commercial farms of Vice-President Namadi Sambo, along Birnin Gwari road in Kaduna, and also the commercial farms of the Emir of Zaria, Alhaji Shehu Idris, in Zaria — taking over 1,000 cows in the former case and 200 in the later. High-profile cases of cattle robbery of this nature are common place, involving millions of naira (Weekly Trust, May 16, 2015). Cattle rustling have significantly contributed to the increasing security challenge facing the Nigerian states and seen to have become big business involving the headers and heavily armed bandits. However, despite the growing level of cattle rustling and its consequences for society, the situation is yet to receive adequate scholarly interrogation (Azeez and Aliyu 2016). Virtually all of the states of Northern Nigerian are affected by the rustling. Tony and Bodumin (2014) reported that several villages in the area lying between the four Northern state such as Kaduna, Katsina, Zamfara and Niger have been under siege from cattle rustlers who freely unleash terror on hapless herders and cow farmers.

## 1.2 Statement of the Problem

Although cattle's rustling is not a new problem in Nigeria, but it has never been a major threat to agricultural output than this time, with daily report across the nation particularly the Northern Nigeria of people being killed, kidnap, burning of houses and farm produces. In the past there has been tendency by scholars to underestimate the issue of cattle rustling as a mere conflict between farmers and herders. For instance Abass (2012) contends that the major source of tensions between pastoralists and farmers is basically economic, with land related issues accounting for the majority of the conflicts. This can then be situated within the broader context of the political economy of land struggle, traceable to a burgeoning demography in which there is fierce competition for fixed space to meet the demands of the growing population (Olabode and Ajibade 2010). Yet over the period of time there have emerged of new trends, tendencies and dimension leading to adverse effect on economic activities of the rural area who are mostly farmers and sole trader. Hence the study aimed at investigating the effect of cattle rustling on agricultural output, a case study of Magami ADC Gusau local government Zamfara state.

## 1.3 Objective of the Study

The main objective of this research is to investigate the effect of cattle rustling on agricultural output in Magami ADC, Zamfara state.

Other specific objectives include the following:-

- i. To find if cattle rustling affect agricultural output in Magami ADC.
- ii. To determine if agricultural output increase as a result of cattle rustling.
- iii. To determine if agricultural output decreases as a result of cattle rustling.

#### 1.4 Research Questions

The study should be guided based on the questions stated below

- i. Does cattle rustling affect agricultural output in Magami ADC?
- ii. Does cattle rustling lead to increases in agricultural output in magami ADC?
- iii. Does cattle rustling leads to any significant decreases in agricultural output in Magami ADC?

#### 1.5 Hypothesis Testing

The research hypothesis that will guide the study is as follows;

- $H_{01}$ ; Cattle rustling does not affect agricultural output in Magami ADC
- $H_{02}$ ; Cattle rustling does not lead to increase in the agricultural output in Magami ADC
- $H_{03}$ ; Cattle rustling does not lead to any significant decrease in agricultural output in Magami ADC

#### 1.6 Scope of the study

This research intends to study impact of cattle rustling on agricultural output in Magami ADC, Gusau local government, Zamfara state for the period of 10 years (2011-2017)

#### 1.7 Limitation of the study

Some of the constraints faced while undertaking this research are as follows:-

- i. Security challenges; Due to security problem we cannot reach some of the villages and distribute questioner. This posed a serious challenge on data collection and slowed down the analysis.

