



Environmental Determinants of Agricultural Output Among Members of Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State

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ABSTRACT

This study examines environmental determinants of agricultural output among members of Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State. Specifically, attempted to examine the farmers' output levels, determine which of the environmental factors affects agricultural production and the nature of relationship between environmental factors and agricultural output in the study area using descriptive statistics and regression model of the ordinary least square. Findings of the study revealed that with the exception of flooding and limited farm land which was not significant, urbanization, pollution, erosion, land tenure system, rainfall, temperature, fire and grazers are significant determinants of agricultural output in the study area. There is significant relationship between environmental factors and agricultural output in Ogbaru Local Government Area. Urbanization, pollution, erosion, flooding, limited farm land, rainfall, fire and grazers have negative relationship with agricultural output while Land tenure system and temperature have positive relationships. Based on the analysis and findings of this study, the researcher therefore recommends that: Large scale production of agriculture should encourage in the area by the government through adequate funding ensuring sustainability. The government through the ministry of environment and Ministry of agriculture implement policies that will protect farmers (insurance schemes) from environmental hazards and also promote agricultural production in the area for increased output. The government through the ministry of

environment and Ministry of agriculture should engender and implement policies that will regulate these environmental factors that significantly influence agricultural production in the area for a positive impact.

Keywords: *Environmental Determinants, Agricultural Output, Cooperative Societies, Ogbaru Local Government Area*

INTRODUCTION

Nigeria agricultural production has been volatile over the years, witnessing a period of boom and decline at various times. The chequered history of agricultural production in the country is evident in extant literature (Anigbogu, Agbasi & Okoli, 2015). According to Toluwase and Apata (2013), agriculture in the post independent years was the main stay of Nigeria economy but suffered serious neglect due to the oil boom in 1970's. Agricultural production which then contributed about 80% to Gross Domestic Product (GDP) declined to less than 3% in the 1990's and 2000's. In order to redirect the situation, multitudes of programmes were initiated which were not able to meet the objective for which they were designed to achieve. This scenario was further constrained by a myriad of factors that have been identified to be responsible for the decline in the productivity of the sector. These factors include: socioeconomic factors, infrastructural factors, institutional factors, environmental factors and technological factors (Anigbogu, Agbasi & Okoli, 2015; Edeh, Eboh &

Mbam, 2011; Hepelwa, 2010). Among these factors, the environmental factors seems to top the chat as one of the important factors influencing Crop yield variability in Nigeria and the world over (Edeh, Eboh & Mbam, 2011; Adams, 2000).

A number of environmental factors (urbanization, pollution, erosion, flooding, limited farm land, land tenure system, rainfall, temperature, water, fire and grazers) have been identified in extant literature to be influencing agricultural production in the country. Offiong, (2011) noted that the consequences of rapid urbanization and industrialization which led to increased demand for variety of goods and services, resulting to construction of roads, houses and industrial buildings (which in one way or the other) has led to environmental problems. It is not uncommon to notice that many industries in the industrial areas of Lagos such as Apapa, Ilupeju, Ikeja and some other industrial areas in Nigeria, discharge their chemical wastes without the standard pre-treatment which could negate their effects in the environment. Egwu (2015) included erosion, flooding, limited farm land and land tenure as part of environmental factors investigated in his study. According to Edeh, Eboh & Mbam (2011), Rainfall characteristics (intensity and duration), relative humidity and temperature constitute these environmental factors that affect rice yield and its variability. Apart from other factors mentioned earlier, farming depends greatly on the environmental factors, which are the most important among the several factors that influence agricultural production.

In Nigeria, the government has engendered some environmental conservation polices aimed at conserving the environment and consequently improve agricultural production in the country. The polices are yet to be evaluated in order to ascertain its success in preserving the environment. Various laws and regulations promulgated to safeguard the Nigerian environment include: Federal Environmental Protection Agency Act of 1988 (FEPA Act) repealed by the National Environmental Standards Regulation Agency (NESREA) Act 2007. The following Regulations were made pursuant to the FEPA Act: National Environmental Protection (Effluent Limitation) Regulations; National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations; and National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations. Environmental Impact Assessment Act of 1992 (EIA

Act). Harmful Wastes (Special Criminal Provisions etc) Act of 1988 (Harmful Wastes Act).

