
ECONOMICS OF FRESH MAIZE PRODUCTION IN ANAMBRA EAST LOCAL GOVERNMENT AREA OF ANAMBRA STATE, NIGERIA

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Abstract: The study examined the economics of fresh maize production in Anambra-East local government area of Anambra State, Nigeria. Multi-stage random sampling techniques were adopted to select 40 respondents that were used in the study. Analysis of the data was actualized by means of descriptive statistics, costs and returns analysis and likert scale rating. The study indicated that (62.5%) of the fresh maize farmers were male and majority (50%) were aged between 41 and 50 years. Fresh maize production was profitable given the positive values of gross margin (₦2, 239 150), net farm income (₦1, 406, 850), average net farm income (₦39, 171) and net return on investment of 0.95. The serious constraints of fresh maize production include lack of capital, high cost of transportation, menace of pest and disease, problems of soil erosion, high cost of fertilizer, high cost of labour and lack of extension agents. It was recommended that government should provide good roads in the area subsidize the price of fertilizer and help the farmers to form cooperative society.

Keywords: Maize, Fresh Maize Production, Farming System, Land, Labour, Capital.

INTRODUCTION

Maize (*Zea Mays* L) is a member of the gram family (graminea). It originated from South and Central America. Maize is one of the most important grains in Nigeria, not only on the bases of the number of farmer that engaged in its cultivation, but also on its economic value. It started as subsistence crop and had gradually become a major crop. Maize has now risen to a commercial crop on which many agro-based industries depend for raw material (Ikem and Amusa, 2004).

Maize is the most important cereal after wheat and rice when compared with area and total production (Purseglore, 1992) Maize can be classified according to the structure of the grain. There are sweet corn, pop corn, dent corn, soft or flour corn and pod corn. According to the International Institute of Tropical Agriculture (IITA, 2001), maize contains 80% carbohydrate, 10% protein, 3.5% fiber and 2% minerals. Iron and vitamins B is present in maize.

Maize has variety of uses. Its grain is a source of starch, vitamins, proteins and minerals. The starch extracted from maize grain is mixed in making confectionary and noodles. Edible oil is extracted from the seeds and it is an all purpose culinary oil. Ethanol obtained from maize can be used as a biomass fuel. Also maize can be used as forage feed for livestock and silage after fermentation of corn stocks. Due to these competitions between man and animal, there is the need to increase the supply level of the grain. Studies in maize production in different parts of Nigeria have shown an increasing importance of the crop amidst growing utilization by food processing industries and livestock feed mills (Ogunsumi, 2005, Khawar, 2007).

The demand for maize in Nigeria has been on the increase due to the increasing growth in population income levels, urbanization and associated changes in the family occupational structure. (Akanji, 1995). On the contrary, the rate of supply of fresh maize has lagged behind that of demand, leaving a wide gap between demand and supply. The reason according to Roy and Dutt (2000) include agro-ecological, technical and socio-economic constraints.

Farming System/Practices of Fresh Maize Production

Farming system refers to the prevailing social pattern of farming and it entails the distinctive method of combining inputs, e.g. labour, land, crops and cultural practice.

Farming system also demotes a concept of mixed farming where mixtures of various crops are grown along with maintenance of livestock on a piece of land owned by the farmer. Salam and Sreek Umar (1990) highlighted mixed farming as a harmonious assembly of crop and animal husbandry. Akanji (1995) reported that a great variety of farming system could be found in a single country.

Cost and Return Associated with Fresh Maize Production

Audu (1992), in his study of costs and returns of fresh maize in Gboko area of Benue state, revealed that an average farmer in the area spent ₦3,510 on labour, ₦547.80 on seed, ₦335.70 on fertilizer, ₦1,537.70 on herbicide, ₦187.00 on empty sack, ₦127.50 on transportation of output and paid interest of ₦1,215.25 on capital per hectare of land cultivated. According to Olarewaju (1998), maize production was profitable since total cost was lower than total revenue. His study was carried out in Osun state.

