

**EFFECT OF SOIL CONSERVATION ON PRODUCTIVITY AND FOOD  
SECURITY OF MAIZE FARMERS IN NORTHWEST NIGERIA**

**BY**

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## **DECLARATION**

I declare that the work in this dissertation entitled **Effect of soil conservation on productivity and food security of maize farmers in Northwest Nigeria**, have been written by me in the Department of Agricultural Economics and it is a record of my own research work. The information derived from the literature had been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

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## CERTIFICATION

The dissertation titled **Effect of soil conservation on productivity and food security of maize farmers in Northwest Nigeria**, carried out by **Tolulope Emmanuel OLADIMEJI**, meets the regulations governing the award of the Degree of Masters of science (MSc) in Agricultural Economics of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

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## **DEDICATION**

This research work is dedicated to Almighty God for His immense and unfailing grace upon my life. Without Him I am nothing.

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## TABLE OF CONTENTS

<b>Content</b>	<b>Page</b>
Title page .....	i
Declaration .....	ii
Certification .....	iii
Dedication .....	iv
Acknowledgement .....	v
Table of Contents .....	vi
List of Tables .....	xi
List of Figures .....	xiii
Abstract .....	xiv
<b>CHAPTER ONE .....</b>	<b>1</b>
1.0 Introduction .....	1
1.1 Background to the Study .....	1
1.2 Statement of Problem .....	4
1.3 Objectives of the Study .....	7
1.4 Research Hypotheses.....	8
1.5 Justification for the Study.....	8
<b>CHAPTER TWO.....</b>	<b>10</b>
2.0 Review of Literature .....	10
2.1 Concept of Conservation Agriculture .....	10
2.1.1 Importance of conservation agriculture .....	10
2.1.2 Components of conservation agriculture.....	12
2.1.2.1 Mulching .....	13

2.1.2.2	Cover-cropping .....	14
2.1.2.3	Crop rotation .....	15
2.1.2.4	Intercropping .....	15
2.1.2.5	Animal manure .....	16
2.1.2.6	Green manure .....	17
2.1.2.7	Terracing .....	17
2.1.2.8	Zero/minimum Tillage .....	18
2.2	Concept of agricultural productivity.....	20
2.2.1	Total factor productivity .....	20
2.2.2	Partial factor productivity.....	21
2.2.2.1	Land productivity .....	21
2.2.2.2	Labour productivity.....	23
2.2.2.3	Capital productivity .....	24
2.3	Concept of food security.....	24
2.4	Economic Potential of Maize in Nigeria.....	27
2.5	Review of Empirical Studies.....	28
2.5.1	Socioeconomic characteristics of maize farmers in Nigeria .....	29
2.5.2	Adoption of soil conservation practices in Nigeria.....	29
2.5.3	Effect of adoption of soil conservation practices in Nigeria.....	31
2.5.4	Factors influencing adoption of soil conservation practices in Nigeria.....	31
2.6	Review of Analytical Tools.....	33
2.6.1	Panel Data Analysis.....	33
2.6.2	Benefits of panel data analysis.....	35
2.6.3	Multivariate probit (MVP) model.....	35
2.6.4	First Difference Model.....	37

2.6.5	Pooled Regression Model.....	38
2.6.6	Random Effects Model.....	41
2.6.7	Hausman test for endogeneity.....	42
2.6.8	Household dietary diversity score.....	43
<b>CHAPTER THREE.....</b>		<b>47</b>
3.0	Methodology.....	47
3.1	Description of study area.....	47
3.2	Sampling Procedure and Sample Size .....	49
3.3	Method of Data Collection.....	52
3.4	Analytical Technique.....	53
3.4.1	Descriptive statistics.....	53
3.4.2	Multivariate Probit (MVP) Model.....	53
3.4.3	Random effects ordered probit regression model.....	56
3.4.4	Fixed effects regression model.....	57
3.4.5	Analyzing effect of soil conservation on productivity.....	58
3.4.6	Analyzing the effect of soil conservation on food security.....	58
<b>CHAPTER FOUR.....</b>		<b>60</b>
4.0	Results and Discussion.....	60
4.1	Socioeconomic characteristics of farmers.....	60
4.1.1	Age of farmers.....	60
4.1.2	Education levels of maize farmers.....	61
4.1.3	Household size of farmers.....	62
4.1.4	Farming experience of maize farmers.....	63

4.1.5	Maize farmers' access to extension services.....	64
4.1.6	Maize farmers' access to credit.....	65
4.1.7	Maize farmers' sources of credit.....	66
4.1.8	Amount of credit obtained by farmers.....	67
4.1.9	Maize farmer's membership of association.....	68
4.1.10	Maize farmers' access to maize contract farming.....	69
4.1.11	Maize farmers' ownership of livestock.....	69
4.1.12	Total farm size owned by respondents.....	70
4.1.13	Total maize fields owned by farmers.....	71
4.1.14	Area of maize focal plot.....	72
4.1.15	Access to off-farm income sources.....	73
4.1.16	Total assets of farming households in the study area.....	73
4.2	Conditional and unconditional rate of adoption of soil conservation practices.....	74
4.2.1	Unconditional rate of adoption of soil conservation practices.....	74
4.2.2	Conditional and unconditional probabilities of adoption of soil conservation...77	77
4.3	Intensity of adoption of soil conservation practices.....	81
4.4	Factors influencing the adoption of soil conservation practices.....	83
4.4.1	Factors influencing the rate of adoption of soil conservation practices.....	83
4.4.2	Factors influencing intensity of adoption of soil conservation practices.....	91
4.5	Effect of soil conservation practices on maize farmers' productivity.....	95
4.6	Effect of soil conservation practices on maize farmers' food security.....	100
	<b>CHAPTER FIVE.....</b>	<b>104</b>
5.0	Summary, Conclusion and Recommendation.....	104
5.1	Summary.....	104