Despite the environmental conservation polices engendered by the government and the enormous contributions of agriculture to the Nigerian economy over the years, the sector has slipped into a systemic decline, particularly in the past three decades since the petroleum industry replaced the sector as the main source of government revenue and foreign exchange earnings (FGN, 2004). However, apart from the sector's conspicuous neglect in Nigeria, the sector still outperforms others in sectorial contribution to the GDP and the major preoccupation of rural dwellers, and this takes place despite the sector's backwardness and rural nature. Therefore, analysing the environmental factors influencing agricultural production in Nigeria will help in the formulation of policies that will revive the sector.

Statement of the Problem

This study was informed by the declining performance of the Nigeria agricultural sector. This has created a wide gap between the demand and supply for food. The perceived declining performance of the sector has necessitated an empirical probe on the analysis of environmental factors affecting agricultural production. It has been argued that farming depends greatly on the environmental factors, which are the most important among the several factors that influence agricultural production (Edeh, et al, 2011). Geographical disparity makes it difficult for us to rely on the result of a particular research to conclude and generalise that certain environmental factors affect agricultural production in the country. Thus, leaving an unresolved intellectual curiosity about which of the environmental factors (urbanization, pollution, erosion, flooding, limited farm land, land tenure system, rainfall, temperature, water, fire and grazers) affect agricultural production in a particular region in the country. In order to bridge the literature and knowledge gap this study therefore examines environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State.

Objectives of the Study

The main objective of the study is to examine environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State. Specifically, the study intends to:

- I. Ascertain the level of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area
- II. Determine the influence of environmental factors on agricultural output in Ogbaru Local Government Area.
- III. Examine the nature of relationship between environmental factors and agricultural output in Ogbaru Local Government Area.

Hypotheses of the Study

H₀₁: Environmental factors have no significant influence on agricultural output in Ogbaru Local Government Area.

H₀₂: There is no significant relationship between environmental factors and agricultural output in Ogbaru Local Government Area.

Empirical literature

Abrha, (2015) investigates the factors affecting agricultural production of farm households in the National Regional State of Tigray, Ethiopia. The study revealed that landholding size ($p < 0.0001$), possession of oxen ($p < 0.0001$), amount of fertilizer ($p = 0.010$), improved seeds ($p = 0.002$), irrigation ($p = 0.028$), soil quality ($p = 0.019$), village distance to the district market ($p = 0.066$), average distance of plots from the homestead ($p = 0.023$) and crop rotation ($p = 0.016$) were determinant variables. Again, the determinant variables of off-farm participation were: irrigation ($p = 0.001$), age ($p = 0.007$), amount of money borrowed ($p = 0.078$), village distance to the wereda market ($p = 0.055$), fear of land confiscation ($p = 0.023$) and access to electricity ($p = 0.044$). Anigbogu, Agbasi and Okoli (2015) investigated the influence of socioeconomic characteristics of the cooperative farmers on agricultural production. Findings revealed that Age, Educational Qualification, Farming Experience, Farm Size, Income, Seedling Obtain, Fertilizer Obtain and Fertility of the land are significant factors affecting agricultural production. Egwu (2015) assessed factors affecting sustainable agricultural productivity in Ebonyi State, Nigeria using descriptive and inferential statistics. Result showed that majority of the respondents (69.2%) were males, 55.6 percent were within ages of 31-40 years, 65.8 percent married, 40 percent had household size of 6-8 persons and 55.83 percent had no formal education. 59.2 percent had annual income N50,000-N80,000. Result further revealed that the constraint limiting sustainable agricultural productivity were land ownership system,

environment and funds. Obasi, Henri-Ukoha, Ukwuihe and Chidiebere-Mark (2013) examined and identify the factors that affect agricultural productivity in Imo State, Nigeria using frequencies, means, and the Ordinary Least Squares multiple regression analysis technique. The results of the analysis show that the marginal value products estimated for farmland, planting materials, chemical fertilizer and labour are 0.0654, 0.0615, 0.0871 and 0.0831 respectively. Yam/cassava/maize/vegetable/melon combination was identified as the main crop combination practiced by the farmers in the state. Analysis of resource use efficiency shows that the farmers are highly efficient in the use of planting materials but highly inefficient in the use of land and chemical fertilizer. The results of the multiple linear regression analysis on the determinants of agricultural productivity show that age, level of education, years of farming experience, farm size, extension contact, fertilizer use, planting materials and labour use are the main determinants of agricultural productivity in the state.