Constraints of Fresh Maize Production

The constraints to fresh maize production are many. According to Felade (2001), the constraints are scarcity of inputs, illiteracy, low productivity, poverty and menace of pests and diseases. Also Umeh *et al* (1995) named yield loss due to degradation by insects and pests on fresh maize.

Socio-Economic Characteristics of Fresh Maize Farmers

Ovmigho and Ifie (2004) found that farmers and their spouses were in the middle age and had engaged in fresh maize farming from 20 - 25 years. Ethelbert (2008) studied technical efficiency of fresh maize production and revealed that most of the respondents (65%) involved in fresh maize farming were female and 35% were male.

OBJECTIVES OF THE STUDIES

The broad objective of the study is to examine the economics of fresh maize production in Anambra East Local Government Area of Anambra State, Nigeria.

The specific objectives are to:

- i. Determine the socio-economic characteristics of fresh maize farmers in Anambra state local government area;
- ii. Describe the farming system/practice in the study area;
- iii. Estimate the costs and returns associated with fresh maize production;
- iv. Identify the constraints to fresh maize production in Anambra East local government area and;
- v. Proffer recommendation for effective production of fresh maize in the study area.

RESEARCH METHODOLOGY

The Study Area

The study was carried out in Anambra East Local Government Area of Anambra State, Nigeria. It consists of 10 communities namely Otuocho (The Headquarter), Umuleri, Igbariam, Nando, Nsugbe, Aguleri, Eziaguluotu, Okpanado, Enugwu Aguleri and Umuoba

Anam. Its estimated population, based on 2006 Census of Nigeria, stood at 153,331 (National Population Census, 2006).

The climate is tropical with two distinct seasons, the wet and dry season. The area is predominantly agrarian with crops such as maize, yam, cassava, rice, tomatoes and cocoyam being grown as major crops.

Population and Sampling Procedure

A multi-stage sampling technique was used to select 40 respondents for the study. The first stage involved the selection of one community out of 10 in the area by simple random technique. Stage II entails a simple random selection of two villages from the community. Finally, 20 fresh maize farmers were selected from each village making it 40 fresh maize farmers.

Methods of Data Collection

Data for this study were collection from primary sources. It included information on socio-economic characteristics of the respondents such as age, marital status, gender, level of education, household size, years of experience, primary occupation, farm size and fresh maize varieties. Output and input variables and their current market prices were also collected.

Measurement of Variables

A researchable number of variables were employed in this study. They include fresh maize production variable, variables cost items and socio-economic variables.

Production Variables

Fresh maize production output: the output of fresh maize per farmer was measured as the total quantity in kilogram of fresh maize grain for the production.

Fresh Maize Production Inputs

They are made up of variable and fixed cost items. Variable cost items include fertilizer, hired labour, particles, seed rate and transportation. Fixed cost items include land, matchet, hoe, shovel, spade, rake, digger, sickle, plastic bowls and wheel borrow.

Socio-economics Variables

These include educational level, gender, household size, farmer's year, and farming experience.

Method of Data Analysis

Description statistics such as tables, means, frequencies, percentages and likert scale rating were used for objective i, ii, and iv. Objective (iii) was achieved using net farm income analysis. Net farm income is the difference between total fixed costs. The method of net farm income analysis which was employed in determining the profitability of fresh maize production is given as:

$$NFI = TR - TC$$

$$TR = TR - TVC - TFC$$

$$GM = TR - TVC$$

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$$NROI = \frac{NFI}{TC}$$

Where;

GM	=	Gross margin
TR	=	Total revenue
TVC	=	Total variable cost.
NROI	=	Net return on investment.

