SUSTAINING EXTENSION ACTIVITIES IN YAM PRODUCTION: AN ASSESSMENT OF THE PRODUCTIVITY CONSTRAINTS OF FARMERS IN YAGBA LOCAL GOVERNMENT AREA KOGI STATE

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ABSTRACT

The study examined the constraints faced by yam farmers in Yagba West Local Government Area of Kogi. Data were collected with the aid of a structured questionnaire from eighty (80) randomly selected in 4 communities and analyzed using descriptive statistics and chi-square. The result showed respondents within the age bracket 41-50 years constituted 41.25% while majority (86.25%) Furthermore respondents with farming experience above ten (10) years were 87.5%. The study that majority (75%) had one form of education or the other. The mean or the average farm size of was 0.687 and majority (90%) grows mainly white variety of yam. The results shows a positive between the out and the following constraints faced by the farmers in the study area at 1% significant access to loan, High cost of inputs, poor soil fertility, transportation, pest and diseases, environment lack of infrastructural facilities, livestock destruction, problem of acquiring motherseed. In addition constraints identified above majority (88.75%) of the respondents claimed they don't have access services which will aid in alleviating their problems. It was recommended that adequate extension focusing intervention programme in the study area to solving the identified problems e.g. provision of infrastructural facilities and provision of inputs at subsidized rate.

KEYWORDS
Extension, Yam, Productivity, Constraints Farmer.

INTRODUCTION

Yam is very important food crop in Sub-Sahara Africa, especially in the area from Cameroon to C'dvoire across to Nigeria and other Africa countries. This region alone represent 90% of the world production of yam and a quarter of the world production of edible roots and tubers comes from this region. (FAO, 2005).Agriculture is the largest sector in the economy, providing employment and the bulk of the labour force comes from the small scale farmers who resides in the rural area, this result in to slow growth of agricultural sector and gave raise to the growing food imports (FAO, 1990) Household spend up to 70% of their income on food and yet nearly 50% of the children under five are malnourished. The above are as a result of some militating constraints faced by the small scale farmers, these scenario calls for sustainable yam production. In Africa the tools used are still very primitive and this largely account for the low yield of many crops grown including yam (Akinyosoye, 1985).

The Oxford Advanced Learners Dictionary defined sustainability as "keeping an efforts going continuously" sustainability is also seen as the ability of agricultural system to keep production on going continuously without falling (Idachaba, 1987). Thus a "sustainable agricultural extension system" is one that is able to keep and improve the pace of Agricultural production to Satisfy both domestic and export demands (Onemoleashe*etal*).

For a sustainable agricultural production to thrive, several factors which range from price incentives,

improved cultural practices and pest and control programmes have been suggested al 1980 and Tijani and Farinde 1998.

Yam contribute more than 200 dietary capital daily formore than 150 million West Africa while serving as an important of income to the people (Olayide, 1972 according to Hahn (1991) Food production Sahara Africa has not kept up with the population on the land, this according attributed to decreased in the resources causes the farming environment unreliable, coupled with the unpredictable changes, thus there will be more acute in the future, unless the productivity including root crops is increased by at least per annum, this perhaps can only be through sustained Agricultural Extension

According to Ajayi (1999) low productivity be attributed to poor response of the service to combating non- technological constraint encountered by farmers productivity of the agricultural sectors due to farmer'sreluctance to embrace farm practices (Nnadi and Onweagba, main objective of the study was to examine productivity constraints of yam farmers in the area, describe yam farmers in the study their socio-economic characteristics; examine respondents output and to determine the

...production constraints on the farmers output

METHODOLOGY

The study was carried out in Yagba West Local Government Area of Kogi State. Yagba West is situated in the Western part of the state. The average rainfall is about 130 mm with annual temperature ranging from 30^0C and 35^0C, with high humidity trend through out the year. Agriculture is the main occupation of the people, they grow crops like yam, cassava, sorghum, cocoyam and melon and reared animals like goat, sheep and cattle.

Yagba West Local Government consist of two areas i.e. the area council and the town council. The area is made up of 14 political wards, Egbe community consist of 8-14 Wards. Five communities where yam is highly produced is in wards 8-14, as such ward 8-14 was purposely selected and four wards that are well known for yam production were randomly selected. Twenty (20) yam farmers were selected at random from the four communities which include Odo-Ere, Lyamerin, Igbaruku, and Odo-ara. A total of 80 respondents were sampled.

Both primary and secondary data were employed for this study. The primary data were collected through the use of a structured and validated questionnaire consisting of open and close ended questions to elicit information from the target respondents. Secondary data was obtained from past literatures like journals, text books, magazines, pamphlets etc. Trained enumerators who had the knowledge of the local dialect of the clientele were used to assist in the collection of the information required.

Descriptive statistics mainly frequency distribution tables and percentages were used. Inferential statistics mainly chi-square was employed for testing relationships between variables.

RESULTS AND DISCUSSION

Table 1 shows that a large proportion (41.25%) of the respondents were within the age range of 41-50 years, while 30.0% were within the age of 51-60 years. Those that were between the age of 31-40 years accounted for 8.75% and those within the age range of 60 years and above accounted for 6.25%. The mean age of the respondents was 49years. This implies that most of the yam farmers in the study area were in their active years (middle age). This trend may have significant implication for the labour supply on the study area, for Agricultural production requires able bodied active individual, as such labour supply to some extent may not be a problem in the study area. It was evident in Table 1 that majority (86.25%) of the respondents were

males while 13.75% were females. This implies that a greater proportion of the respondents were males. This agrees with the findings of Adedoyin,&Fapojuwothat male dominate the work force in Nigeria's agricultural communities. Entries in Table 1 shows that majority (72.5%) of the respondents are married, while 12.5% are single. The widow/widower and those separated were 7.5% each. This implies that majority of the respondents are responsible individuals, contributing directly or indirectly to household food security and national food availability. As shown in Table 1 majority (65%) of the respondents had household size of 6-10, those that have between 1-5 are 20% only 3.75% of the respondents had above 20 members in their household. The above implies that labour supply will also not be a problem in the study area. It is also evident in Table 1 that majority (75%) had one form of education or the other, it was only 25% that are illiterate. This implies that the rated of diffusion and acceptance will be greatly enhance, this also agrees with Tologbonse (2004) findings that education affect the speed with which new technologies are being diffused and accepted by the farmers. Entries in Table 1 reveal that majority (47.75%) of the respondents had more than 20 years of farming experience, followed by 38.75% of respondents who had 11-20 years of farming experience and only 12.55 had less than 10 years farming experience. This findings indicate that most of the respondents interviewed were experienced farmers.

