

ENVIRONMENTAL EFFECTS OF USING FERTILIZER IN CASSAVA PRODUCTION IN AGUATA LOCAL GOVERNMENT AREA OF ANAMBRA STATE, NIGERIA

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ABSTRACT

The study examined the Environmental Effect of Using Fertilizer in Cassava Production in Aguata Local Government Area of Anambra State, Nigeria. The specific objectives were to examine the socio-economic characteristics of cassava farmers; Cassava production practices/ farmers that uses fertilizers; Environmental effect of using fertilizer in cassava production; Profitability of cassava production and Constraints to cassava production. Random sampling techniques were adopted to select 40 respondents that were used in the study. Primary data were collected from 40 cassava farmers by the use of structured questionnaire which was administered through visit and interview schedule. Analysis of data was actualized by means of descriptive statistics, profitability index and likert scale rating. The findings on the socio-economic characteristics of the respondents indicated that majority of the farmers were female(62.5%),majority of them fell within the age bracket 40-49 years, while (10%) had no primary education and most of them were small scale farmers,(47.5%) with farm size of between 0.6-1.0 ha. The serious environmental effects of fertilizer usage by cassava farmers include increased soil acidity, effect on soil microorganism, soil erosion, removal of nutrients from the soil, reduction in cassava growth and eutrophication. Cassava production was profitable given the positive values of gross margin (₦1,760,090), Net farm income (₦1,723,480), mean net farm income (₦43,087) and net return on investment of (2.91).The serious constraints of fertilizer application by cassava farmers include lack of extension agencies, lack of access to quality information about fertilizer use, lack of sufficient fund, lack of access to efficient market, lack of access to fertilizer, poor technology, unfavorable government policies, scarcity of improved

seeds, high cost of transportation, menace of pest and disease, problems of soil erosion. It was recommended that government through extension agents should spread information on fertilizer usage, advice farmers to use more of organic fertilizers to avert the environmental effects of fertilizer application by farmers.

Keywords: Environmental, Social-Economic, Characteristics of Cassava Farmers, Cassava Production, Profitability and Constraints of Cassava Production.

BACKGROUND OF THE STUDY

Cassava (*manihot esculenta*) is in the family of Euphobiaceae. It was originated in Northern Brazil and Central America (Roger, 1963). Ohadike (2007) reported that cassava was introduced in Western Africa from South America in the 16th century, by Portuguese explorer as he returned to the country from South America through the Island of Sao Tome and Farnado Po in 16th -17th century (Lean, 1977). Cassava is perennial vegetatively propagated shrub and is one of the most important food crop grown in Africa. It is one of the important root and tuber crops grown for food particularly in West and Central Africa (Tsegai et. al., 2009). It is a high yielding drought resistant and with improved pest management practices. Its high yielding capacity could be sustained (Cock 1985 in Oyebami et.al., 2010). Cassava is a tropical crop, distributed between latitude 30^oN and 30^oS (Costa and Silva, 1992, Alves, 2002). It tolerates a temperature ranging from 16 to 38^oC. It grows in the semi and tropics with an annual rainfall less than 600mm, but the ideal rainfall is 1000 to 1500mm per year (Alves, 2002). It is efficient in carbohydrate production.

Cassava is a major staple food in Nigeria. A staple food as defined by (IITA, 2007) is one eaten regularly and which provides a large proportion of the population's with energy and nutrients. Cassava can grow in a low soil nutrient where cereal and other crops do not grow. It grows well in sandy to light soils where the storage root can develop easily. Cassava consists of 15% peel and 85% fresh tuber. The tuber consist of 20% -30% starch, 62% water, 21% protein, 1-2% fibre with traces of vitamins and minerals (Ebukiba, 2010). The leaves constitute a good vegetable rich in protein, vitamins and minerals. The biochemistry of the crop proved that the protein content in the leaves is equal to the protein in egg (Lekule and Sarwath, 2006). Cassava serves as a raw material in industries such as bakery, textile, paper, plywood and confectioneries. (FAO, 2003). It serves as a raw material when processed into flour. It also serve as a raw material for bakery industries, starch for textile