RESULTS AND DISCUSSION

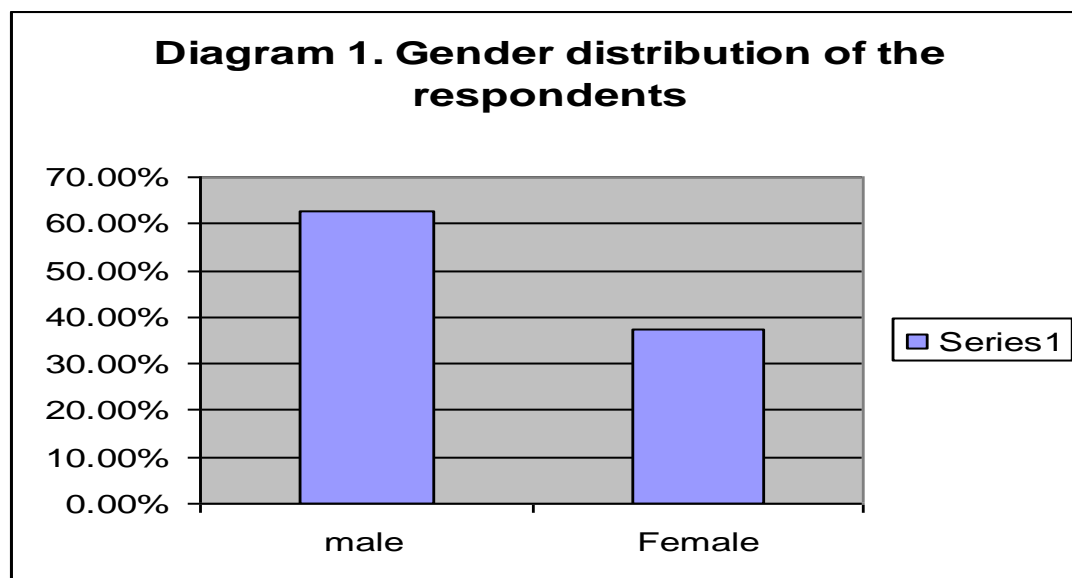
The results of the data are discussed under socio-economic characteristics, of the farmers, fresh maize practices, costs and returns in fresh maize production and constraints of fresh maize production.

Socio-economics Characteristic of Fresh Maize Farmers

The socio-economic variables considered in the study are gender, age, marital status, household size, occupation, and educational level.

Gender Distribution of Respondents

Gender distribution of the respondents is shown in diagram 1.



Source: Field Survey, 2012.

Results of the analysis showed that 62.5% of the fresh maize farmers were male while 37.5% were female. This implies that fresh maize production activities require high energy demand which the men naturally possess more than women.

Age Distribution of Respondents

The distribution of the respondents according to age is presented in table 1. It could be seen that 90% of the respondents were within the highly productive age range of 30-50 years. It implies that fresh maize production in the study area is dominated by young people.

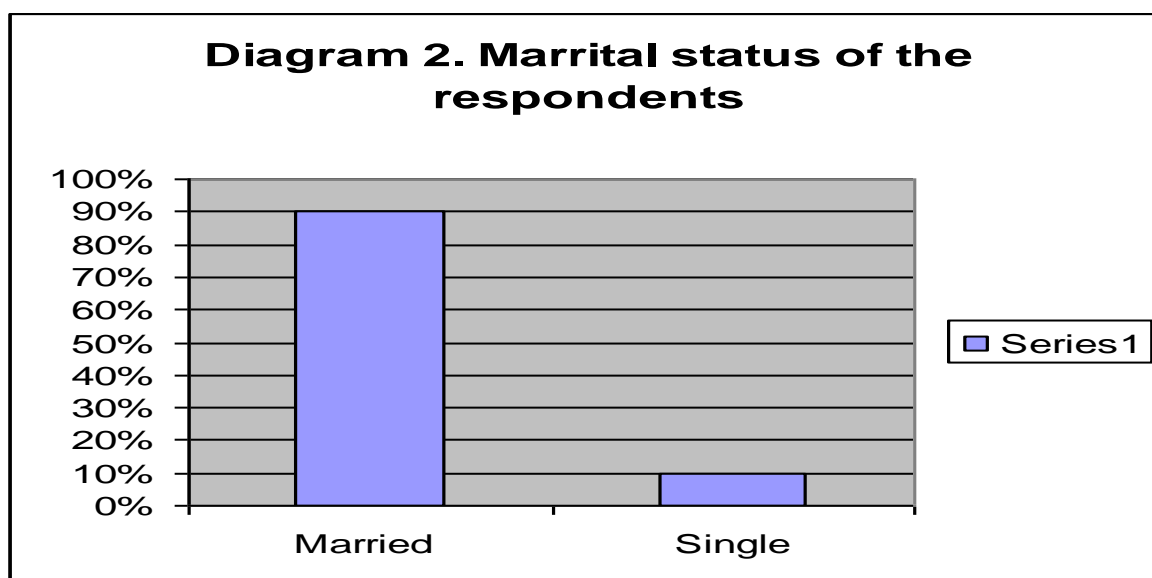
Table 1: Distribution of Respondents According to Age