Table 1:Socio-Economic Characteristics of Respondents n=80

VARIABLES	FREQUENCY	PERCENTAGE
Age		
21-30	3	37.75
31-40	15	18.75
41-50	33	41.25
51-60	24	30
>60	5	6.25
Sex		
Male	67	86.25
Female	11	13.75
Marital Status		
Single	10	12.5
Married	58	72.5
Separated	6	7.5
Widow/Widower	6	7.5
Household Size		
1 – 5	16	20

6 – 10	52	65
11 - 15	8	10
16-20	1	1.25
>20	3	3.75
Level of Education		
Illiterate	20	25
Education	60	75
Farming Experience (Years)		
1 – 10	10	12.5
11 – 20	31	38.75
>20	39	48.57

Source: Field Survey, 2009.

Table 2:Distribution of Respondents by Farm Size

VARIABLES	FREQUENCY	PERCENTAGE X
Overall Farm Size (Hectares)		
0-0.5	39	48.7
0.6-1	29	36.3
1.1-2	8	10
Above 2	4	5
Farm Size Planted with Yam		
0-0.5	30	37.5
0.6-1	30	37.5
1.1-1.5	8	10
1.6-2	7	8.75
2.1-2.5	3	3.75
>2.5	2	2.5

Source: Field Survey, 2009.

Entries in Table 2 shows that majority (48.7%) of the respondents farm size is within the range of 0-0.5 hectare followed by 36.3% of them in the range of 0.6-1 hectare while 10.0% of them had up to 2 hectares and only 5% of them have above 2 hectares. The findings indicated that the majority of farmers in the study area are small scale farmers who produce mainly for the household consumption and little or no surplus for the market. Table 2 also shows that majority (75%) of the respondents total area mainly devoted for yam production is within the range of 0-1 hectare and only 5.80% have above 2 hectares of yam. The above indicate that the total area devoted to the production of yam mainly is very small. This can be attributed to the various constraints faced by the small scale yam farmers in the study area.

Table 3:Distribution of Respondents by the Varieties of Yam plantedand their previous Season Output.

VARIABLES	FREQUENCY	PERCENTAGE X
Varieties Planted		
White Yam	72	90
Yellow Yam	5	6.2
Water Yam	3	3.8
Aerial	-	-
Output Previous Season (Yield in Tubers (kg)		
0-3000		
3001-6000	12	15
6001-9000	30	37.5
Above 9000	35	43.75
	3	3.75

Source: Field Survey, 2009.

Findings in Table 3 shows that up to 90% of farmers planted white yam varieties and only 6.2% and 3.8% farm yellow yam and water yam respectively.Non of the farmers planted aerial yam. which is an indication that aerial yam is going in to extinction. Furthermore Table 3 shows that the current output of the farmers in 2008, it reveals that majority (43.75%) of the farmers product worth between 6001-9000kg, while 3.75 managed to produce above9000kg. this implies that the farmers in the study area still produced yam at the subsistence level.

Table 4: Distribution of Respondents based on their Source of Credit and Inputs

VARIABLES	FREQUENCY	PERCENTAGE X
Sources of Credits		
Banks	4	5
Local Money Lenders	40	40
Cooperatives	30	37.5
Friends/relatives/Neighbour	6	7.5
Source of Inputs		
Chemical stores (market)	60	75
ADP	-	
MOA	-	
Mutual agreement	20	25

Source: Field Survey, 2009.

Data in Table 4 indicated that 40% of respondents sourced their credit from local lenders, while about 37.5% of them cooperatives and 5% and 7.5% of them from

and friends/relatives respectively. This implies that the farmers in the study area do not take the advantage of credit facilities from the formal sources, which according to Onwubuya (2007) is a peculiar characteristics of small scale farmers. Entries in Table 4 also shows that majority (60%) of the respondents buy their farm inputs from the markets (chemical stores) others (20%) through mutual agreements (lending) from friends, neighbor and relatives to pay with a predetermined amount of interest which could be high or low, depending on the initial agreement. The above also points to the fact that farmers in this area still produce at subsistence level.

Table 5 Distribution of Respondents according to accessibility to extension Service N= 80

VARIABLES	FREQUENCY	PERCENTAGE X
Access to Extension Services		
Yes	9	11.25
No	71	88.75
Total	86	100

Source: Field Survey, 2009.

Table 5 shows the accessibility of respondents to extension workers during 2007/2008 cropping season. The result indicated that only 11.2% had access to extension and the remaining 88.8% claimed they had no access. This implies that majority of yam farmers in the study area do not enjoy extension services and this may be the major reason why the production of yam in the study area is still below expectation, for it is majorly through extension activities that the farmers can become aware of improved technologies which can boast their productivity.

Table 6: RankDistribution of Respondents according to Constraints faced in Yam Production

CONSTRAINTS	RANK
Difficulty In Accessing Loan	1
High Cost Of Inputs/Technology	2
Poor Soil Fertility	3
Transportation	4
Pest And Diseases	5
Environmental Factors (Rainfall)	6
Lack Of Infrastructural Facilities	7
Insect/Livestock Destruction	8
Problem of Acquiring Mother Seed	9

Source: Field Survey, 2009.

The ranking order of problems facing the respondents is shown in Table 6, analysis of the data reveals that the respondents ranked lack of capital as their number one constraint. This is probably due to the cash-trapped nature of small scale farmers in developing countries, capital is necessary for the purchase of equipment which is normally associated with improved technology as recognized by Patrick (2004). High cost of input ranked second among the problems faced by yam framers, which is closely linked to the earlier problem of lack of capital. The low ranking of lack of infrastructural facilities, insect-pest/livestock destruction and problem of acquiring mother seed is probably due to the fact that the respondents have devised several means of overcoming them.

Summary of Chi-Square Relationship among Variables

Variables	X^2 Cal	X^2 Tab	DF	Remark
Difficulty in Accessing Loan	88.900	9.210	2	Significant
High Cost of Inputs/Technology	38.275	9.210	2	Significant
Poor Soil Fertility	43.600	9.210	2	Significant
Transportation	22.675	9.210	2	Significant
Pest/Diseases	34.425	9.210	2	Significant
Environmental	7.200	6.635	1	Significant
	34.900	9.210	2	Significant
	68.575	9.210	2	Significant
	31.250	6.635	1	Significant

Computed From Survey Data 2009.

The analysis in Table 7 indicates that all the nine identified constraints have significant effect on the out of yam farmers at 1% level of significance. This implies that there is a significant relationships between the identified constraints. This perhaps may be the singular reason why yam farmers in the study had not been able to optimize their production.

CONCLUSION AND RECOMMENDATION

It is apparent from the result that the identified constraints have a significant relationship with the farmers output. The study also reveals hat yam farmers in the study area produce on small farm size, as evident from the result, it is only about 5.0% that had up to 2 hectares, this consequently gave raise to low output, majority (82.25%) produce between 3001-9000kg. the above directly or indirectly affect their income generation and consequently their standard of living. Based on the findings of the study, it is recommended that any intervention programme in the study area should be geared towards alleviating the identified problems, provision of inputs at a subsidized rate should be made a priority, this can be achieved through encouraging partnership with donor agencies and organizations, farmers should be encourage to form cooperatives, so that they can access assistance from the government and non governmental organization and to cater for their interest, and provision of credit facilities infrastructural facilities and expansion of market activities to generate more income is a necessity for their empowerment.