industries (NRCRI, 2006). Cassava flour is used in the production of adhesives, preparation of bread, biscuits, and confectioneries. Through fermentation, it can be used for alcohol production and as a waste material which can be processed into biogas. Cassava peels, leaves and roots are used for manufacturing feed for pigs and ruminant animals. For example about 22.0 million metric tons of cassava produced annual in Nigeria is used for feed (Gregory, Scott, Mark, Rosegrant and Kingler (2000). Cassava is used as fodder in brewing beer and in the production of ethanol and butanol for blending with petrol and diesel. Nigeria cassava plays a principle role in food economy (Agwu et. al., 2009). Consequently, Nigeria is the largest cassava producing country in the world with an annual estimate of 39 million tons (Central bank of Nigeria, 2004). Nigerians production accounts for 19% of the world output and 34% of African output (Okoro et. al., 2005). Azogu (2010) asserted that within four years, the quantity of cassava produced in Nigeria increased by ten million tones. Also demand for cassava and its products have increased in both the national and international markets. It plays a major role in the effort to alleviate the food crisis in Africa. The food and Agricultural Organization (FAO, 2004) estimates cassava production in Nigeria as at 2002 to be 34 million tones.

According to Nweke et. al. (2002) 80% of Nigerians in the rural areas eat cassava meal at least once a week and majority eats cassava at least once a day, hence it play a major role in the country's food security. Cassava is the most important component in the diets of more than 800 million people around the world (FAO, 2007) and is the third largest carbohydrate food source within the tropical region after rice and corn. Cassava is referred to as a second food security crop which can be left in the ground for extended period of up to two years until required. It plays an inclusive vital role with income for farmers, low cost food source for both the rural and urban dwellers as well as household food security (Nweke, 1996). Cassava is the most important food crop by value (FAOSTAT, 2012).

It serves as food, provides employment and provides raw materials. It can be eaten as fufu, garri and tapioca. Cassava roots are eaten along the other crops rich in essential amino acids to supplement the deficit, such as vegetable, cereals, fish and meat. Nigeria is the world largest producer of cassava with top producers being Indonesia, Thailand, and Democratic republic of Congo and Angola. It has been estimated that in 2010, Nigeria's production of cassava reached 37.5 million tones. (FAOSTAT (2012), while yield and area values reached 12 tones per hectare and 3.13 million hectares respectively. Cassava is also seen to have a high poverty reduction potential for Nigeria due to its low

production cost (Nweke 2004, FAO 2005). Egesi et. al., (2006) argued that cassava has been transformed from a reserve commodity for support in terms of famine into a rural staple and subsequently a cash crop. Babatunde (2011), stated that presently in Nigeria agricultural products are under utilized for income generation and cassava is not left out.

STATEMENT OF PROBLEM

Cassava is of considerable important in the food economy in Nigeria. It is one of cash income to the producer irrespective of scale of operation. However, in spite of the advantage of fertilizers in boosting production and efforts towards effective directive on fertilizer usage by farmers, there is a crisis situation of declining domestic agricultural use and effects of fertilizer on cassava. Many small rural farmers have either not adopted the fertilizers technology or are not fully abreast of the effects. Sometimes the farmer's attitude towards such innovation may play a decisive role. These may probably be attributed through the following:

1. Lack of knowledge of farmers
2. Poor extension service and contact with farmers
3. Poor education and information by farmers towards inorganic fertilizers
4. Late arrival of input fertilizers
5. High price of input fertilizer scares farmers away.

These problems have compelled farmers to cultivate without ameliorating the soil to produce quality agricultural products which will meet the agricultural markets for reasonable income.