- ii. Time frame; the time at my disposal was very limited looking at the complexity nature of the problem under investigation and time frame allocated for this purpose
- iii. Some respondents are not willing to give out information; some time we involve the rural authorities to acquire such information this delayed the analysis of the study

### **1.8 Scheme of chapters**

This study is arranged in five chapters. Chapter one consist the general introduction which includes the background to the study, statement of the problem, objectives of the study, research questions, hypotheses of the study, scope of the study, limitation of the study and scheme of chapters. Chapter two comprises the conceptual issues, the theoretical framework, and review of empirical literature related to the study. In addition, the chapter comprises an overview of Nigeria agriculture. Chapter three is the research methodology involving the research design, sources of data, technique of data analysis model specification, instruments of data analysis and variable measurement. Chapter four is data presentation and analyses. It involves hypotheses testing, interpretation and discussion of results and summary of the findings. Lastly, Chapter five deals with summary, conclusion and recommendations

## CHAPTER TWO

### LITERATURE REVIEW AND THEORETICAL FRAMEWORK

#### 2.0 Introduction

This chapter reviews relevant literature on impact of cattle rustling on Agricultural output. In the light of this, the following will be discussed. The conceptual framework, empirical literature review and theoretical frame work. In addition, we will take an overview of agricultural sector and its contributions to Nigerian economy.

#### 2.1 The Conceptual frame-work

Two main concepts would be considered in this study. These concepts include; the concept of cattle rustling and the concept of agriculture.

##### 2.1.1 Concept of cattle rustling

**Cattle rustling;** cattle-rustling has been defined to mean, 'the stealing or planning, organizing, attempting, aiding or supporting the stealing of livestock by any person from any country or community where the theft is accompanied by dangerous weapons and/ or violence (Abdul and Aliyu 2015). Cattle rustling refer to the practice of stealing cattle and animals from Herders, or the raiding of cattle from the ranches. Although driven by different needs and factors, it is increasingly an economically-based form of criminality perpetuated by informal networks (Kwaja, 2013). Rural banditry thrives as a means of 'primitive' accumulation of Cowherds in the context of subsistence and commercial pastoralism. The most disturbing effect of this banditry is the unsettling of Pastoralist transhumant activities. Furthermore, rural banditry is accompanied by rape, kidnapping, organized attacks on villages and communities, and looting.

### 2.1.2 Factors that influence cattle rustling

Major occurrence is caused by many factors such as unwillingness to share grazing land, rampant drought and famine in the area, etc. Cattle raiding have major effects on the communities living in the affected community. The raids have mainly resulted in deaths and immigration. The high livestock raids have also resulted to high illiteracy levels in the communities, high levels of hunger and poverty among others.

In a study conducted by ( Bashir, 2017) there exist different attributing factors to cattle rustling and banditry However, he identified the following as major factors:

- i Poverty which represented (16.6%), followed by political interference (14.4%), climate change occasioned by droughts and reduced access to water sources (13.3%).
- ii Competition over access and control of scarce natural resources that represented (12.8%) and limited natural resources (11.7%),
- iii Pastoralist culture (Fulani herders) and traditions passed over the years that have promoted animosity in the area (11.7%),
- iiii Commercialization of cattle rustling which represented (10.6%) and Poor policies on pastoralist's community that have destabilized the livelihoods of the community (7.1%)
- iiiii Invading of private farmlands and ranching in search of grazing land (1.9%) which have contributed detrimentally to cattle rustling

**2.1.3 Concept of agriculture;** Agriculture is define as the cultivation of land and breeding of animals and plants to provide food, timber, medicinal plants and other products to sustain and enhance life. Agriculture was the key development in the rise of sedentary human civilization,



whereby farming of domesticated species created food surpluses that enabled people to live in cities. The study of agriculture is known as agricultural science. The history of agriculture dates back thousands of years; people gathered wild grains at least 105,000 years ago, and began to plant them around 11,500 years ago, before they became domesticated. Pigs, sheep, and cattle were domesticated over 10,000 years ago. Crops originate from at least 11 regions of the world. Industrial agriculture based on large-scale monoculture has in the past century come to dominate agricultural output, though about 2 billion people worldwide still depend on subsistence agriculture (Tukur 2016)

## **2.2 Theoretical Frame Work**

### **2.2.1 Agrarian theory of agricultural growth**

A widely recognized paradigm to have influenced the rural development thinking was the theory of agricultural growth based on small farm efficiency. This theory arose as early as 1964 with the publication of transforming traditional agriculture by schuitz.