21 - 30	3	7.5
31- 40	13	32.5
41-50	20	50
51-60	4	10
Total	40	100

Source: Field Survey, 2012.

Marital Status of Respondents

The result of analysis of marital status of the respondents (Diagram 2) showed that majority of the farmers (90%) were married while the remaining 10% were single.



Sources: Field Survey, 2012.

Household Size of Respondents

The household size is of great important to agricultural production as sources of labour. Table 2 showed that 17.5% of the farmers had family size levels than four persons, 55% had between 5-8 persons, 25% between 9-12 persons and 2.5% had 13-15 persons.

Table 2: Household Size of the Respondents

Household Size	Frequency	Percentage
→ 4	7	17.5
5 – 8	22	55.0
9 – 12	10	25.0
13 – 15	1	2.5
Total	40	100

Source: Field Survey, 2012.

Occupational Distribution of Respondents

Majority of fresh maize farmers in the study area (85%) consumed fresh maize production with other farming activities such as livestock production etc. as shown in table 3. Only 15% of the

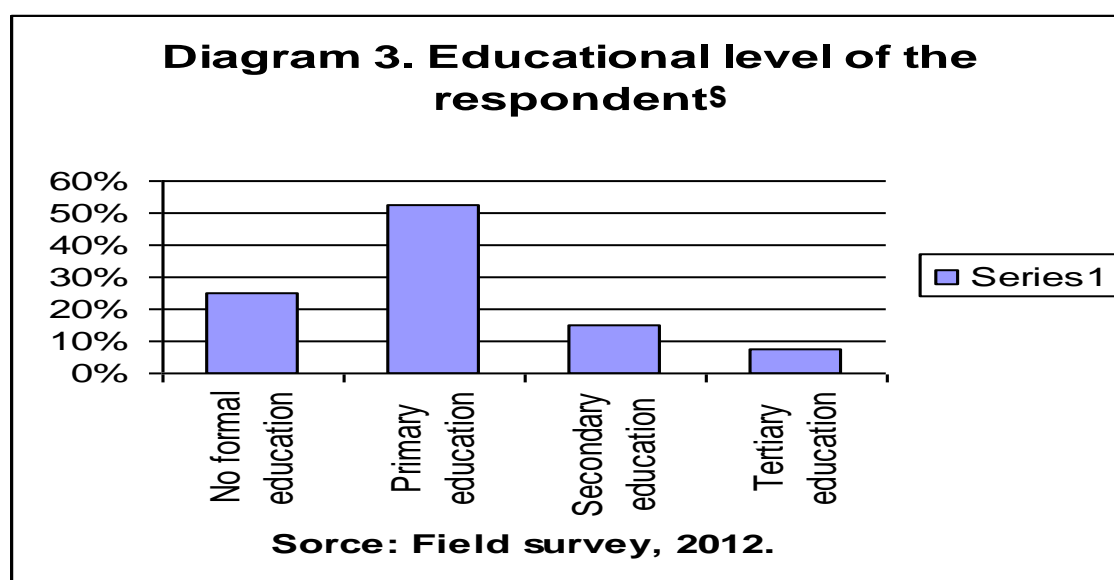
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respondents engaged in non farming ventures such as; trading, paid jobs and wine tapping. This means that farmers in the area earned their incomes predominantly from farming activities.