The question to address in this study is

- i. What is the effect of the respondent's socio-economic factors on production output of cassava?
- ii. What cassava production practices/farmers that uses fertilizer?
- iii. What are the environmental effects of fertilizer in cassava production?
- iv. What are the cost and returns of cassava in the study area?
- v. What are the constraints of cassava production in the study area?

OBJECTIVES OF THE STUDY

The broad objective of this study is to assess the environmental effect of fertilizer usage among cassava farmers in Aguata Local Government Area of Anambra State, Nigeria. The specific objectives are:

- i. describe the socio-economic characteristics of cassava farmers in the study area;

- ii. identify farmers that uses fertilizer;
- iii. identify environmental effect of using fertilizer in the study area;
- iv. determine the profitability of cassava production in the study area;
- v. identify problems militating against cassava production and acquisition of fertilizer in study area; and
- vi. make recommendations to the farmers based on the findings.

RESEARCH HYPOTHESIS

The following research hypothesis will be tested. The farmer's socio-economic characteristics which include age, gender, marital status, educational level, household size, farming experience, cost of inputs and size effect cassava production output.

JUSTIFICATION OF THE STUDY

The environmental effect of fertilizer usage among cassava farmers in Aguata local Government Area of Anambra state, Nigeria was investigated. The study will describe the socio-economic characteristics of cassava farmers, determine the profitability of cassava production in the area and identify problems militating against cassava production and acquisition of fertilizer in the study area and make recommendations to farmers and policy makers. Finding of the study will provide a clear insight into the environmental effects of using fertilizer in cassava production and would therefore constitute useful information for agricultural policy makers and the national development planning (NDP) for their information of national policies with regards to cassava production. In the same vein, the general public, researchers and students alike will benefit from this work as an article contributed to the bulk of literature on cassava production.

METHODOLOGY

THE STUDY AREA

The study was carried out in Aguata local government area of Anambra State Nigeria. The local government area has a population of about 369, 972 people which is made up of 187, 262 male and 182, 710 females according to National population commission (NPC, 2006). Towns that made up of the local government includes; Ekwulobia, Igbo—Ukwu, Ora-eri, Achina, Akpo, Amesi, Isuofia, Ezinifite, Ikenga, Aguluezechukwu, Umuchu, Uga, Nkpologwu and Umuona. The headquarter is located at Ekwulobia. It is characterized by two climatic seasons, the rainy season between April and October and the dry season between November and March. The rainfall is between 750mm-1200mm. The

favorable climate of the area encourages Agriculture. Both annual as well as permanent crops thrive in the area with varieties of livestock, including poultry productions.

POPULATION AND SAMPLING PROCEDURE

The study population comprised of cassava farmers in the four towns in Aguata local Government Area, Anambra State. Four towns are randomly selected from the fourteen (14) towns in the local government Area. From the four towns, 10 cassava farmers were selected by simple random sampling method to arrive at a total of 40 respondents. A comprehensive list of cassava farmers were obtained from the various community head farmers union and compared with that from the local Government Area's office.

METHOD OF DATA COLLECTION

Both primary and secondary data was used in the study. Primary data was obtained by administering a well structured questionnaire to the respondents, while the secondary data was collected from conference proceeding, annual reports, workshop papers, bulletins, journals, textbooks, magazines and so on. Primary data was collected on socio-economic variable, cassava output and input with their current market prices and problems militating against cassava production in the area.

MEASUREMENT OF VARIABLE AND MODEL SPECIFICATION

A reasonable number of variable were deployed in the study which includes socio-economic variables, production variables, constraining variables of production. These variables were measured as socio-economic variable.