### **2.2.2 Modern theory of agriculture**

In converse of the modernization and dual economy model that were focusing on large scale modern agriculture and markets which dominated the scene in the 1960s, schuitz put the rational allocation of resources in traditional small farms where the traditional input are used as in a central position of theory. He suggested that small farm particular should form the central focus of an agriculture centred development strategy. Mellor (1966) was among his most important proponents pointing out that the faster agriculture grows, the faster its relative size declines. The World Bank emphasizes that agriculture continues to be a fundamental instrument for sustainable development and poverty reduction in the 21 century. Based on the foregoing this research adopt

the agrarian theory of agriculture because it consider the impact of traditional small scale farming which is predominant in the settings of the area under study.

### 2.3 Empirical Literature Review

Conflicts between farmers and headers in Nigeria are mostly associated with economic and social factors as affirm by some research findings; Abdul and Aliyu (2015), causes and resolution of conflict between cattle hardest and crop farmers in Katsina State, data collected from both secondary and primary source. The data collected were analysed using description statistics, affirmed that, socio-economic variable such as age, low level of formal education, crop damage and land encroachment are some of the major factors of the conflicts, and suggest that formal education for both herders and farmers should be encourage. There should also be enhancement of public information and education on the need to respect the law. Ofuoka and Isife (2009), Causes effect and resolution of farmers nomadic cattle herders conflicts in delta state using primary data (interview). Data collected were subjected to statistical analysis using mean, percentage and frequency count, The hypothesis was tested using T-Test., the study discovered that there are recurrent clashes of interest between the host farming communities and the nomadic cattle herders, and they suggested that, the problem can be minimized through extension intervention by applying local development plan (LPDS) by extension agencies to minimized the conflict, Daisy Vonne et el (2017), Socio economic effect of cattle rusting in Borabu sub-country Nyamiri country Kenya, used primary data questionnaire and interview. Data was analysed using descriptive statistics while quantitative data was analysed using content analysis., Study revealed that cattle rustling in Borabu Sub-country was propagated by traditional practices economic gain, illiteracy, marginalization and poor governance tendencies, they suggest that enlightenment of the community on contemporary ways of life involving ways of

adopting the current time, government and other non-governmental organization should engage in the provision of infrastructure development. Titusp (2013), effect of cattle rustling on economic development, employed primary data (questionnaire), data collected was analysed using descriptive statistics, the study concluded that cattle rustling have impacted negatively on economic development of the region, the study recommend that community empowerment should be at forefront and diversification to other economic activities like farming be encouraged.

Rashid (2017): Studies Land use conflict between farmers and herders, implication for agricultural and rural development in Nigeria, used primary data; (questionnaire), conflict between arable crop farmers over the use of agricultural land still pervasive in Nigeria and it causes socio-economic and psychological effect on the household in the affected areas. The research suggests that there is need for educational intervention in the conflict, traditional and local leaders should be well involved in finding the lasting solution to the conflict. Okoli And Okpaleke (2014), cattle rustling and detective of security in northern Nigeria, used primary data in their analysis, data collected was analysed using descriptive statistics, and conclude that, cattle rustling is one of the critical dimension of public insecurity in contemporary, it poses a senior threat to the national security of Nigeria in view of its dire impact and implication, they also proper as a solution; promoting of community policing especially motorized patrol and surveillance in major grazing areas, urgent remediation of the problem of arms proliferation in Nigeria. Olanigan and Yahaya (2016), cows bandits and violent conflicts: understanding cattle rustling in northern Nigeria. Find out that, Cattle rustling as criminal enterprises has consequences for the socio-economic, political, cultural and psychological sphere of the society. Rustler's activities have resulted in death, loss of lives and destruction of properties thereby