Javed, Afzal, Sattar and Mirza (2004) examined environmental factors affecting milk yield in Friesian cows in Punjab, Pakistan. The study found that the least squares means for milk yield and lactation length were 3391.66 ± 137.97 kg and 278.40 ± 90.17 days, respectively. The two traits were significantly correlated with each other having a correlation coefficient of 0.61 ($P < 0.01$). Lactation length and lactation number were significant ($P < 0.01$) sources of variation for milk yield. The influence of year and season of calving on milk yield was also significant ($P < 0.01$). Offiong (2011) examined the Dilemma of Implementing Effective Environmental Policies in Nigeria. The study found that policies are cosmetic in conception with no objective structure for implementation to achieve the desired goals. Edeh, Eboh and Mbam (2011) carried out a study environmental risk factors affecting rice farming in Ebonyi State using coefficient of variation and stochastic production function. They found that rainfall characteristics (intensity and duration) exhibited high degree of variation than relative humidity and temperature within the growing season. Variability was found to be most associated with rainfall intensity. Result of the study also showed that the growing season rainfall intensity and duration qualify as risk-reducing factors in rice production while the growing seasons relative humidity and temperature were risk-increasing factors. The synergistic effect of these environmental risk factors

on rice yield variability was significant. Hepelwa (2010) examine environmental and socioeconomic factors that affect crop cultivation at a small unit of analysis. The study found that there is significant variations (=82.7%) between classes of land holding and the established environmental and socioeconomic factors relevant for land holding variation are soil, zones, economic as well as demographic related factors. Predicted probabilities and the respective new land holding are found to be significant. On average, land holding is predicted to increase by about 27% from the mean acre (=3.268). Haferkamp (1987) examined the impact of environmental factors on range plant productivity. Water, temperature, light, atmosphere, nutrients, fire and grazers were found to be affect plant productivity. Usman, Taiwo, Haratu and Abubakar (n.d) assess the socio economic characteristics of groundnut farmers, determine the level of profitability of groundnut production, the resource use efficiency as well as to find out problems encountered in groundnut production in Sabon-gari local government area. The result of the study shows that experienced farmers are less involved in groundnut production and most groundnut farmers are engaged in other form of businesses. The cost, availability, and lack of technical knowledge of inputs requirements are responsible for poor use of the inputs. Labour, fertilizer, seed and herbicides are all over utilized except insecticide which is underutilized.

From the related literature reviewed, studies have been carried out mainly on socioeconomic factors affecting agricultural production. However, due accentuation have not been given to environmental factors affecting agricultural production. The only identified study on environmental factors affect agricultural production in Nigeria and south-East in particular was that of Edeh, et al (2011) in Ebonyi State. Other studies on environmental factors affecting agricultural production reviewed were carried out outside the shores of this country. The study therefore fills two gaps: it fills a geographical gap, in the sense that none of the previous studies were carried out in Anambra state and Ogbaru L.G.A in particular. It also fills a contextual gap because the studies were not conducted on cooperative farmers. In order to bridge the aforementioned gaps this study therefore examines environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State.

METHODOLOGY

Research Design

This study is a Survey research. It consists of asking questions, collecting and analyzing data from a supposedly representative members of the population at a single point in time with a view to determine the current situation of that population with respect to one or more variable under investigation. The study aims at examining environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State.

Area of Study

The area of the study is Ogbaru local government area of Anambra state, Nigeria. Ogbaru consist of the following towns: Atani, Akili-Ogidi, Akili-Ozidor, Amiyi, Mputu, Obeagwe, Ohita, Odekpe, Ogbakugba, Ochuche Umuodu, Ossomala, Ogbu-aniocha, Umunankwo, Umuzu, Okpoko, Ogbu Ikpele. Ogbaru has its local government headquarters in Atani. Ogbaru People are traditional fisher-people, farmers as well as known warriors from its history. The Ogbaru people also share clan lineage and boundaries with its people in delta state and rivers state such as Asaba in delta state and Ndoni in rivers state. The Ogbaru people consider River Niger waters that runs through its lands as their territorial lands. Ogbaruland is neighbored by Onitsha, a major commercial city in south eastern Nigeria located in Anambra State in Nigeria. Ogbaru people and clan are stretched into three Nigerian states, namely Anambra State, Delta State and Rivers State in Nigeria. Ogbaru has notable people such as the Late Chief Stephen Osita Osadebe, a world renowned and acclaimed high life musician. Also, Late Chief Obiajulu Osadebe, a musical protégé of his earlier mentioned father. Ogbaru today has a Nigerian Naval Base, an Industrial river harbour, a refinery, a federal road under-construction leading to Rivers State in Nigeria. Ogbaru is also a projected link road to other parts of the south east / south south zones of Nigeria with construction of a more inland link roads and a proposed 2nd Niger Bridge. Ogbaruland is very strategic to its surrounding region and Nigeria and West Africa (Africa) as a whole. It is created in 1991 and is located in the Anambra North Senatorial Zone of the State.