Table 3: Occupation of the Respondents

Occupation	Frequency	Percentage
Fresh maize production and other farming activities	34	85
Fresh maize production and non farming activities	6	15
Total	40	100

Educational Level of the Respondents

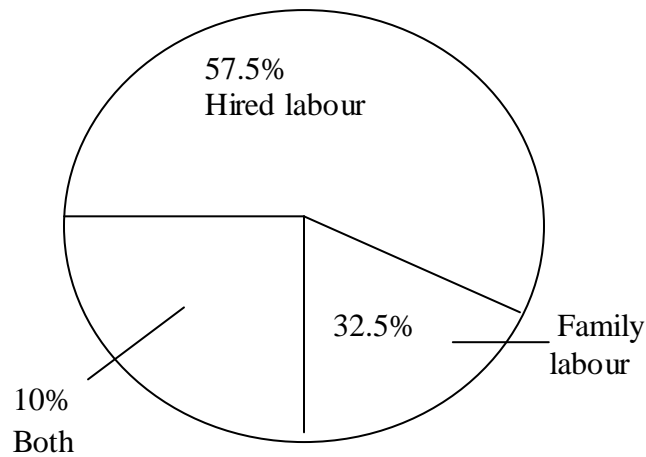


Respondents, according to educational level are presented in diagram 3. It revealed that only 22.5% of the respondents had secondary and tertiary education while 25% had no formal education. This could be as a result of migration of well educated people to urban centers while those with little education stay back in their communities and engage in farming activities.

Sources of Labour of the Respondents

Labour is a major determinant of any agricultural production. Diagram 4 shows that majority (57.5%) used hired labour only while 32.5% used family labour only. Only 10% use family and hired labour.

Diagram 4: Labour Sources of the Respondents

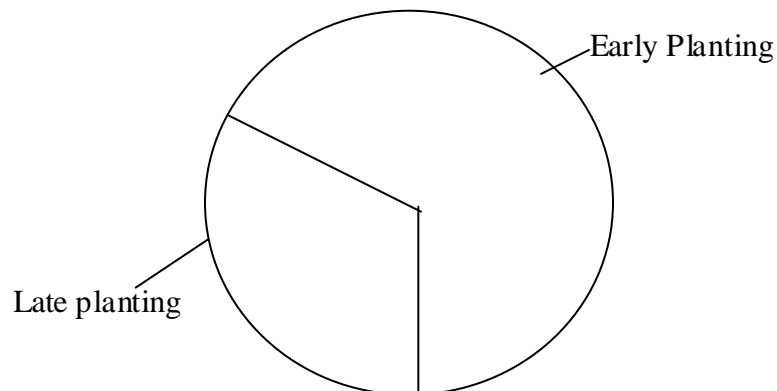


Source: Field Survey, 2012.

Fresh Maize Farming System/Practices

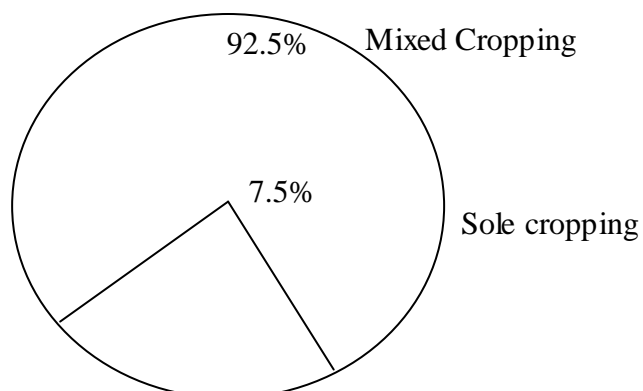
Farming system refers to the prevailing social patterns of farming in an area and entails the distinctive methods of combining inputs. Akanji (1995) reported that a great variety of farming systems could be found in a single country as a number of factors goes to determine the prevailing farming system in a particular place. The planting period, cropping pattern, fresh maize variety use and distribution of respondents according to farm size are shown in diagram 5, 6, 7, 8 respectively.