disturbing peace and securities thereby disturbing peace and security of the nation. They advised the importance of Government to deploy security personnel to the forest that served as hideouts to the marauders. Solomon and Chinive (2015), climate change and postural conflicts in the middle belt and south on human resources, the research is export factor in nature and thus relied heavily and literate with quantitative data and deceptive method of analysed., the study revealed that pastoralists migrate largely due to extreme and unfavourable weather condition occasion by climate change. Postural conflict occasioned by climate change has had a far reaching negative consequences on the resources of these regions ranging from waste to absolute destruction and depletion of both human and material resources, the research recommended that active and sincere government intervention through the establishment of grazing corridors or ranches in the region, funding of research and development, establishment of regulatory frame work will help stem the tide.

Ibrahim, and Umar 2016 conducted an assessment of farmer pastoralist conflict in Nigeria using GIS., the study uses spatial data to investigation the causes of farmers-pastoralist conflict in Nigeria. The study primarily uses secondary sources include land use land cover (LULC) maps of Nigeria and published articles of previous farmers-pastoralist conflict in Nigeria. result show that between 1976 and 1995, all land used gain, attesting to the increase in population and competition over dwindling resource. However overlap maps shows intensive crop farming has expanded into grazing lands in many areas over these years. These areas of encroachment agree with most of the conflict points recorded. For lasting solution they proposed a possible revisit of symbiotic engagement between farmers and pastoralist, the full engagement of communities, nongovernmental organizations (NGOs), alternative dispute resolutions (ADRs) with government as overseers are suggested.

## 2.4 Overview of Nigerian Agriculture

Nigeria is a country rich in history and culture, and also blessed with so much fertile land and agricultural resources, an approximate measurement of Nigeria's fertile land sums up at around 81 million hectares. The history of Agriculture in Nigeria dates as far back as before most other countries in Africa, and can be segmented to the pre-colonial, colonial, and post-colonial era. The agricultural life in Nigeria, when looked at from the outside point of view, can be said to be favoured by nature. The soil is rich, the temperature is warm and favours agricultural production; the annual rainfall is very well distributed, and there are no extreme natural disasters posing any threat to lands, crops and other sources of agricultural production.

### 2.4.1 Nigeria agriculture in the Pre colonial Periods

Agriculture has been the major source of livelihood to the country and it serves 75% of the whole population. 18 million hectares of land in Nigeria is classified as permanent pasture, for livestock production. Our ancestors were sustained primarily on products from their individual farms, long before the appearance of the colonial masters. It was the major occupation and it was done with the manual tedious farming technique, yet they managed to produce enough to feed themselves and their compound family. Food crops were produced for eating and cash crops were used for the trade by barter system, across the Atlantic trade region to the end of the Trans Saharan trade. It was an ever progressive period.

### 2.4.2 Nigeria agriculture during the colonial period

Considerable emphasis was placed on research and extension services during the period of the colonial administration in Nigeria (1861-1960). There were notable agricultural developments during the era. like the establishment of the Department of Botanical Research in 1893, the

acquisition of 10.35 square kilometres of land now called the Moor Plantation which was dedicated to the production of cotton in 1905, and the establishment of the Department of Agriculture in the North in 1912.

1921 saw the establishment of the Central Department of Agriculture, shortly after the amalgamation of the Northern and the Southern Nigeria. The major policy was to increase production of export crops for the British market which was also ready to implement it for its industrial growth. This period also saw substantial developments made in the production of crops like rice, groundnut, maize, beans, tomato, and so on. It also saw the establishment of the Niger Agricultural Project in 1949

#### **2.4.3 Nigeria agriculture in the post-colonial Period**

To maintain, further develop, and actualize some agricultural goals in the post-independent era, new policies were formulated. In the pursuit of export-led national revenue generation, there was some sort of agricultural demarcation – Northern Region majored in groundnut production, Western region majored in Cocoa and the Eastern region, Oil palm.