5.2	Conclusion.....	107
5.3	Contribution to knowledge.....	108
5.4	Recommendations.....	109
	References.....	111

## LIST OF TABLES

<b>Tables</b>	<b>Page</b>
Table 2.1	Properties of the random and fixed effects models estimators.....43
Table 2.2	Classification of food consumed.....45
Table 3.1a	Selected LGAs and wards in the study area.....51
Table 3.1b	Sample size of maize-based farming household .....51
Table 4.1	Distribution of farmers based on their ages.....61
Table 4.2	Distribution of farmers based on level of education.....62
Table 4.3	Distribution of farmers based on household size.....63
Table 4.4	Distribution of farmers based on years of farming experience.....64
Table 4.5	Distribution of farmers based on access to extension.....65
Table 4.6	Distribution of farmers based access to formal credit.....65
Table 4.7	Distribution of maize farmers based on sources of credit.....67
Table 4.8	Distribution of farmers based on amount of credit obtained.....68
Table 4.9	Distribution of farmers based on membership of association.....68
Table 4.10	Distribution of farmers based access to maize contract farming.....69
Table 4.11	Distribution of farmers based on livestock ownership.....70
Table 4.12	Distribution of farmers based on farm size.....71
Table 4.13	Distribution of farmers based on number of maize fields owned.....71
Table 4.14	Distribution of farmers based on area of maize plot .....72
Table 4.15	Distribution of farmers based on access to off-farm income.....73
Table 4.16	Distribution of farmers based on value of total assets.....73
Table 4.17a	Adoption rates of soil conservation practices for 2016 and 2017 cropping seasons.....75

Table 4.17b	Adoption rate of soil conservation practices across the two years.....	76
Table 4.18	Unconditional and conditional adoption probabilities of soil conservation practices.....	79
Table 4.19a	Adoption intensity for 2016 and 2017 cropping season.....	81
Table 4.19b	Adoption intensity for combination of practices in 2016 and 2017 cropping season.....	82
Table 4.20a	Estimated covariance matrix of the regression equations between conservation practices using the pooled MVP model.....	83
Table 4.20b	Estimates of the pooled multivariate probit (MVP) model of the likelihood of adoption of soil conservation practices.....	90
Table 4.21	Estimates of random-effects ordered probit of the determinants of the intensity of adoption of soil conservation practices.....	95
Table 4.22	Effect of soil conservation on productivity of maize farming Household.....	100
Table 4.23	Effects of soil conservation on food security of maize farmers.....	103

## LIST OF FIGURES

<b>Figures</b>	<b>Page</b>
Figure 3.1    Map of the study area .....	47

## ABSTRACT

The adoption of soil conservation practices is important for sustaining Nigerian agriculture where smallholder maize farmers face constraints such as low soil fertility that lead to low productivity and food insecurity. This study aims to analyze the effect of soil conservation on productivity and food security of maize farmers in Northwest Nigeria. The study used a two year panel data of 792 maize farmers for 2016 and 2017 cropping seasons, collected by IITA under “Taking Maize Agronomy to Scale in Africa (TAMASA)” project implementation in Nigeria. Descriptive statistics, pooled multivariate probit, random-effects ordered probit model, and fixed-effect regression were used to analyze the data collected. Result revealed that the average age of farmers was 44 years, average household size was 9 persons, average farming experience was 19 years, 75% of the farmers had no extension contact, 77% had no access to credit, 69% belong to no association, 81% had no access to maize contract farming, average livestock owned was 2.14 units, and average farm size was 3.23 hectares. Result showed that animal manure had the highest rate of adoption with 76% and 69% adoption rate in 2016 and 2017 cropping seasons respectively. There is significant correlation between soil conservation practices, suggesting that adoptions of the practices are interrelated. The unconditional and conditional probabilities of soil conservation practices revealed the existence of possible complementarities and substitutability among the practices. Majority of the farmers combined the adoption of two practices with adoption rates of 33% and 29% in 2016 and 2017 cropping seasons respectively, of which the combination of animal manure and crop residue retention was the major combined practices with 58% and 35% adoption rate in 2016 and 2017 cropping seasons respectively. Result showed that adoption of soil conservation practices was significantly influenced by factors such as age of household head, access to maize contract farming, livestock ownership, farming experience, access to off-farm income, access to credit, inorganic fertilizer, periods of weeding, and amount of rainfall. Also, the intensity of adoption of soil conservation practices were significantly influenced by factors such as access to maize contract farming, livestock ownership, farm size, access to off-farm income, inorganic fertilizer, periods of weeding, and amount of rainfall. The fixed effect regression result showed that practicing organic manure had significant effect on maize productivity and households’ food security. The