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ASSESSMENT OF THE EFFECT OF AGRICULTURAL PRODUCTIVITY ON RURAL HOUSEHOLD FOOD SECURITY IN KATCHA LOCAL GOVERNMENT AREA OF NIGER STATE.

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ABSTRACT
The study examined the assessment of the effect of agricultural productivity in rural household food security in Katcha local government area of Niger state, Nigeria. The specific objectives were to examine the socio-economic characteristics of rural household, examine the effect of socio-economic variables on household food security status of the respondents and to identify the constraints affecting agricultural output and food security. Descriptive statistics and multiple regression analysis were used. A survey conducted using 108 randomly selected respondents revealed that about 54.9% of the respondents have an average household size and about 77.8% of the respondents spends 60% of their total income on purchasing food items for their household and about 58.3% of the respondents use their personal farm produce both for household consumption and sales up to 56.4% of the respondents indicated that they are in dire need of more food. 42.7% of the total variation in food security index was explained by the regression model while the remaining 57.3% of the variation was accounted for by the exogenous factors. Major problems faced by the rural household include inadequate capital, lack of good road network, marketing of farm produce and insufficient or excessive rainfall. Social infrastructures should be provided and farmers should be given concession in disbursement of loans from financial institutions.

INTRODUCTION

Agriculture constitutes a significant sector of Nigeria's economy. The sector is significant in terms of employment of labour, contribution to Gross Domestic Product (GDP) and until early 1970; agricultural exports were the main sources of foreign exchange earnings (Amaza and Olayemi, 2002). During the 1960s, the growth of the Nigeria economy was derived mainly from the agricultural sector. However, in more recent years, there has been a marked deterioration in the performance of Nigeria's agriculture. The contribution of agriculture to the GDP which stood an average of 56% in 1960-1964 declined to 47% in 1965, 1969 and more rapidly to 32% in 1996- 1998 (Amaza and Olayemi, 2002). The agricultural sector's changing share of GDP is partly a reflection of the relative productivity of the sector.

The Federal ministry of Agriculture (1993) estimated that the annual supply of food crops would have to increase at an average annual rate of 5.9% to meet food demand, and reduced food importation significantly. Studies have shown that aggregate productivity in Nigeria has been growing at about 2.5% per annum in recent years (Olayemi, 1998; Akinbile, 2002; Amaza and Olayemi, 2002). But the annual rate of population growth has been high (about 3%) (Akinbola, 2002). The reality is that Nigeria has not been able to attain self sufficiency in productivity despite increasing hectares put into production annually (CBN, 2000). The constraint to the rapid growth of food production seems to be mainly that of low crop yields and resource productivity. The low agricultural productivity in Nigeria is revealed by the actual yields of major crops such as rice compared with potential yields (Federal Ministry of Agriculture, 1993).

There is a general agreement that poverty is wide spread and prevalent in developing countries. Many studies have also confirmed that the rate of poverty in the rural areas is higher than in urban areas (De Janvry and Sadoulet, 2001; Deinnger and Olinto 2001; ES Colal, 2001). What is still a subject of debate however is the best strategy for reducing rural poverty (Lanjouw, 2001). Several poverty reduction strategies have been suggested and used in different contexts. In Africa, the focus of poverty reduction strategies has been on agricultural growth as the pathway out of extreme poverty. However, unlike in many Asians and Latin American countries, where agriculture led growth played an important role reducing poverty and transforming the economics, the same is yet to occurr in Africa. But, now it has been discovered that peasant households in developing countries typically earn income from many different sources (Dercon and Krishnan, 1996; Block and Webb, 2001). Furthermore higher productivity in agriculture will indirectly lead to social improvements. Higher incomes will enable either the use of hired labour or labour saving technologies in place of the labour of school – age children in farming households thereby contributing directly to achieving universal primary education. The linkages between agriculture and child mortality are also strong, with agricultural productivity and diversification assuring food and nutrition security, thereby contributing to reducing child mortality (Gopal and Roe, 1997).

Food security exists when "all people at all times have access to safe nutritious food to maintain a healthy and active life" (FAO, 1996). The main goal of food security is for individuals to be able to obtain adequate food needed at all times, and to be able to utilise the food to meet the body's needs. Food security is multifaceted (Obamiro et al., 2003). Food availability for the farm household means ensuring sufficient food is available for them through own production. However, due to lack of adequate storage facilities and pressing needs, they mostly end up selling excess produce during the harvesting period, and sometimes rely on market purchases during the hungry season (Obamiro et al., 2003).

In Nigeria, one of the major factors responsible for declining agricultural productivity is farmers' limited access to production inputs which are necessary for attaining a high level of production. Poor productivity in agriculture leads to low income of the farmers and a decline in household food security. In Nigeria, population growth has outstripped agricultural output growth thus the issue of food security is of high importance to the nation. Some other factors that contribute to the diminishing of agricultural productivity is poor soil fertility influence of weather, pest and diseases, are to be controlled before high productivity can be attained. Problem of poor productivity in agriculture can lead to low income of the farmers and household. This study intends to provide answer to the following research questions:-

(i) What are the socio-economic characteristics of rural household in the study area?
(ii) What are the effects of socio-economic variables on household food security status of the respondents?
(iii) What are the constraints affecting agricultural output and food security of farmers in the study area?

The broad objective of this study is to assess the effect of Agricultural productivity in rural household food security in Katcha local government area of Niger State. The specific objectives of the study were to:
- examine the socio-economic characteristic of rural household in the study area.
- examine the effects of socio-economic variables on household food security status of the respondents.
- identify the constraints affecting agricultural output and food security of farmers in the study area.

research result would provide ways in increasing agricultural productivity and improving income generated by rural farmers, which will improve their standard of living and reducing poverty rate faced by rural people. Efforts have been made by the research institutes and Extension organizations to improve the income generated by rural farmers and improve the nutritional status of the rural household. Research institutes have greatly increases the yields of important staple food crops. For many people this has meant more food availability and trade opportunities especially for people living in rural areas to increase the productivity and income. It is hoped that the study will assist the government and policy makers to improve productivity in future.