1. **AGE:** Age was measured in years. The respondents were selected in 5 age group as follow 20-29 years, 30-39years, 40-49years, 50-59 years, 60 years and above.
2. **GENDER:** The respondents are to indicate whether they are male or female.
3. **MARITAL STATUS:** Marital status was measured as single, married, divorced and widowed.
4. **EDUCATIONAL LEVEL:** Educational level of the respondents was categorized into four, no formal education, primary school education, secondary school education and tertiary education.
5. **HOUSEHOLD SIZE:** The respondents were asked to indicate the total number of people living with them. It will be grouped into four as follows: 1-4 people, 5-9 people, 10-14 people and above.

6. **FARM SIZE:** This is measured as the size of farm owned by a farmer. The standard measurement is the hectare (1000m²) of land.
7. **YEARS OF EXPERIENCE:** This was measured by the number of years experience in cassava production. The respondents will be grouped into five categories 1-5 years, 6-10 years, 11-15 years, 16-20 years and above 20years.
8. **PRICE OF INPUTS AND OUTPUTS:** The average current market price of inputs and output was used to work out the cost and revenue figures for data analysis.
9. **CONSTRAINTS ASSOCIATED WITH FERTILIZER USAGE BY FARMERS:** Such as lack of capital, inadequate knowledge of the use of fertilizer, inappropriate information of fertilizer application and unavailability of extension agents.
10. **CASSAVA PRODUCTION OUTPUT:** The output of cassava per farm will be the total quantity in kilogram (kg) measured of cassava from the production unit (s) of a farmer within the production period.
11. **DEPRECIATION:** This was used to measure the declination in value of inputs due to wears and tears. Straight line method will be used to calculate depreciation i.e. cost minus salvage value or useful life span.

METHOD OF DATA ANALYSIS

Objectives (i) and (ii) were analyzed using descriptive statistics such as mean, frequency, percentages. Objective (iii) and (v) were analyzed using Likert scale, while objective (iv) were analyzed using profitability analyses.

PROFITABILITY ANALYSIS IS DETERMINED AS FOLLOWS:

$$\text{Gross Margin} = \text{TR} - \text{TVC}$$

$$\text{GM}\% = \frac{\text{TR} - \text{TVC}}{\text{TR}} \times \frac{100}{1}$$

Where:

TR = Total Revenue

TVC = Total Variable cost

GM = Gross margin

NET FARM INCOME

$$\text{NFI} = \text{TR} - \text{TC}$$

Where:

NFI = Net farm income

TR = Total Revenue

TC = Total cost

And finally profitability index

$$PI = \frac{NFI}{GR}$$

Where:

Pi = Profitability index

NFI = Net farm income

GR = Gross revenue

RESULTS AND DISCUSSION

This section is divided into five sections: (1) Socio-economic characteristics of cassava farmers, (2) Cassava production practices/farmers that use fertilizers, (3) Environmental effect of using fertilizer in cassava production, (4) Profitability of cassava production and constraints to cassava production.

SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS

The socio-economic variables considered in the study were: age, gender, marital status, household size, educational level, farm size, years of experience and source of fund.

AGE OF THE RESPONDENTS

Table 1 show that majority (35.0%) of the respondents were between the age range of 40-49 years. These were followed by 20.0%, 17.5%, 12.5%, and 7.5% of them whose ages ranges from 50-59, 30-39, 20-29, 60-69, 70 and above years respectively. The mean age of the respondents was 46.0 years. This means that majority of the respondents are still within their middle active and productive age and hence can participate actively in cassava production.

GENDER OF THE RESPONDENTS

Table 1 show that the majority (62.5%) of the respondents were females, while 37.5% of them were males. This indicates that cassava productions in the study area were dominated by female. Therefore, women involvement in the cassava production in the area, were mainly targeted at improving the poor economic condition of their households.

MARITAL STATUS OF THE RESPONDENTS

Table 1 also reveals that majority (70.0%) of the respondents were married, while the 17.5% and 12.5% were widowed and single respectively. This indicates that the high level of married farmers in the study area points to the fact that they are emotionally balanced with their children beside them to provide additional labour to augment their personal efforts.