Diagram 5: Planting Period



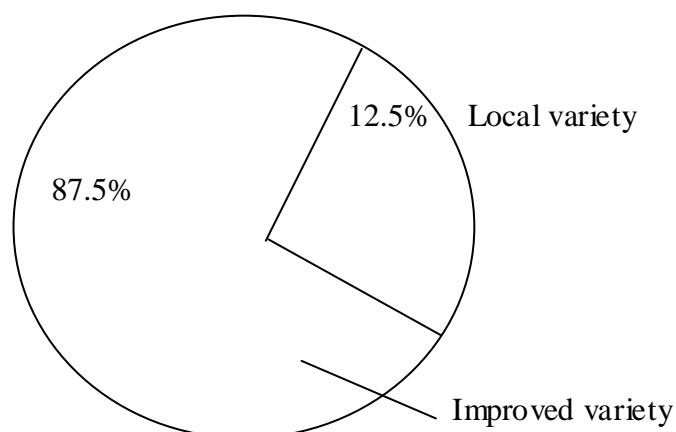
Sources: Field Survey 2012

Diagram 6: Distribution of Respondents According to Cropping Pattern



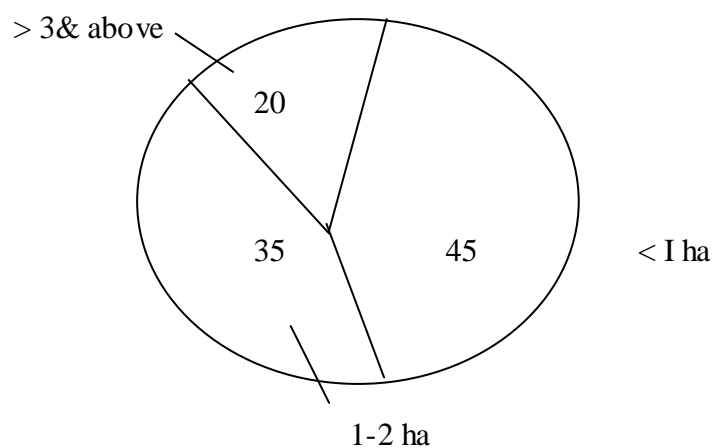
Sources: Filed Survey, 2012.

Diagram 7: Fresh Maize Variety Use



Source: Field Survey, 2012.

Diagram 8: Farm Size of the Respondents

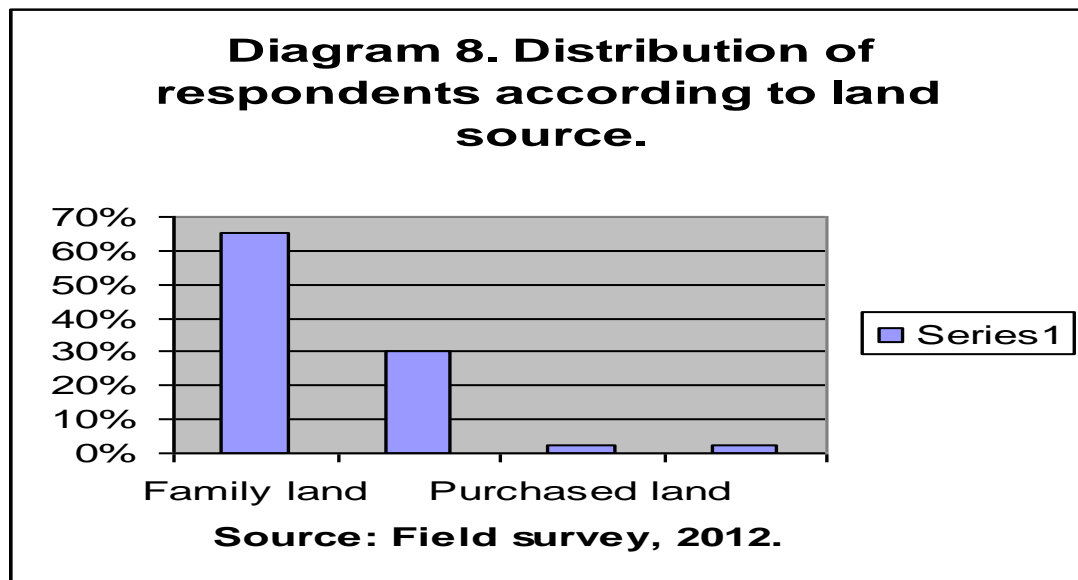


Source: Field Survey, 2013.