METHODOLOGY

Niger State is located within latitudes 8°, 12 °N – 11°, 30 °N and longitudes 3°,30°E – 7°,20E. The State is bordered to the North by Zamfara State, North west, by Kebbi State, South by Kogi State, South west by Kwara State; while Kaduna State and the Federal Capital Territory bordered the State North East and South East respectively. Furthermore, the State has over a total land area of 76,000/q/km or about 9% of Nigeria's total land area. This makes the State the largest in the country. Niger State has twenty-five Local Government Areas. Katcha Local Government is characterized by two seasons. The dry and wet seasons. The annual rainfall varies from about 1,200mm – 1,500mm, the raining season is usually between June and October, the region has a mean temperature of about 23°c, the Soil type is Alfisol and the major crops grown in the area are:- Sorghum, Rice Sugarcane, Maize, Groundnut, Cowpea, Millet, Melon and Cassava.

The purposive sampling technique was used to choose Katcha Local Government area because the people are practically farmers in the area. A systematic random sampling technique was use to select the farmers among the selected villages. The Local Government Area is divided into two districts and under these districts are Wards and villages. The districts are Katcha and Badeggi, from each district Six (6) villages were randomly sampled, which bring the total number of villages to twelve (12). The villages sampled from Katcha district were. Tsaduko Nanagia, Twaki, Boro, Emi Tsowa, and Muchita. While those sampled from Badeggi were Gara, Edotsu, Kangi, Gbakogi gugata, kangimaba and Gbakogi Kotamisu. From each of the sampled villages ten farmers was be randomly selected, which bring the total sample size to 120 farmers.

Primary data was used for the study. The primary data was obtained by the use of structured questionnaires. Information collected include: (A) Socio economic characteristics of sample respondents such as: - age education level, sex. Marital status, household size etc. (B) Consumption pattern and household expenditure

such as:-total household assets and amount of food consumed in a period (C) production variable such as output of crop, labour input, capital inputs etc.

The socio-economic characteristics of farmers include age of the farmers, their farm size, educational attainment, household size, farming experience. The age of the farmer was measured by asking the farmers what their age was and their level of education the farmer had their household size that is the number of people that depends on them for livelihood. The farm sizes of the farmers were based on the hectares and the farming experience they had.

The following analytical techniques were used to achieve objectives stated:- Descriptive statistics and multiple regression Analysis.

This involves the use of mean, frequency distribution and percentages. The percentage was used to determine the proportion of respondents to a response.

I.e percentage = Number of respondent X 100 / Total number of respondent

This is used to achieve objective 1, and 3.

This was used to determine the extent to which the inputs used explained the variability in the output. To estimate the production function, the linear, semi-log and the Cobb-Douglas regression function were employed. The best regression fit is determine by a combination of R^2, the level of significant of the overall equation (F- statistic) the level of significance of each coefficient (T- statistics) and the correct signs of the coefficient relative to a prior expectation (Olayemi and Olayide, 1981). The model in general form is:-
$Y= F(X^1 \quad X^2 \quad X^3 \quad X^4 \quad X^5 \text{ et})$
Where. Y= Food Security (index)
$X^1 =$ Age (years)
$X^2 =$ Educational Level
$X^3 =$ Output (₦)
$X^5 =$ Household Size
et = Error term
Explicitly, these functions take the following forms:-
$Y= a+ b1+X^1 + b2 + X^2 + b3 +X^3 + b4 +X^4 + b5+X^5 + et$ (Linear).
$Logy = a + b1+ X^1 + b2+ X^2 + b3 + X^3+ b4 + X^4 + b5 + X^5 + et$ (Semi - log).
$Logy = a + b1+ X^1 + b2 + X^2 + b3 + X^3+ b4 + X^4 + b5 + X^5 + et$ (Double - log)
This was used to achieve objective two (2)

RESULTS AND DISCUSSION

Table 1: Distribution of respondents by Socio economic characteristics

Characteristic	Frequency	Percentage
Gender	84	77.78
Male	24	22.22
Female	108	100
Total		
Marital Status		
Married	102	94.44
Single	6	5.56
Total	108	100
Age Distribution		
Less Than Or Equal To 20	2	1.85
21-30	24	22.22
31-40	43	39.81
41-50	23	21.3
51-60	9	8.33
Above 61	7	6.49
Total	108	100
Educational Level		
Primary Education	29	26.85
Secondary Education	39	36.11
Tertiary Education	1	0.93
No Formal Education	6	5.56
Arabic Education	33	30.54
Total	108	100
Household Size		
40188	22	21.57
40502	56	54.8
21-30	21	20.59
31 And Above	3	2.94
Total	108	100
Occupational Distribution		
Farming Only	89	82.41
Trading	2	1.85
Civil Servant	11	10.18
Student	6	5.56
Total	8	100
Years Of Farming Experience		
40188	27	25
40502	42	38.89
21 And Above	39	36.11
Total	108	100

Source-: Field Survey, 2009

Results from Table1 reveal that 77.78% of respondents were male while 22.22% of respondents were females. This implies that in household production patterns man play a critical role in food security through farm labor, food preparation and day to day family subsistent. 94.44% of the respondents were married. Also 5.56% of respondents were single. There were no cases of divorced or widowed in the study area. The implication of this is that family labour would be the bulk source of labour for farming activities.

Respondents whose ages range is between 31-40 years accounted for 39.81% of the rural farming household whereas between 41-50 years accounted for 21-30%. Rahman *et al* (2002) believed that farmers' age may influence adoption in several ways. The active group here is between the age of 31-40 years which indicates that able bodied men were the active labour force engaged in food production activity. Results in Table 1 show the distribution of the rural farming household according to their level of education. 36.11% of the respondents had secondary education. 30.54% with Arabic education while 26.85% with primary education. Njoku (1991) observed that formal education has a positive impact on food security. This implies that education fastens understanding and adoption of improved technology which will rapidly increase food production. About 54.90% of the respondents have an household size of 11-20. This implies that family labour is a vital source for farming operation and that most of the farmers have a large family size. This is according to (Oyekanmi, 2004). Farmers in the rural areas are predominantly large families.

Results revealed that in almost all the rural areas in Nigeria, people engaged in different economic activities to earn a living. 82.41% of the respondents take farming as their primary occupation. 10.18% of sampled farmers are in civil service with farming. This corroborates the finding of Olayemi (1998) that rural areas are the food basket of the nation.

Table 1 revealed that 38.89% respondents had farming experience between 11-20 years. About 34.14% of sample farmers had more than 21 years. The average (mean) year of experience is about 36 years which implies that respondents had acquired production skills.

Table 2: Distribution of income generated by respondents.

Income (₦) per month	Frequency	Percentage
5000 and below	15	13.89
6000 – 15000	47	43.52
16000 – 25000	16	14.81
26000 and above	30	27.78
Total	108	100.00

Source-: Field Survey, 2009

Table 3: Percentage of income expended on household feeding

% of income on Household feeding	Frequency	Percentage
29% and below	04	3.70
30% - 59%	84	77.78
60% and above	20	18.52
Total	108	100.00

Source-: Field Survey, 2009

From Table 2: about 43.52% of the respondents generate between 6000 – 15000 in a month while 27.78% of the respondents generate 26000 and above. This implies that average real incomes of rural farmers are likely to rise as a result of increases in productivity. The results indicate future prospect in productivity. As can be seen from Table 3, 77.78% of the respondents spent between 30 – 59% of their total income in purchasing food items for the household, thereby contributing their quarter to household food security.