HOUSEHOLD SIZE OF THE RESPONDENTS

The entries in Table 1 shows that the majority (62.5%) of the respondents had a household size between 6-10 persons, while 32.5%, 5% had a household size between 1-5 persons and 11-15 persons respectively. The mean household sizes were about 7 persons. This implies that the respondents have a family size which they could care for; hence they need to participate in cassava production.

TABLE 1: PERCENTAGE DISTRIBUTION OF RESPONDENTS ACCORDING TO EDUCATIONAL QUALIFICATION OF THE RESPONDENTS

SOCIO-ECONOMIC VARIABLES	FREQUENCY(f)	PERCENTAGE (%)	MEAN
AGE (YEAR)			
20 – 29	15	12.5	46.0
30 – 39	7	17.5	
40 – 49	14	35	
50 – 59	8	20	
60 – 69	3	7.5	
70 & above	3	7.5	
GENDER			
Male	15	37.5	
Female	25	62.5	
MARITAL STATUS			
Single	5	12.5	
Married	28	70	
Widowed	7	17.5	
HOUSEHOLD SIZE			
1 – 5	13	32.5	6.63
6 – 10	25	62.5	
11 – 15	2	5	
EDUCATIONAL LEVEL			
No formal education	4	10	
Primary school	13	32.5	
Secondary school	17	42.5	
Tertiary education	6	15	
FARM SIZE			
0.1– 0.5 ha	16	40	0.66
0.6 – 1.0 ha	19	47.5	
1.1 – 1.5 ha	5	12.5	
YEARS OF EXPERIENCE			
1– 5 years	6	15	10.50
6 – 10 years	13	32.5	
11 – 15 years	15	37.5	
16 – 20 years	6	15	
SOURCE OF FUND			
Personal savings	35	87.5	
Friends/ Relatives	4	10	
Cassava farmers association	1	2.5	

Source: Field Survey, 2015.

The distribution of respondents, according to educational level is presented in table I. The survey shows that (10.0%) of the farmers had no formal education, 32.5% had only primary education, 42.5% had secondary education and 15% had tertiary education. This implies that most of the respondents acquired one form of formal education and would readily adopt innovations to improve their productivity.

FARM SIZE OF THE RESPONDENTS

Table I shows the distribution of farm size of the respondents in the study area. The results show that majority (47.5%) of the respondents had a farm size between 0.6-1.0 hectares, 40.0% had a farm size of 0.1-0.5 hectares and 12.5% had a farm size of 1.1-1.5 hectares. The mean farm sizes were 0.66 hectares. This result proved that most of the cassava farmers in the area are subsistence farmers who operate in small scale. This development would have negative effect on cassava production in the area since farm size is an important determinant of production output especially for a crop production enterprise.

FARMING EXPERIENCE OF THE RESPONDENTS

Table I shows that greater proportion (37.5%) of the respondents had between 11-15 years farming experience, 32.5% had stayed between 6-10 years, while 15% had an experience of 1-5 years and 16-20 years respectively. The mean farming experience was 10.50 years. The result indicates that the majority of the respondents are highly experienced and advanced.

NATURE OF CASSAVA PRODUCTION

Table 2 shows that greater proportion (50.0%) of the respondents practiced both mixed and sole cropping, while 37.5% practiced mixed cropping and 12.5% practiced sole cropping. This implies that majority of the farmers practice mixed cropping with other crops and also sole cropping.

FERTILIZER USE IN CASSAVA PRODUCTION

Table 2 shows the distribution of respondents' attitude towards the use of fertilizer in the study area. The result shows that majority (70.0%) of the respondent's uses fertilizer while 30.0% do not use fertilizer. This implies that majority of the farmers apply fertilizer in their cassava farms.

TYPES OF FERTILIZER FARMERS USED

Table 2 shows that majority (60.0%) of the respondents used inorganic fertilizer in their cassava farm while 40.0% of them make use of organic fertilizer. This implies that inorganic fertilizers are mainly used by farmers in the study area.