Between 1962 and 1968, Nigeria achieved its plan of a total shift from manual to the mechanical technique of agriculture with the provision of mechanical equipment's to the numerous farmers and making sure they were put through the operation of the equipment's; a move that greatly expanded the agricultural sustainability of the country. Around the 1970s, agriculture in Nigeria began a downward trend, thanks to the oil boom at the time. In 1960, agriculture contributed around 65% to the GDP which was a typical stat for agrarian nations, especially developing ones. However, after the oil boom the percentage took a nose dive to a scary 25%. There was just

slight increase to marginal food production and export crop production almost went on full halt. Thus, large amount of imports had to be made to meet domestic food demand.

Nigeria, between 1970 and 1974, spent a mere N112.88m annually on food importation. The food import bill stands at over N8 billion today. A lot of (frantic) efforts are being made to restore agriculture in Nigeria to what it was, and a lot of committees are being set up, grants and loans are offered to farmers but the bitter truth is that agriculture in Nigeria might never return to what it once was.

## CHAPTER THREE

### Research Methodology

#### 3.0 Introduction

This chapter include research design, population and sample size, sampling method, type and sources of data, technique of data analysis, model specification and variables measurement.

#### 3.1 Research design

This research design involves of series of activities in relation to sample size determination, sampling method type and sources of data, techniques of data analysis, model specification and instruments used in analyzing the data as well as the variables measurement. This can be seen as treated below;-

#### 3.2 Population and Sample Size

The population used for this research was the entire people of Magami ADC which comprises Magami and its environs, although the result of this study is going to be generalized it is not possible to covers the entire population due to the cost and time factors.

#### 3.3 Sampling Method

Simple random sampling technique was used to select sample for the study. Two hundred respondent were randomly selected through the use of table of random numbers.

#### 3.4 Design and Administration of Questionnaire

Taken into cognizance of the difference in assimilation of various respondents, the questionnaire was designed in a very simple way to ensure ease of answers. Also, some



of the questions were designed in such a way that gave room for the respondents to answer in the affirmatives, "Yes, No or No Idea".

### 3.5 Types and Sources of Data

The sources of the data used in this research was mainly from primary source; (structured questionnaire and interview). The questionnaire were design to collect information from the respondents who are mostly farmers, and interviews were also conducted to augment and authenticate the information gathered from the questionnaire. The choice of primary data was guided by the nature of the research which is the impact of cattle rustling to agricultural output hence the primary data is more suitable for the research.

### 3.6 Method of Data Analysis

The collected data were analyzed in tables and percentages, and run using Special Packages For Social Sciences (SPSS), while the hypotheses were tested using the chi square technique. It's thus applied as follows:

$$X^2 = \sum \frac{(o_1 - e_1)^2}{e_1}$$

Where,

$X^2$  = Chi square calculated

O = Observed frequency

E = Expected frequency

Source: (Ayanwu, 2000)

Consequently, a significant level of 5% was applied while the degree of freedom was ascertained by:

$$d.f = (m-1)(n-1)$$

Where,

d.f = degree of freedom

m = number of rows

n = number of columns

### 3.7 Variable Measurement

**Agricultural output** is measured as average of the total number of bags a farmer produce per hectare annually.

**Cattle rustling** is measured by the frequency of the incidence occurrence during the 10 years period

## CHAPTER FOUR

### Data Presentation and Analysis

#### 4.0 Introduction

This chapter is mainly concern with an analysis of the data collected for the purpose of this research work. In this chapter, the data collected are analyzed and interpreted using the Chi-square statistical method analysis as earlier stated.

It should be noted that out of 120 questionnaires distributed 98 were successfully retrieved presenting 81.67% while the remaining 18.33% were not.

#### 4.1 Data Presentation and Analysis

In this section the qualitative data gathered through the use of questionnaire has been analysed by comparing and contrasting the events, patterns and relationships. The data collected for this study were analyzed using simple percentage and tables. The chi -- square statistical technique was also employed to test the hypotheses of the study.