Table 4: Farm size (in Hectares) of respondents

Size of farmland	Frequency	Percentage
1 – 5	68	62.96
6 – 9	40	37.04
Total	108	100.00

Mode of land acquisition by respondents

Sources	Frequency	Percentage
Inheritance	91	84.26
Lease	-	-
Purchase	02	1.84
Borrowing	15	13.89
Total	108	100.00

Types of labour used by respondents

Types of labour	Frequency	Percentage
Family labour	63	58.33
Hired labour	19	17.59
Family labour	18	16.67
Communal labour	08	7.41
Total	108	100.00

Sources of initial capital by respondents.

Sources of capital	Frequency	Percentage
Personal saving	86	79.63
Loan from family friends	12	11.11
Loan from cooperative	10	9.26

| Credit from bank | | -- |
| Total | 108 | 100.00 |

Purpose of growing crops by respondents

Uses of crops	Frequency	Percentage
Market/sale	15	13.89
Household consumption/sale	63	58.33
Mainly for household consumption	30	27.78
Total	108	100.00

Purpose of rearing livestock by respondents.

Purpose of rearing	Frequency	Percentage
Livestock For sale	17	15.74
For festivals/sales	76	70.37
Household consumption	15	13.89
Total	108	100.00

Household food requirement by respondents

Need for more food	Frequency	Percentage
Yes	61	56.48
No	47	43.52
Total	108	100.00

Source-: Field Survey, 2009

Table 4 indicated that 62.96% of the sampled respondents had less than five (5) hectares of land. Furthermore, 37.04% of sampled respondents had 6-9 hectares of land. This result implies that very few proportions of the respondents are ready to expand their farm size while majority of the respondents continually practice the traditional small scale of production.

Land is a major factor of production 84.26% of the sampled respondents acquired land by inheritance while 13.89% by borrowing. The implication is that for agriculture to be fully mechanized and commercialized method of land acquisition has to be liberalized.

58.33% of respondents used family labour, Also 17.59% of respondents used hired labour. The implication is that family labour is commonly used on small farms generating incomes for farmers whose spending is predominantly on locally produced goods.

Table 4 Indicated that 79.63% of respondents acquired their capital for production through personnel saving, 11.11% of respondents acquired capital through loans from family and friends. Rahman et al.,(2003) indicated that access

to capital in farming may explain the tendency to improve in productivity.

About 58.33% of the respondents use their personal farm produce for household consumption and for sales to generate some income. While about 27.78% of the respondents use their personal farm produce mainly for household consumption. Majority (70.37%) of the respondents reared livestock mainly for the purpose of festivities and for sales to generate some income. 56.48% of the household in the study area are in dear need of more food at the family levels, this points to the fact that many household are experiencing food crises.

Table 5: MULTIPLE REGRESSION ANALYSIS

Variable	Double log
Constant	0.296
	(0.159) N.S
Age (Years) (X1)	0.248
	(0.482) N.S
Educational level (X2)	-0.457
	(-2.444)**
Output (₦) (X3)	0.164
	(1.413) N.S
Farm size (ha) (X4)	0.447
	(2.704)***
Household size (X5)	-1.102
	(-6.078)***
R square	0.427
R² adjusted	0.399
F-ratio	15.231***

Source-: Computed from field survey data, 20
Note: *** Significant at 1%
** Significant at 5%
* Significant at 10%
N.S- Not Significant
Figures in parenthesis are the respective t-ra

The regression analysis that was determine the socio –economic relationship security as shown in the Table 17 the D regression was chosen as the lead eq value of coefficient of determination, R² that about 42.7% of the variation in variable was explained by the variables included in the regression regression coefficient Age (X1), Output size (X4), are positive indicating that an any of these independent variable w increase in food security index imp variables significantly explained var food security index. Conversely the coefficient level of education (X2), and Household size (X5) are negat that an increase in any of these variable will lead to a decrease index. Educational level (X2) are s farm size (X4), Household size (X5)

were significant at 1%, level of probability. According to Damodar, (1995) the fundamental psychological law is that men are disposed, as a rule and on average to increase their consumption as their income increase, but not as much as the increase in their income.

PROBLEMS/ CONSTRAINTS ENCOUNTERED BY RESPONDENTS

Table 6: Production problems encountered by respondents

Production problems	Frequency	Percentage
Inadequate capital input	100	52.08
Marketing of farm produce	64	33.33
Lack of road network	08	4.17
Insufficient/excessive rainfall	20	10.42
Total	192*	100.00

Source-: Field Survey, 2009
*Multiple Responses

Table 7: Storage problems encountered by respondents

Storage problems	Frequency	Percentage
Insect/pest attack	95	87.96
Diseases	09	8.33
Theft	04	3.70
Total	108	100.00

Source-: Field Survey, 2009

Table 6 reveal that inadequate capital input is the biggest problem encountered by the rural farming with 52.08% while marketing of their produce which is 33.33% followed by insufficient or excessive rainfall and finally lack of good road network. All these affect their household living. These problems can drastically reduce the impact of agricultural development.

Table 7 show that 87.96% of respondents had problems of insect/pest infestation in storage; 8.33% of respondents had problems of diseases attack on their production, while 3.70% of respondents had problems of theft.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of study, assessment of the impact of agricultural productivity in rural household food security, the study identified some constraints which it overcome would ameliorate the conditions of the people, improve the general livelihood of the rural dwellers and Boast agricultural productivity.

Based on the findings, the following recommendations are made-:

Government should provide good road network for transportation of agricultural produce of these household, Stakeholders at various levels should embark on investing in social infrastructures development of the rural area, Government should impact the ideas and knowledge about cooperatives societies in their various groups (Awareness), Government should provide credit facilities (loan) to the farmers through agricultural banks, There should be a deliberate effort in enhancing rural activities in the study area, this can be achieved by posting extension workers to the area to help rural household in their activities and Extension agents should be adequately trained and equipped to help the farmers imbibe the culture of sound agronomic practices that would ensure increased productivity in the study area.

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EFFICIENCY OF LABOUR AND FERTILIZER USE IN SUGARCANE PRODUCTION BY SMALLHOLDER FARMERS IN GBAKO LOCAL GOVERNMENT AREA OF NIGER STATE.

