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

BY

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P16AGAE8016

A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF SCIENCE IN AGRICULTURAL ECONOMICS

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SEPTEMBER, 2019

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.

Tolulope Emmanuel OLADIMEJI **Date**

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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.

ACKNOWLEDGEMENTS

I am grateful to Almighty God for His unquantifiable provision, strength and support throughout the period of my study. My profound gratitude goes to the members of my supervisory committee led by Dr. A. A. Hassan, Dr. O. Yusuf, Prof. M.G. Maiangwa, and Dr. A.A. Ammani for their wonderful contribution that finally led to the success of this research work.

I will also acknowledge the Head of Department Dr. A. A. Hassan, the Post Graduate coordinator Dr. Y.U. Oladimeji, the seminar coordinator Dr. O.A. Ojeleye, and the entire staff of the department of Agricultural Economics, for their advice and contribution in various ways towards the completion of my dissertation.

I will like to acknowledge the support for this research through the project "Taking Maize Agronomy to Scale in Africa (TAMASA)" funded by the Bill and Melinda Gates Foundation [OPP1113374]. The project was led by the International Maize and Wheat Improvement Centre (CIMMYT), and supported in Nigeria by the International Institute for Tropical Agriculture (IITA), and the Centre for Dry land Agriculture (CDA), Bayero University Kano. My special appreciation goes to Dr. Y. A. Kamara, Oyinbo Oyakhilomen, and the entire IITA/TAMASA project team for the opportunity, and support provided in the course of my research.

My deepest appreciation goes to my lovely mother, Mrs. A.O. Oladimeji, and my siblings for their prayers all through my stay in Zaria. God bless you all.

TABLE OF CONTENTS

Content **Page**

LIST OF TABLES

Tables **Page**

LIST OF FIGURES

Figures **Page**

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