



Full Length Research Paper

Relationship between Farmers Socio-Economic Characteristics and Maize Production in Nigeria: *The chasm*

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Abstract

The study examined socio-economic characteristics as it affect maize production in Kogi State, Nigeria. Like other studies, it found that some social demographic characteristics such as gender, primary occupation, credit source, family size, storage facilities and annual income negatively affect maize production in the study area. The study revealed that women in the study area have limited access to land as factor of production. Maize growers in the study area also engaged in other non farming activities thereby do not invest properly in the farming enterprise. Evidence from the study suggests that household members live on approximately US\$0.45 dollars per day. Although the study populations are members of one cooperative societies or the other, there were insufficient credit sources available to boost maize production. The study also link large family size with low overall output from maize production of a household farmer. Storage facilities which offer protection against fungal infestation and moth destruction of the grains were identified as lacking by 89% of maize growers. 87.8% of the maize growers operated on fragmented pieces of land ranging between 2.5 heaters and below and there were no guaranteed markets for maize products. Other severe constraints that prove to limit maize production in the study areas includes include; high cost of labour, low capital to expand production, high cost of transporting maize produce, lack of access road and poor pricing of maize produce (no guaranteed market).

Keywords: Agriculture, Farmers, Maize, Production.

Introduction

The nexus of Nigeria's agricultural development problems has been declining agricultural productivity as reflected in the contribution of agriculture to GDP from 56 per cent in 1964 to 39 per cent in 1997 and in the declining share of export earnings from about 71 per cent in 1964 to less than 5 per cent in the 1990s. This is also shown in the increase in import bill for food and live animals from about ₦ 766.5 million in 1979 to about ₦ 102 billion in 1998.

To counteract these ugly trends, various agricultural development policies have been implemented in Nigeria. In the colonial era, the agricultural policy issue was the emphasis placed on export crop production as against food crop production, ostensibly to meet the raw materials need of their home countries and also provide foreign exchange earnings for the development of Nigerian economy.

The primary engine of growth in the agricultural sector then was export of tradable agricultural products that were the major sources of government revenue and foreign exchange. In recent years, and particularly after the civil war, there has been more rapid increase in food prices leading to greater emphasis on the promotion of food crops. At the same time, the dependence of the Nigerian economy on agricultural exports for foreign exchange is being relieved by the oil industry providing government the alternative revenue source to pursue other non agricultural objectives.

Besides, other agricultural policies that have been implemented after the colonial era addressed agricultural credit, farm input and subsidy; agricultural mechanisation; agricultural pricing and marketing; and agricultural research.

According to Osemeobo (1992), the major programmes implemented to promote agricultural development in Nigeria include National Accelerated Food Production Programme; Operation Feed the Nation (OFN); Agricultural Credit Guarantee Scheme (ACGS); Green

Despite various efforts to stimulate agricultural production in Nigeria, agricultural productivity has been declining over the years with production costs that are unacceptably high while food that is adequate in quantity and quality cannot be afforded by many Nigerians (Ugwu, 1990). Ukeji (2000) also described agricultural productivity, which has been growing over the years at different rates, as low. However, the agricultural sector in Nigeria dominated by the small-scale farmers still provides the main source of food for all, raw materials for industries, foreign earnings through exports and employment (Falusi, 2000).

Thus, the focus on small-scale farmers, as the centre piece of incremental food production strategy, is in recognition of their central role to achieving national food self-reliance, self-sufficiency and national food security (Idachaba, 1991). The small-scale farmers, for example, produce over 90 per cent of total food in Nigeria; they, in addition, account for over 85 per cent of marketed food surpluses because though marketed surpluses of individual farmers may be small, aggregate for all small-scale farmers taken together is what feeds the nation. Also, the small-scale farmers have amply demonstrated in different parts of the country over time that with the right technology, rural infrastructure, guaranteed markets and adequate and reliable price incentives they are capable of responding positively by increasing output. Although, large-scale farmers are technically impressive, they do not necessarily make money, especially when they are stripped of explicit heavy subsidies, as many large scale farmers have painfully discovered under Structural Adjustment Programme (SAP). Finally, over 85 per cent of Nigerian farmers are small-scale farmers and any agricultural strategy that leaves them out introduces serious social inequalities in income opportunities. (Idachaba, 1991).

Maize (*Zea mays* L.) is a cereal crop of *Graminae* family which is cultivated for their seeds (Grains). It constitutes a large percentage of the world's food supply. Maize is important in the feeding of human being and livestock because they have high starch (carbohydrate) content and varying amount of proteins and seeds can be dried to low moisture content. Fried maize is good in making popular refreshment called "guguru" or pop corn. This is eaten all over the world. Industrial use of maize includes the production of breakfast cereals like custard, cornflakes, corn oil, glucose, starch and alcohol (Komolafe and Adegbola, 1978).