TABLE 2: DISTRIBUTION OF RESPONDENTS ACCORDING TO FARMERS THAT USES FERTILIZER AND NATURE OF CASSAVA PRODUCTION

NATURE OF CASSAVA PRODUCTION	FREQUENCY	PERCENTAGE (%)	RANK
Sole cropping	5	12.5	
Mixed cropping	15	37.5	
Both mixed and sole	20	50.0	
Fertilizer Use			
Yes	28	70	
No	12	30	
Type of Fertilizer			
Inorganic	24	60	
Organic	16	40	
Aim of Using Fertilizer			
Increase in yield	14	35	1 st
Increase in income of tubers	11	27.5	2 nd
Increase in yield + fast growth + increase income of tubers	6	15	3 rd
Increase in yield + increase income of tubers	5	12.5	4 th
Increase in yield + fast growth	4	10	5 th

Source: Field Survey, 2015 x = Multiple Responses

AIMS OF USING FERTILIZER IN CASSAVA PRODUCTION

From the findings, it was deduced that increase in yield ranked 1st with 35%, increase income of tubers ranked 2nd with 27.5%, increase in yield + fast growth + increase income of tubers ranked 3rd with 15%, increase in yield + increase income of tubers ranked 4th with 12.5% while increase in yield + fast growth ranked 5th with 10%. This indicates that the major aims of using fertilizer by cassava farmers are increase in yield.

ENVIRONMENTAL EFFECT OF USING FERTILIZER IN CASSAVA PRODUCTION

MEDIUM AFFECTED

Table 3 shows the medium affected towards the use of fertilizer in the study area. The result shows that majority (85.0%) of the soil were affected, while 10% of the air were affected and 5% of water were affected. This indicates that fertilizer has greater implications on the soil in the study area. Table 3 shows the effect of using fertilizer in cassava production. From the findings, it was deduced that increased soil acidity ranks 1st with 37.5%, effects of soil microorganism ranks 2nd with 20%. Soil erosion and removal of nutrients from the soil ranks 3rd with 15%, altering air condition, living condition ranks 4th with 12.5%, removal of nutrient from the soil and reduction in growth of cassava ranks 5th with 10% while eutrophication ranks 6th with 5%. This indicates that

the major environmental effect of using fertilizer in cassava production is increased soil acidity in the study area.

TABLE 3: ENVIRONMENTAL EFFECTS OF USING FERTILIZER IN CASSAVA PRODUCTION

MEDIUM AFFECTED	FREQUENCY	PERCENTAGE (%)	RANK
Soil	34	85.0	
Water	2	5	
Air	4	10	
Effects of using fertilizer	15	37.5	1 st
Increase soil acidity	8	20	2 nd
Effect soil microorganism	6	15	3 rd
Soil erosion + Removal of nutrient from the soil	5	12.5	4 th
Altering air condition + living condition	4	10	
Removal of nutrient from the soil + Reduction in cassava growth	2	5	5 th
Eutrophication			6 th

Source: Field Survey, 2015 x Multiple Responses

PROFITABILITY OF CASSAVA PRODUCTION IN THE STUDY AREA

The profitability of cassava production was determined using enterprise budgeting and return on investment methods. Table 4 shows result of the computation. It could be seen from the table that gross margin was ₦ 1,760,090; net farm income ₦1, 723,480 and net return on investment ₦ 2.91k. The net return on investment value of 2.91 implies that the farmer returned ₦ 2.91 for every 100 kobo invested in the business. The positive value of gross margin, net farm income indicates that cassava production is profitable in the area. Further findings of the study revealed that majority of cassava farmers (70.0%) use fertilizer.