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ABSTRACT

This study examined efficiency of labour and fertilizer usage in sugarcane production by smallholder farmers in Gbako Local Government Area of Niger State. Primary data was collected from 110 randomly selected farmers using structured questionnaire. The data were analyzed using descriptive statistical tools, the gross margin analysis, multiple regression analysis and resource use efficiency ratio. The result shows that 10.9% of the sampled farmers fall below 30 years of age and 96.3% are married, 40% of the farmers had Quranic education. About 90.9% of the sample farmers had over 30 years of farming experience. 68.1% of the sample farmers had farming as their primary occupation. The predominant system of land tenure in the area is by inheritance. The estimated gross income gives an average value of ₦ 87,550 per annum while the net farm income was estimated at ₦ 50,500 respectively. The production function analysis show that seedling (X_2) and agrochemical (X_5) were significant factors influencing the output of sugarcane production at 1% and 5% level of probability respectively. The efficiency ratio (r) indicates that farm size was underutilized while fertilizer and labour were over utilized. The major problems facing farmers include high cost of transportation, price fluctuation, Farm input, Input Incentives and Lack of adequate modern facilities.

INTRODUCTION

Sugar cane (*Saccharum.sp.*) is believed to have become established as domestic garden crop around 800B.C.by neolithic horticulturalists in what is now New Guinea according to some accounts (Alkulola, 1978). Sugar cane was first brought to a village along the western and eastern coast of Nigeria in the 15th century by European Sailors. Although few farmers planted it then as a backyard garden crop, it was noticed that it required a relatively higher amount of water to grow, its cultivation spread into wet lands and swamp patches in flood plains.

Following the development of a new technique of making honey from sugarcane around the beginning of the 18th century, further interest in the crop was generated and it rapidly spread from the coast to other parts of the country, even to the drier northern areas. By the end of the first world war, the technology for the production of crude sugar cakes or *Mazarkuailla* (Hausa) had been developed some mills were imported during the second world war to increase the output of cakes for consumption by African soldiers. Today, mazarkwailla is still a common sugar product in the northern part of Nigeria, where it is used as traditional sweetener over the years, the sugar-cane crop had adopted itself to a variety of soil and climatic conditions such that it is now grown widely across Nigeria. Although, it actually started in the late 50s (Oguntoyinbo 1978).Today, the two types of canes are grown in commercial quantities all over Nigeria But while large scale cultivation of industrial cane is limited to 3 or 4 major estates at Bacita (6000ha) Numan (500ha) and Lafiagi (500ha) Chewing cane is grown by thousands of local farmers cropping between 0.2-2.0 ha of land all over the country.

The total land area currently under care cultivation is not known but is estimated at 25-35,000ha out of which industrial cane cultivation of the two types of sugar-cane is witnessing a drastic change, albeit it opposite direction. While the production of industrial cane on the estimate is witnessing a decline, more farmers especially in the northern part of Nigeria are getting in to chewing cane cultivation. Admittedly, through the effort of both NCRL and NSDC, states like Jigawa, Bauchi, Kano, and Katsina are also devoting large expanses of land to industrial cane production with a view to established mini Sugar plants. The efforts are however still at their infancy stage and do not substantially contribute to the overall cane production.

In some countries, Sugar cane is considered as a type of fruit, being used for fresh juice extract. However, it is raw material that it is produced by small-scale farmers and particularly, by the sugar industry. Because of the practical difficulties that small farmers in India, China, Colombia and Philippines etc. have in growing the crop, Sugar cane can be grown in the Tropics, the sub-Tropics or the Equatorial areas of the world where the ecological factors are favorable. Frost and water availability are the main technical constraints that affects the growing of canes and the main economic limits on its cultivation are the protective measures that may be imposed by the governments.

Sugar cane is a strongly growing grass with a C4 carbon cycle photosynthetic pathway and a high chromosome number recent research has shown that sugar cane which has been crossed with other saccharum SPP. Has potential yields of up to 400

tones of green matter per hectare per year, equivalent to 160 tones of dry matter obviously, this type of cane will have a much lower sucrose content (Blume, 1985). A sugar cane has tillers or steams, bunched in to stools and usually erect with at harvest, a sucrose content of 10-18% and a fibred content of 10-15%. When the steam is cut into pieces with a number of buds of each piece, they are called stem cuttings or sets and can be used for propagating the crop. Stems develop from the buds grown into stalks or canes are ready for harvesting 10 to 24 months later. After a first harvest, which can be for production of sets or for processing at the factory, the underground buds on the tool develop to give a second, third or even more crops is similar or slightly shorter growth period. These are known as Raton crops. Raton cane (the cane which re-grows after each unit) can, with care, give profitable yield that are less costly to achieve because of the reduction in soil preparation and planting costs. Sugar cane is a pluriannual plant with a cycle that can last 4 to 10 years.

In all aspects of crop production the issue of fertilizer and labour are of critical importance to output and productivity.Iin sugar cane production in particular, the level of fertilizer use is a factor that cannot be ignored if higher production levels are to be obtained. Similarly, the production of sugar cane is very labour intensive therefore the issue of availability and cost of labour is also very critical. Therefore, the two resources are central and critical in sugar cane production (Okorie, 2000). The constraint to the rapid growth of food production in Nigeria is the low crop yields and resource productivity. The low agricultural productivity in Nigeria, if revealed by the actual yields of major crops compared with the potential yields.

The following are some of the specific research questions relating to efficiency in sugarcane production which this study seeks to find answers to.

1. What are the socio-economic characteristics of farmers in the study area?
2. What are the factors affecting the efficient utilization of resources use in sugar cane production in the study area?
3. What is the profitability of sugar cane production in the study area?
4. What determine the efficiency of the utilization of resources in sugar cane production in the study area?

The main objective of the study focus on the efficiency of labour and fertilizer usage in sugar cane production among small scale farmers in Gbako Local Government Area of Niger State. The specific objectives of the study are to:

i. describe the socio-economic characteristic of farmer in the study area,
ii. evaluate the level of profitability of sugarcane production in the study area.
iii. determine the factors affecting resource use efficiency in the study area,
iv. determine the efficiency of the utilization of labour and fertilizer in sugar cane production in the study area

This study is crucial in examine the resource use efficiency of farmers in sugar cane production, since increased output and productivity are directly related to production efficiency. Contributions by research institutes and extension organizations to improve the efficient use of fertilizer and labour in the production of sugar cane. However, studies in both NCRI and NSDPC shows that Nigeria could in fact do better than what they are presently producing if fertilizer and labour are properly used by farmers, it is hoped that this study will generate imperial research information to the extension agencies and government for possible policy action the information generated from this study is also expected to serve as eye opener for future programme implementations in the area.