Population of the Study

The population of the study is made up all the agricultural cooperatives in Ogbaru local government area of Anambra state, Nigeria. Ogbaru local government area of Anambra state has 154 viable

registered cooperative societies out of the 154 registered cooperative 122 of them are viable agricultural cooperative societies with a membership size of one thousand nine hundred and twenty-seven (1927) members (Cooperative Department, Ogbaru local government area, Anambra State).

Sample Size and Sampling Procedure

A random sampling technique was used to select one society each from the sixteen (16) communities that make up Ogbaru local government area of Anambra state. The selected societies have a membership of 828. To determine the sample size, for the purpose of questionnaire distribution; the Taro Yamani formula was used. The formula is stated thus:

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

Where: n = sample size
 N = population
 e = Margin of error (5% or 0.05)
 I = Constant

Substituting in the above formula:

$$N = \frac{828}{1+828(0.05)^2}$$

$$= \frac{828}{1+828(0.0025)}$$

$$= \frac{828}{3.07}$$

$$= 270$$

For the purpose of allocation of sample stratum, the researcher adopted R. Kumaisons formular. Below is the R. Kumaisons formula for sample size distribution:

$$N_h = \frac{nN_h}{N}$$

Where n = Total sample size
 N_h = The number of items in each stratum in the population
 N = Population size
 n_h = The number of units allocated to each stratum
 n = 270
 n_h = No in each society:

Method of Data Analysis

Data collected were analyzed using descriptive statistics (frequencies, percentages, mean, and standard deviation) t-test statistics and the linear regression model. The demographic profile was

processed using descriptive statistics; the hypotheses were tested using the F-test statistics while t-statistics was used to test for the significance of the individual coefficients. Linear regression model of the ordinary least square (OLS) approach was used to process the hypotheses in order to ascertain the influence of environmental determinants on agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra State and also examine the nature of relationship between environmental factors and agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area. The use of (OLS) is informed by the fact that under normality assumption for e_i, the OLS estimator is normally distributed and are said to be best, unbiased linear estimator. Gujarati (2008).

The model is implicitly specified as follows;
 $Y = f(X_1, X_2, X_3, \dots, X_n + e_i)$ eq(1)

The model is explicitly specified as follows;
 $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 \dots \beta_kX_k + e_i$ eq(2)

Where:
 α = intercept
 Y = Farmers output (in kg).
 β₁-β₁₀ =Regression coefficient
 e_i = Error term designed to capture the effects of unspecified variables in the model
 X₁ = Urbanization (weighted mean of responses)
 X₂ = Pollution (weighted mean of responses)
 X₃ = Erosion (weighted mean of responses)
 X₄ = Flooding (weighted mean of responses)
 X₅ = Limited farm land (weighted mean of responses)
 X₆ = Land tenure (weighted mean of responses)
 X₇ = Rainfall (weighted mean of responses)
 X₈ = Temperature(weighted mean of responses)
 X₉ = Fire (weighted mean of responses)
 X₁₀ = Grazers (weighted mean of responses)
 α = Constant term

The α and β_s are the parameters for estimation and these are the error terms s.

The regression analysis was run using SPSS package so as to determine the order of importance of the explanatory variables in explaining the variation observed in the dependent variables. The t-test was also performed to test the significance of each of the explanatory variables at the alpha levels of 5%.