Land Source of the Respondents

Land was acquired in the study area mainly through family land, communal land, purchased land and freehold land.

Diagram 9 shows that majority of the land source 65% was a family land. Part of these, communal land are also source representing 30%, purchased land and freehold land had 2.5% each.



Cost and Returns of Fresh Maize Production

The analysis of costs and returns of fresh maize production was done by means of the enterprise budgeting method. The result indicated that the farmers realized gross margin, net farm income, average net farm income and net return on investment of ₦2,241, 950; ₦1, 406, 850; ₦35, 171, and 0.95 respectively. The net return on investment value of 0.95 implied that the farmer returned ₦1.95 for every one naira invested in the business as shown in table 4.

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Table 4: Estimated Net Income for Fresh Maize Producers in the Area (₦)

Variable	Amount (₦)	Percentage (%) Total Cost
Total Revenue	2,880,500	
Variable Costs:		
Seeds	77,000	5.23
Fertilizer	198,500	13.47
Pesticides	44,550	3.02
Transportation	86,000	5.84
Labour	9,000	6.72
Plastic bowls	2,800	0.19
Miscellaneous	33,000	9.03
Total Variable Cost (TVC)	640,850	43.50
Gross Margin GM=TR-VC	2,239,150	
Fixed Cost:		
Land	800,000	54.31
Matchet	5,400	0.37
Wheel barrow	22,510	1.53
Hoe	4,390	0.29
Total Fixed Cost	832,300	56.50
Total cost (TC = TVC + TFC)	₦1,473,150	100
Net Farm Income (NFI = TR - TC)	₦1,406,850	
Average net farm income (ANFI = NFI/n) =	35,171	
Average return on investment (NROI) = NFI/TC =	0.95	

Source: Field Survey, 2012.

Constraints to Fresh Maize Production in the Study Area

Fresh maize production encounters different problems during production. In table 5, the respondents' most serious problem was lack of capital (funds) with a mean of 3.78 followed by high cost of transportation.

Table 5: Ranking of Farmers Problems

Problems	Means Score	Rank
Lack of capital (funds)	3.8	1 st
High cost of transportation	3.5	2 nd
Menace of pest and disease	3.4	3 rd
Problems of erosion	2.2	4 th
High cost of fertilizer due to scarcity	1.6	5 th
High cost of labour	1.4	6 th
Lack of extension agents	1.1	7 th

Source: Field Survey, 2012.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study examined the economics of fresh maize production in Anambra East local government area of Anambra state, Nigeria. Specially, it examined the socio-economic characteristics of fresh maize farmers, determined the input and output levels, estimated the costs and returns associated with fresh maize production and identified constraints to fresh maize production.

Findings on the socio-economic characteristics of respondents showed that majority of the farmer (62.5%) were male, most of them (50%) fell within the middle and active range of 21-50 years, 90% were married, most of the farmers (55%) had house hold size between 5-8 persons; 8.5% were engaged in fresh maize production and other farming activities. Educational attainment was primary education (52.5%). 57.5% of the labour force came from hired labour while 90% of the farmer's engaged in early planting and mixed cropping system.

Result of the enterprise budgeting analysis indicated gross margin, net farm income, average net farm income and net return on investment of ₦2, 239, 150, ₦1, 406, 850, ₦ 35, 171 and 0.95 respectively. The farmer's returned on the average ₦1.95 for every naira invested in the business.

Conclusion

Fresh maize is one of the major stable crops in the study area grown by all farm household. Its production is a profitable business, evidenced by the net return on investment. The problems militating against its production were investigated.

Recommendations

Based on the findings of this study, the following recommendations were made;

- i. Government should provide good roads in the area in order to reduce the transportation cost.
- ii. Government should subsidized the price of fertilizers to make it more available to the rural farmers and
- iii. Farmers should form co-operative societies to attract cheap loans, achieve bulk purchase of inputs at cheaper rates and even buy modern farm implements.

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