METHODOLOGY

Niger State was created on 3rd of February 1976. It lies between latitude 9.360° North and longitude 6.22° east. The State lies in the Guinea savanna vegetation of the country with favorable climatic condition for crops and livestock production. About 85% of Niger State populations are farmers while the remaining 15% engaged in other vocations such as business, white collar Jobs, etc.Niger State experience distinct dry and wet seasons with Annual rainfall varying from 1100mm in the northern part to 1600mm in the southern parts of the State respectively. The State has a population of about 3,950,249 peoples according to the 2006 census. The State covers a total land area of 85,733.17 km² or about 8.6 million hectares which represent 9.3 percent of the total land area of Nigeria (FRN, 2007). Niger State has twenty-five Local Government Areas. Gbako LGA is characterized by two seasons, the dry and wet seasons. The annual rainfall varies from 1,200mm – 1500mm the raining season is between June and October, average temperature of about 23°c 25°c, soil types Alfisol. Major crops grown in the region are sorghum, rice, sugarcane, maize and groundnut.

Primary data for this study was collected from the field with the aid of objectively structured questionnaires. Secondary data was obtained from journals and conference proceedings.

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farmer that can read and write to be fill by them while those that are not educated an interpreter was employed to assist in interviewing and filling the questionnaires.

The data collected was analyzed using descriptive statistics such as arithmetic means, frequency, distribution, etc. the technique was used to group and summarize the data obtained from the field. Gross margin(GM) analysis and Net Farm Income (NFI) were used for analysis to achieve objective 2. Gross margin is the deference between the gross farm income (GFI) and the total variable cost (TVC). It is useful planning tool in situation where fixed capital is a negligible portion of the farming enterprise as is the case of small scale subsistence agriculture (Olukosi and Erhabor, (1988)

GM = GFI −TVC

GM = Gross margin

GFI = Gross farm income

TVI = Total variable

$$NFI = \sum_{i=1}^{n} PyiYi - \sum_{j=1}^{m} PxjXj - \sum_{k=1}^{k} Fk$$

Where:

NFI = Net farm income

Yi = Enterprise product (s) (Where i=1,2,3 .n Products)

Pyi = Unit Price of the product (s)

Xj = Quantity of the Variable input (Where j=1,2,23…..m Variable input)

PXj = Unit Price of the variable input (s)

Fk = Cost of fixed inputs (Where k=1,2,3…..k fixed inputs)

Σ = Summation (addition) sign.

Regression model was used to examine input-output relationship. This was used to determine the extent to which the inputs used explain the variability in sugarcane output. To estimate the production function, the four major regression production functions was employed, these are linear, semi-log, Cobb-douglas and exponential models. The equation of best fit or lead equation was determined by the level of coefficient of multiple determination (R^2) the level of significance of the overall equation CF − statistics and correct signs, of the coefficient relative to prior expectation (Olayemi and Olayide, 1981) the implicit form of the model is:

$Y = f(X_1, X_2, X_3, X_4, X_5, U_1)$

Where Y = output from sugar production (kg)

X₁ = farm size (hectares)

X$_2$ = quantity of seedling (kg)

X$_3$ = quantity of fertilizer (kg)

X$_4$ = labour input (man day)

X$_5$ = agrochemical (liters)

U = Error term.

The explicit forms of this model are

(a) Linear: $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u$

(b) Semi-log: $Y = loga + b_1 Logx_1 + b_2 Logx_2 + b_3 Logx_3 + b_4 logx_4 + b_5 logx_5 + u$

(c) Cobb-douglas: $Y = log a + b_1x_1 + b_2 Logx_2 + b_3 Logx_3 + b_4 logx_4 + b_5 logx_5 + u$

(d) Exponential: $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u$

Efficiency of resource use was determined by the ratio of marginal value product (MVP) to marginal factor cost (MFC) of inputs based on the estimated regression coefficients. Following Rahman and Lawal (2003) and Iheanacho et-al (2003) efficiency of resource ® is given as:

$r = \dfrac{MVP}{MFC}$

The rule provides that when r = 1, there is efficient use of resource; r > 1 and r < 1 indicate underutilization and over-utilization of a resource respectively. The values of MVP and MFC were estimated as follows:

$MVP = MPP. Py$

$MFC = Px_1$

Where MVP = Marginal Value Product of a variable input;

MPP = Marginal Physical Product;

Py = Unit Price of Output;

Px$_1$ = Unit Price of Input X$_1$

r = Efficiency ratio

RESULTS AND DISCUSSION

Table 1: Distribution of respondents by Socio economic characteristics

Characteristic	Frequency	Percentage
Gender		
Male	107	9.27
Female	03	2.72
Marital Status		
Single	4	3.64
Married	106	96.36
Age		
21-30	12	10.91
31above	98	89.09
Educational Level		
Primary Education	37	33.64
Secondary Education	25	22.72
Tertiary Education	3	2.73
No Formal Education	1	0.91
Quranic Education	44	40
Mode Of Land		

Acquisition		
Inheritance	103	93.64
Purchase	2	1.82
Borrowing	5	4.54
Types Of Labour Used		
Family Labour	7	64.55
Hired Labour	5	4.55
Communal Labour	28	25.45
Family And Hired Labour	6	5.45
Family Size		
1-10	24	21.82
11-20	64	58.18
21 Above	22	20.00
Mode Of Land Cultivation		
Hand Tools	110	100
Tractors	-	-
Sizes Of Farm Land Cultivated		
1-3	81	73.64
4-6	29	26.36
Source Of Capital		
Personal Saving	101	91.82
Loan From Family/Friend	9	8.18
Loan From Formal Sources	-	-
Farming Experience (Years)		
16-30	10	9.09
31 And Above	100	90.91
Occupation		
Farming Only	7.5	68.18
Trading	16	14.55
Civil Servant	10	9.09
Student	9	8.18

Source: Field survey 2009

According to table 1 above, 2.72% of the respondent are female, the rest of 97.27% are male. This implies that few percentages of women help men in terms of fertilizer application, harvesting, in sugarcane production in the study area, because of the tedious nature of production process which most women are not accustomed to.   The distribution of respondents according to marital status shows that 3.64% of the respondents are single, 96.36% confirmed that they are married. This implies that marriage is a very important institution especially internal setting. A part from uplifting the status of a man, it also provides additional hands (wives and children) to help in the farm work thereby reducing the cost of hired labour.

Results indicate that majority (89.09%) of sugarcane producer fall between the age ranges of 31 years above. This implies that sugarcane productions in the study area are dominated by mid-age and the old age. Farmers who are still active in terms of Agricultural production and constitute the working force of the populace.of 31 years above, this result envisage prospects to increase sugarcane production in the survey area. The distribution of respondents in educational level show 40% of the respondents have Quranic education. This indicates that awareness about the importance of education to farmers in the locality should be improved upon and encourage possibly by introducing some incentive along side. Following this group are those that had complete primary school education of about 33.64% and tertiary institution of about 2.73% these proportion of the respondent of this present age. Also, farmers that had complete secondary school education and those that didn't are 22.72% and 0.91% respectively. This result indicate that extension workers should do more by making the important of education known to the farmers.