DATA PRESENTATION AND ANALYSIS

Table 1: Distribution according to socioeconomic profile of respondents

Items	Frequency	Percentage (%)	Cumulative (%)
Gender			
Male	182	70.5	70.5
Female	76	29.5	100
Total	258	100.0	
Age (Years)			
≤ 20	3	1.2	1.2
21 – 30	14	5.4	6.6
31 – 40	25	9.7	16.3
41 – 50	176	68.3	84.6
51 - 60	33	12.7	97.3
≥ 60	7	2.7	100.0
Total	258	100.0	
Marital status			
Married	181	70.2	70.2
Single	45	17.4	87.6
Divorced	4	1.5	89.1
Widow/widower	28	10.9	100.0
Total	258	100.0	
Level of Qualification (in years)			
Primary	87	33.7	33.7
Secondary	150	58.2	91.9
Tertiary	21	8.1	100.0
Total	258	100.0	
Farming Experience (in years)			
1 - 5	24	9.3	9.3
6 - 10	54	20.9	30.2
11 - 15	149	57.8	89.0
15 - 30	31	12.0	100.0
Total	258	100.0	
Farm size (in hectares)			
1 - 2	180	69.8	69.8
3 - 5	57	22.1	91.9
6 - 8	14	5.4	97.3
9 - 15	7	2.7	100.0
Total	258	100.0	
Family size (in numbers)			
1 - 3	31	12.0	12.0
4 - 6	122	47.3	59.3
7 - 9	81	31.4	90.7
10-12	24	9.3	100.0
Total	258	100.0	
Income of farmers (Monthly)			
₦1,000 - ₦ 10,000	11	4.3	4.3
₦ 10,100 - ₦ 20,000	31	12.0	16.3
₦ 20,100 - ₦ 30,000	106	41.1	57.4
₦ 30100 - ₦ 40,000	44	17.1	74.5
₦ 40,000 and above	66	25.5	100
Total	258	100.0	

Source: Field survey 2017.

Source: Field survey 2017.

Socioeconomic characteristics of the respondents were presented in Table 1. As regards to the gender of the respondents as shown in table 4.1, 70.5% (182) of the respondents are males while 29.5% (76) are females indicating active participate of males in cooperative activities than the female in Ogbaru local government area. All the farmers cut across the whole age brackets, but majority, 68.3% of them fall with the age bracket of 41-50years and above. 70.2% (181) of the respondents are married. 17.4% (45) of the respondents are single. 1.5% are divorced while 10.9% are widows. All the respondents had formal education. Majority of the respondents 58.2% (150) has secondary education. 33.7% (87) has secondary education, while 8.1% (21) has tertiary education. Over 80% of the respondents have above 10years of cooperative experience. Majority of the farmers 180% (69.8) have between (1-2) hectares of farm size, thus, indicating that they are small holder farmers. Over 80% of the respondents have above three people in the family, thus indicating a high level of dependency ratio among the farmers. With respect to income of the farmers, major over 80% of the farmers earn above ₦20, 000. Although relatively low considering the high level of dependency ration and loan repayment burden.

Level of Agricultural Output

Table 2: Distribution of respondents according to Farmers' Output Levels

Options	Frequency	Percent(%)
1000 tonnes -5000 tonnes	22	8.5
5001 tonnes -10000 tonnes	62	24.0
10001 tonnes -15000 tonnes	140	54.3
15001 tonnes -20000 tonnes	18	7.0
20001 tonnes -25000 tonnes	9	3.5
Above 25000 tonnes	7	2.7
Total	258	100.0

Source: Field survey 2017.

As shown in table 4.2, the farmers output ranges from 1000 tonnes to above 2500kg. However, 54.3% of the respondents generate output ranging from 1001kg to 25000 tonnes which gives a monthly average of about 12051 tonnes of output for majority of the farmers.

Regression Result

Table 3: Environmental determinants of agricultural output

Model	B	Std. error	t	Sig.
CONSTANT	-0.230	0.0493	-4.667	0.000
Urbanization	-1.920	0.5753	-3.371	0.008
Pollution	-2.919	0.9225	-3.164	0.008
Erosion	-1.736	0.2958	-5.868	0.000
Flooding	-0.062	0.0181	-3.431	0.027
Limited farm land	-0.616	1.1823	-0.521	0.221
Land tenure	0.184	0.1278	1.440	0.120
Rainfall	-3.254	0.8640	-3.766	0.000
Temperature	0.130	0.0401	3.210	0.000
Fire	-0.062	0.0171	-3.401	0.007
Grazers	-0.016	0.0442	-3.621	0.001
R	0.729			
R²	0.741			
Adj. R²	0.749			
F-statistic	142.042			0.000

Source: field survey, 2017.