The following are the questions and responses in the questionnaire:-

**Table 4.1: Responses based on the sex of respondents**

RESPONSE	FREQUENCY	PERCENTAGE (%)
Male	76	77.55%
Female	22	22.45%
Total	98	100%

**Source: Questionnaire Administered 2018**

Table 4.1 indicates that 76 respondents representing 77.55% were male, while 22 representing only 22.45% were female. This shows that greater percentage of the respondents were male.

**Table 4.2: What cultivation method do you used?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
Cattle	52	53.06%
Tiller	27	27.55%
Tractor	19	19.39%
Total	98	100%

Source: Questionnaire Administered 2018

Table 4.2 shows that 52 of the respondents representing 53.06% uses cattle for cultivation and 27 of the respondents representing 27.55% uses tiller, while 19 which represent 19.39%. This simply shows that majority of the farmers are using cattle some are using tiller and tractor.

**TABLE 4.3: What is your production level before the period of cattle rustling?**

RESPONSE	FREQUENCY	PERCENTAGE (%)
BELLOW 20 BAGS	10	10.2%
21-50 BAGS	21	21.43%
51-100 BAGS	53	54.08%
101 AND ABOVE	14	14.29%
TOTAL	98	100%

Sources: Questionnaire Administered 2018

table 4.3 shows that 10 respondents representing 10.2% were producing bellow 20 bags before the period of cattle rustling, 21 of them representing 21.43% produces 21 to 50 bags, 53 of them which represent about 54.08% produced between 51 to 100 bags before the period of cattle rustling and 14 of them which represent 14.29% produced above 100 bags. This shows that

majority were producing 51 to 100 bags before the period of cattle rustling and only 10.2% produce bellow 20 bags.

**TABLE 4.4: What is your production level during the period of cattle rustling?**

RESPONSES	FREQUENCY	PERCENTAAGE (%)
BELLOW 20 BAGS	31	31.63%
21-50 BAGS	46	46.94%
51-100 BAGS	15	15.31%
101 AND ABOVE	6	6.12%
TOTAL	98	100

Sources: Questionnaire Administered 2018

Table 4.5 shows that 31 respondent representing 31.63% produces bellow 20 bags during the period of cattle rustling, 46 of them which represent 46.94% produces 21 to 50 bags. 15 of the respondents representing 15.31% produces between 51 to 100 bags and only 6 of the respondents presenting 6.12% produces above 100 bags. This indicates that majority of the respondents produces 21 to 50 bags and only 6 of them produce above 100 bags.

**TABLE 4.5: What do you think is a major contributing factor that leads to the decreased of your production?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
LACK OF IMPROVED SEED AND FERTILIZER	17	17.34%
UNFAVOURABLE WEATHER SEASON	19	19.39%
CATTLE RUSTLING	45	45.9%
OTHERS	17	17.35%

Sources: Questionnaire Administered 2018

Table indicates that 17 of the respondents representing 17.34% opined that lack of improved seed and fertilizer affect their production. 19 of the respondents representing 19.39% claimed that unfavorable weather season has been the major factor affecting their production. 45 of the respondents representing 45.9% believed that cattle rustling is a major factor that contributed to the decreased in the level of their production and 17 of the respondents mentioned other factors like insufficient capital etc. which are not captured in the table. This shows that majority of the respondents believed that cattle rustling contributed to the decrease in their production.

**TABLE 4.6: Does cattle rustling has any significant effect on agricultural output in Magami ADC?**

RESPONSES	FREQESNCY	PERCENTAGE (%)
YES	74	75.51%
NO	24	24.49%
TOTAL	98	100%

Sources: Questionnaire Administered 2018

Table 4.6 indicates 74 of the respondents representing 75.51%, are of the view that cattle rustling has a significant effect on agricultural output while 24 of them which represent 24.49% disagreed with this view. This shows that majority of the respondents acknowledged the effect of cattle rustling on agriculture in Magami ADC.