TABLE 4: ESTIMATED COST AND RETURN FOR CASSAVA PRODUCTION PROFITABILITY

VARIABLE	AMOUNT (₦)	PERCENTAGE (TC)
Total Revenue	2,315,500	
Variable cost:		
Cassava stem	7,910	1.39
Fertilizer	174,400	30.82
Labour	210,000	37.11
Pesticides	36,200	6.39
Transportation	80,400	14.21
Miscellaneous	46,500	8.22
Total Variable Cost (TVC)		
Fixed cost	555,410	98.14
Matchet	8,700	
Wheel barrow	22,510	
Hoe	5,400	1.46
Total Fixed Cost (TFC)	36,610	3.80
Total cost (TC = TVC + TFC)	592,020	0.91
Gross margin (GM = TR – TVC)	1,760,090	6.17
Net farm income (NFI = TR – TC)	1,723,480	
Mean net farm income (MNFI = NFI/n)	43,087	
Net return on investment (NROI = NFI/TC)	2.91	

Source: Field Survey, 2015. Note: n = Number of Repetition

CONSTRAINTS TO FERTILIZER APPLICATION BY CASSAVA FARMERS

From the finding, it was deduced that lack of extension agencies ranks 1st with mean score of 2.43, lack of access to quality information about fertilizer use ranks 2nd with mean of 2.4, lack of sufficient fund ranks 3rd with mean score of 2.3, lack of access to efficient market ranks 4th with mean score of 2.2, lack of access to fertilizer ranks 5th with mean score of 2.1, poor technology ranks 6th with mean score of 1.9, unfavorable government policies ranks 7th with mean score of 1.6, scarcity of improved seeds ranks 8th with mean score of 1.4, high cost of transportation ranks 9th with mean score of 1.33, menace of pest and diseases ranks 10th with mean score of 1.3 and problems of soil erosion ranks 11th with mean score of 1.1. This indicates that they are not serious problem affecting cassava production.

TABLE 5: PROBLEMS MILITATING AGAINST CASSAVA PRODUCTION AND ACQUISITION OF FERTILIZER

CONSTRAINTS	MEAN SCORE	RANK
Lack of extension agencies	2.43	1 st
Lack of access to quality information about fertilizer use	2.4	2 nd
Lack of sufficient fund	2.3	3 rd
Lack of access to efficient market	2.2	4 th
Lack of access to fertilizer	2.1	5 th
Poor technology	1.9	6 th
Unfavorable government policies	1.6	7 th
Scarcity of improved stems	1.4	8 th
High cost of transportation	1.3	9 th
Menace of pest and diseases	1.3	10 th
Problem of soil erosion	1.1	11 th

Source: Field Survey, 2015.

Further findings of the study revealed that majority (85.0%) of the soil were affected environmentally due to increased soil acidity. Problems militating against cassava production in the area include; poor technology, unfavorable government policies, scarcity of improved stems, high cost of production, menace of pest and diseases, problems of soil erosion is not a major problem. Lack of access to fertilizer, lack of access to efficient market, lack of sufficient fund, lack of access to quality information about fertilizer use, lack of extension agencies is the most serious problems.

CONCLUSION AND RECOMMENDATIONS

Cassava is one of the major staple crops in the study area being grown by all farm households. Its production is a profitable enterprise evidenced by gross margin, net farm income, mean net farm income and net return on investment. Farmers' use of fertilizer showed that majority of the respondents is aware but lack extension agent. This situation could have a very significant impact on the production output. Production of cassava could be increased if there will be an extension agent in the area to encourage farmers and direct them on the best production practices and use of fertilizers as well.

RECOMMENDATIONS

Based on the findings above, the following recommendations were made:

1. Government should provide extension agents to the study area to help educate cassava farmers on how to use fertilizers.
2. Government should provide quality information on the use of fertilizers in respect to farmers in the study area to reduce and overcome environmental hazards caused by the fertilizers.

3. Farmers should form cooperative societies to attract cheap loans, achieve bulk purchase of inputs at cheaper rates and even buy modern farm implements.

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