Table 3 was used to analyse the influence of environmental factors on agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area. In general, the joint effect of the explanatory variables in the model account for 74.1% of the variations in agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area. This suggest that the remaining 25.9% is explained by other factors or variables not captured in the model

Specifically, nine coefficients (urbanization, pollution, erosion, flooding, land tenure system, rainfall, temperature, fire and grazers) are significant.

Nature of relationship between environmental factors and agricultural output in Ogbaru Local Government Area

Table 3 was also used to examine the nature of relationship between environmental factors and agricultural output in Ogbaru Local Government Area. From the regression result, Urbanization, pollution, erosion, flooding, limited farm land, rainfall, fire and grazers have negative relationship with agricultural output. This suggest that a unit

increase in any of the value of any of the coefficients will bring about 1.920, 2.919, 1.736, 0.062, 0.616, 3.254, 0.062, and 0.016 tonnes decrease in the output of the farmers which is not healthy for agricultural production in the area.

Land tenure system and temperature have positive relationships which suggest that a unit increase in the ownership of land and temperature in the area will bring about 0.130 and 0.184 tonnes increase in agricultural output in the area.

Test of hypotheses

Ho₁: Environmental factors have no significant influence on agricultural output in Ogbaru Local Government Area.

Table 4: Test of hypothesis

Model	B	Std. error	F	Sig.
CONSTANT	-0.230	0.0493	-4.667	0.000
F-statistic				0.000
142.042				

Source: field survey, 2017.

From the regression result, **F-statistic** was significant at 0.000 in explaining the overall fitness of the model in the test of hypothesis. We therefore reject the null hypothesis and conclude that environmental factors have significant influence on agricultural output in Ogbaru Local Government Area.

Ho₂: There is no significant relationship between environmental factors and agricultural output in Ogbaru Local Government Area.

Table 5: Test of hypothesis

Model	B	Std. error	F	Sig.
CONSTANT	-0.230	0.0493	-4.667	0.000
F-statistic				0.000
142.042				

Source: field survey, 2017.

From the regression result, **F-statistic** was significant at 0.000 in explaining the overall fitness of the model in the test of hypothesis. We therefore reject the null hypothesis and conclude that there is significant relationship between environmental factors and agricultural output in Ogbaru Local Government Area.

CONCLUSIONS AND RECOMMENDATIONS

From the analysis of the study, the following findings were made:

Majority of the farmers produce a monthly average of about 12051 tonnes of agricultural output. Environmental factors have significant influence on agricultural output in Ogbaru Local Government Area. With the exception of flooding and limited farm land, urbanization, pollution, erosion, land tenure system, rainfall, temperature, fire and grazers are significant determinants of agricultural output in the study area. There is significant relationship between environmental factors and agricultural output in Ogbaru Local Government Area. Urbanization, pollution, erosion, flooding, limited farm land, rainfall, fire and grazers have negative relationship with agricultural output while Land tenure system and temperature have positive relationships.

This study has examined environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area, Anambra state with the aim of ascertaining which of the environmental determinants of agricultural output among members' Farmers Multipurpose Cooperative Societies in Ogbaru Local Government Area. In the final analysis, urbanization, pollution, erosion, land tenure system, rainfall, temperature, fire and grazers are significant determinants of agricultural output in the study area. were significant in influencing the agricultural output in ogbaru L.G.A. the findings of this study collaborate with the findings of Offiong, (2011), Egwu (2015) and Edeh, Eboh & Mbam (2011) that rapid urbanization and industrialization, discharge of chemical wastes without the standard pre-treatment, erosion, flooding, limited farm land and land tenure, relative humidity and temperature constitute environmental factors that affect agricultural output in their areas of study. According to Edeh, Eboh & Mbam (2011) agricultural yield in farming depends greatly on the environmental factors, which are the most important among the several factors that influence agricultural production.

Based on the analysis and findings of this study, the researcher therefore recommends that: Large scale production of production of agriculture should encourage in the area by the government through adequate funding ensuring sustainability. The

government through the ministry of environment and Ministry of agriculture implement policies that will protect farmers (insurance schemes) from environmental hazards and also promote agricultural production in the area for increased output. The government through the ministry of environment and Ministry of agriculture should engender and implement policies that will regulate these environmental factors that significantly influence agricultural production in the area for a positive impact.

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