**TABLE 4.7: Does cattle rustling leads to any significant increase in agricultural output in Magami ADC?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
YES	17	17.35%
NO	81	82.65%
TOTAL	98	100%

Sources: Questionnaire Administered 2018

Table 4.7 shows that 81, representing 82.65% argued that cattle rustling does not lead to an increase in agricultural output and only 17, representing 17.35% of the respondents agreed with this view. This indicates that majority agreed cattle rustling does not lead to increase in agricultural output.

**TABLE 4.8: Does cattle rustling leads to any significant decrease in agricultural output in Magami ADC?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
YES	81	82.65%
NO	17	17.35%
TOTAL	98	100%

Sources: Questionnaire Administered 2018

Table 4.8 shows that 81 of the respondents which represent 82.65% agreed that cattle rustling leads to a significant decrease in agricultural output while 17 of them representing 17.35% had an opposite view. This shows that majority agreed cattle rustling lead to the decrease in agricultural output in Magami ADC.

**TABLE 4.9: What do you think is a major contributing factor that can make you improve from the present level of production?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
IMPROVED SECURITY	53	54.08%
AVAILABILITY OF FERTILIZER	14	14.29%
IMPROVED SEED	17	17.35%
OTHERS	14	14.29%

Sources: Questionnaire Administered 2018

Table 4.9 shows that 53 of the respondent representing 54.08% improved security can make them increase from the present level of production. 14 of the respondents believe that availability of fertilizer can induced them to produce more output while and 14 of the respondents also mention other factors like improved seed, fertilizer etc.

**TABLE 4.10: Which of the following do you think assisted the escalation of cattle rustling in Magami ADC?**

RESPONSES	FREQUESCY	PERCENTAGE (%)
POLITICAL FACTOR	43	43.88%
MIGRATION OF HERDERS	31	31.63%
ECONOMIC FACTOR	20	20.41%
OTHERS	4	4.08%
TOTAL	98	100%

Sources: Questionnaire Administered 2018



Result from table 4.10 shows that 43 respondents representing about 43,88% believed the resolution of cattle rustling in Magami ADC to be politically motivated while the immigration of herders, economic factor and others are having 31, 20 and 4 respondents respectively.

**TABLE 4.11: Which of the following do you think can be a long term solution to cattle rustling in Magami ADC?**

RESPONSES	FREQUENCY	PERCENTAGE (%)
OPEN GRAZING	2	2.04%
RANCHING	34	34.69%
CATTLE COLONY	36	36.73%
ANTI OPEN GRAZING LAW	21	21.43%
OTHERS	5	5.10%
TOTAL	98	100%

Sources: Questionnaire Administered 2018

Result from table 4.11 shows that only 2 respondents representing 2.04% advocate open grazing while 34 of them presenting 34.69% choose ranching as a solution to cattle rustling. 36 of the respondents presenting 36.73% prepare cattle colony as a solution to cattle rustling while 21 of them opted for anti-open grazing law and 5 respondents mention other ways such as grazing reserve etc.

#### 4.2 Test of Hypotheses

Predominantly, before testing these hypotheses, it's very important to note that:

- a. The greater the value of the calculated chi-square, the lower the chance of its occurrence.

b. The probability of chi-square of any given figure depends upon the number of degrees of freedom.

In consideration of the above, the chi-square computation method is thus shown below.

$$\text{Expected frequency (E)} = \frac{R \times C}{G}$$

G

Where:

R = Total on each row

C = Total on each column

G = Grand total

In other words,

Expected value = Row total x Column total

Grand total

$$\text{While, } Xc^2 = \frac{\sum(O - E)^2}{E}$$

E

Degree of freedom (d.f) = (m-1)(n-1)

Where,

m = number of columns

n = number of rows

Decision Rule

If  $Xc^2 > Xt^2$ , reject  $H_0$  and accept  $H_1$

If  $Xc^2 < Xt^2$ , accept  $H_0$  and reject  $H_1$

Where,

$Xc^2$  = > Chi-square calculated

$\geq$  Critical value or Chi-square tabulated

For easy assimilation it is important to state the hypothesis that will guide the study as follows;

cattle rustling does not affect agricultural output in Magami ADC.

cattle rustling affect agricultural output in Magami ADC.