Results indicate that almost all the respondents inherited the land on which production takes place, 93.64% of the total respondent acquire land by inheritance. This implies that most respondents produce sugarcane at a subsistence level and limited their size of production to what is obtainable from such fragmented inherited pieces of land which make expansion difficult, the nature of the farmer is not supportive to their output through production may be efficient. The value of family labour in the study area which represents about 64.55%.   This implies that sugarcane production as an efficient motives required more than family labour enough hands (people) or machinery will be used to boast output and make production more technically efficient. Communal labour also gives an average performance with about 25.45%. This implies that more importantly, labour is highly the factor that determines the efficiency of sugarcane production, Hired labour constitute about 4.55%, this implies that farmer do not have a sufficient capital to embark on Hired labour,

All the respondents use hand tools for cultivation. This is reasonable since almost all of them are small scale farmers and it will be uneconomical to purchase modern equipment like tractors for cultivating one or two hectares of land. Result reveals that only 93.64% of the respondents have 1-3 hectares of farm lands. About 26.36% of the respondent asserted that the size of their farm land is between 4-6 hectares. Which implies that most of sugar cane farmers in the study areas are small scale farmers, compared to other sugar cane producing area? Majority of the respondent (91.82%) sources their capital for sugarcane

production through personal savings while sources from cooperative bank are not embraced by the respondent except from family and friend who account for about 81.8%. This implies that majority of farmers prefer to source capital through their personal saving and money lend from family and friend due to the case of accessing such capital.

Table 1 above shows that majority (90.91%) of the farmers had experience in sugarcane production activities of 31 years above which implies that sampled producers had required good sugarcane production skill. Majority (68.18%) of sugar cane farmers take farming as their primary occupation. Also 14.55% of the sampled farmers were civil servants this implies that farming only is the dominant occupation of sugar cane farmers in the study area which is the major source of their livelihood. 58.18% of the respondents have a household size of 11-20. This implies that family labour is important source for farming operation and that most of the farmers have a large family size. This is according to (Oyekanmi, 2004), farmer in the rural areas are predominantly large families this is due to what is contributes to the total farm labour required in production.

Table 2. Estimated Gross margin and Net Farm Income for sugarcane production

Item	Cost (N/Ha)
Fertilizer	11,200
Planting Material	6,200
Pesticide	4,400
Labour	9,000
Bag	5,000
Transportation	1,250
Total Variable Cost	37,050
Gross Income	87,550
Net Farm Income	50,500

Source: Field survey, 2009

From Table 2 implies that an average cane farmer in the study areas makes an Gross margin of N87, 550 and an average income N50, 500 in the last cropping season. Implies that sugarcane cultivation is quite in the study area given the high returns on investment especially for small scale farmers.

Table 3. Multiple regression analysis

	Exponential
Constant	3.829
	(57.229)***
X1	3.500e - 02
	(1.380)
X2	2.108e -02
	(2.544)**
X3	1.732e-05
	(0.198)

Labour (X4)	1.341e - 03
	(0.830)
Agrochemical (X5)	5.283e – 02
	(4.203)***
R^2	0.789
Adjusted R^2	0.779
F-Ratio	77.666***

Source: Computed from Field survey data 2009

NB: ***   Implies significance at 1% level
        **   Implies significance at 5% level
        *   Implies significance at 10% level

Figures in parenthesis are the respective t-ratio the production function that was used to determine the nature of inputs relationship in sugarcane production is shown in the (table 16 exponential production function). The value of coefficient of determination R^2 indicated that about 78.9% of the variation in output in sugar cane production is explained by the inputs included in the regression model. The regression coefficient of land size (X1) land size (X2) seedling (X3) fertilizer that an increase in any of these inputs will lead to an increase in gross output implying that the variables significantly explained variation in the gross output. Seedling significant at 5% level of probability, Agrochemical (X5) and F-ratio are both significant in 1% level of probability.

Table 4. Resource use efficiency

VARIABLES	MPP	MVP	MFC	EFFICIENCY RATIO
Land size (X1)	0.63	9450	4,500	2.1
Labour (X4)	0.039	585	800	0.73
Fertilizer (X3)	0.014	210	2000	0.11

Source: Field survey 2009.

Table 4.. Revealed that the estimated efficiency ratio (r) shows that two significant inputs in the model were over utilized i.e. (X3 and X4) while X1 is underutilized. This implies that the resource X1 is not efficiently utilized, this finding is in consonance with the finding of Nwosu (2005) who showed that land was underutilized while labour was over utilized by both ADP and non ADP farmers in Orlu agricultural zone of Imo State, Nigeria.

Table 5: Production problems encountered by sampled farmers

PRODUCTION PROBLEM	FREQUENCY	PERCENTAGE
Inadequate capital input	66	60.00
Lack of rainfall at the right time	17	15.45
Lack of extension services and	27	24.55

credit		
TOTAL	110	100.00

Source: Field survey 2009

Table 6: Marketing problems encountered by sampled farmers

MARKETING PROBLEM	FREQUENCY	PERCENTAGE
Price fluctuation	53	48.18
Dubious act of middle men	32	29.09
Purchased Problem	25	22.73
TOTAL	110	100.00

Source-: Field survey 2009.

Table 5 indicates 60% of sampled farmers had inadequate capital input, also 15.45% of sampled farmers complained of lack of rainfall at the right time while 24.55% of sampled farmers had lack of extension services and credit. Table 6 reveal that marketing problems encountered by sampled farmers, this include price fluctuation (48.18%), dubious act of middlemen (29.09%) and purchased problem (22.73%) respectively.

CONCLUSION AND RECOMMENDATION

In the study, various efforts geared at determining the efficiency of labour and fertilizer use among small holder farmers in Gbako Local Government Area of Niger State were critically undertaken. The result indicates that despite the various problems faced by the respondent farmers, sugar cane production is still efficient in the study area. Although the efficiency ratio reveals that labour and fertilizer were overutilized, with adequate subsidized farm inputs, capital, good infrastructure. Resources available to farmers especially land and capital have affected the farmers from realizing feasible optimal sugarcane output. Sugarcane production has a very large profit margin and could serve as viable avenue for poverty alleviation to the youths. Farm inputs should be made available to the farmers in the study areas at the right time and at affordable prices. Farmers are price responsive in the use of inputs. Therefore, government should endeavor to remove all distribution bottlenecks which affect the availability and prices at the grass root level of these inputs especially fertilizers and agrochemicals, research efforts should be intensifies to redevelop improved small medium scale farm technologies suited to the small-scale nature of farming and favored by farmers, Extension agents should be posted to the study areas to educate the farmers on the Importance of adopting new ideas and technology, to improve on sugarcane Production, Government should provide and expand tractor-hiring scheme and offer services to reduce high cost of labour.

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