Table 4.16: Observed frequency table

CATEGORY	RESPONDENT	PERCENTAGE %
YES	74	75.51%
NO	24	24.49%
TOTAL	98	100%

Source: Extracted from table 4.6

Table 4.17: Contingency table

VARIABLE	O <sub>i</sub>	E <sub>i</sub>	O <sub>i</sub> -E <sub>i</sub>	(O <sub>i</sub> -E <sub>i</sub> ) <sup>2</sup>	$\frac{(O_i - E_i)^2}{E_i}$
YES	74	49	25	625	12.76
NO	24	49	-25	625	12.76
TOTAL	98				25.52

$X_c^2 = 25.52$ , while Critical p value @ 5% = 3.841

**Decision:**

since the absolute calculated value of  $X^2$  (25.52) is greater than the absolute critical value (3.841) we reject the null hypothesis which states that cattle rustling does not affect agricultural output in Magami ADC and accept the alternative hypothesis which states that cattle rustling affect agricultural output in Magami ADC.

## Summary of Findings

The major finding of the study is that cattle rustling significantly affect the agricultural output

Magami ADC

Other findings are

Majority of the farmers followed by tiller and tractor

Majority of the respondents were producing between 51 to 100 bags before the period of cattle rustling.

## 4.5 Discussion Of Findings

The study examine the impact of cattle rustling to agricultural output, having carried all necessary findings in Magami ADC, the study found that cattle rustling has significantly contributed to the decrease in agricultural output in the area, this is because the local farmers are heavily relying on cattle for cultivation.

## CHAPTER FIVE

### Summary, Conclusions and Recommendations

#### 5.0 Introduction

This chapter deals with the summary of the research, the conclusions and recommendations necessary for policy response.

#### 5.1 Summary

The research employs a non parametric probability approach in form of survey questionnaire for the period (2011-2017). After applying chi-square statistical technique ( $X^2$ ) it was found that, cattle rustling has significantly affected the agricultural output in Magami ADC. This is due to the fact that, the major means of cultivation of the farmers in the area is cattle. However as a result of cattle rustling a large number of farmers have lost this agrarian means of cultivation. Hence their output decrease to a large extend.

#### 5.2 Conclusion

Based on the findings of the study, it can be concluded that, cattle rustling plays a vital role in the reduction of agricultural output in Magami ADC. This means that there is direct correlation between agricultural output and cattle rustling. This is because the data analyzed shows that, majority of the farmers were producing between (51-100) bags before the period of cattle rustling but as a result of the problem of cattle rustling the output drastically fall to a point were those who produces (21-50) bags become the majority among the farmers in the study area. This signifies a very sharp decrease in the production of agricultural output attributed to cattle rustling.

### 5.3 Recommendations

Considering the findings of the study, the following recommendations are outline;

- i. There is need for the government to provide a lasting solution to the prevailing cattle rustling not only in Magami ADC but throughout the country, this will help to improve production of agricultural output and attain food security.
- ii. There is need for government to provide security that will be monitoring the movement of the herders and there should be a restriction on the immigrants' herders that cross boarders freely.
- iii. A long term solution could be establish by demarcating and registering the herders in form of cattle colony or ranching
- iv. Government should engage community most especially traditional rulers to orient the people on the importance of peaceful coexisting between farmers and herder
- v. Nomadic education should be improved as some of the atrocities committed by the rustlers are attributed to ignorance.
- vi. Vigilantes group should not be abolish but instead they should be reorganized inform of civilian JTF to operate in collaboration with the security agencies.

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