Maize is also one of the most useful crops ever grown in history. It can be boiled or roasted or made into a paste eaten by adult and children. It can also be used to make "abodo" and "elekute" in Nigeria and "kenke" and "akpele" in Ghana (Adedapo, 2008). The utilization statistics indicates that the chief use of maize is as food, i.e. 70% while the proportion for feed purpose accounts 20% and other uses mainly as inputs in several industries and seed as 10% (Paudyal et al. 2001).

The main objective of this study is therefore to describe the socio economic characteristics of maize farmers in Kogi State some of the problems associated with maize farming practice and recommends as appropriate.

Materials and Methods

Study area

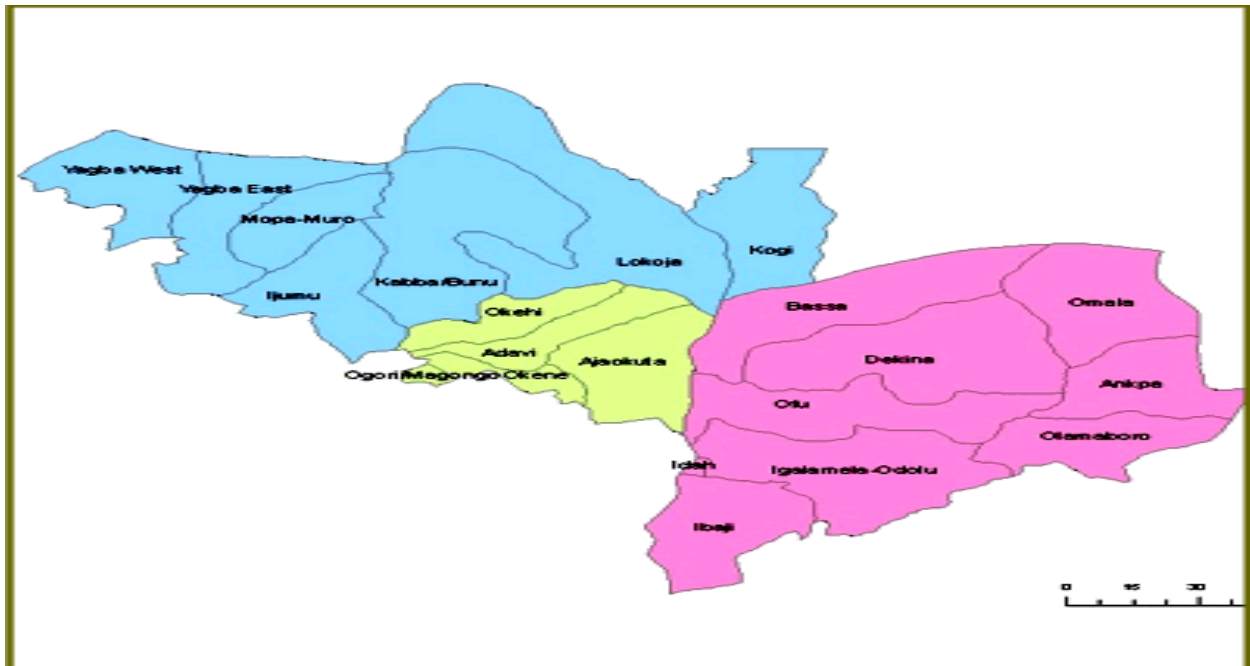
Kogi state is found in the central region of Nigeria. It is popularly called the Confluence State because the confluence of River Niger and River Benue is at its capital, Lokoja, which is the first administrative capital of modern-day Nigeria. The state was formed in 1991 from parts of Kwara State and Benue State. Agriculture is the mainstay of the economy and the principal cash crops. The state is known for its mass production of farm produce such coffee, cocoa, palm oil, cashews, groundnuts, maize, cassava, yam, rice and melon. According to 2005 estimate, Kogi state has approximate population of 3,595,789. Kogi state has a coordinate of 7°30'N 6°42'E and a land area 29,833 km²

Kogi State has an average maximum temperature of 33.2°C and average minimum of 22.8°C. The state has two distinct weather conditions, dry season, which lasts from November to February and rain season that lasts from March to October. Annual rainfall ranges from 1016mm to 1524mm.

Methodology

The study was conducted in Kogi State of Nigeria. Farming is the major occupation of the majority of the people in the locality. The study employed multi-stage sampling technique involving a purposive selection of eight maize producing clans that are chiefly concerned with maize production as their most preferred means of livelihood in the study areas. A total of four hundred questionnaires were utilized for detailed study.

Data was collected using a well structured questionnaire and interview schedule administered on the respondents. Data collections covered one production cycle and include socio economic characteristics such as age, marital status, gender, educational status, membership of cooperative society, family size and some production characteristics. Statistical tools such as descriptive statistics and percentage ratios were used to address the objectives of the study.



Data Analysis and Techniques

Socio-demographic Characteristics

a. Age Distribution of the Respondents

Farmers between the age of 46 years old and above (80%) were more involved in maize production in the study area. The average age of the respondents is approximately 59. Based on World Health Organization average life expectancy chart 2011 of 52 years for Nigeria, it can be inferred that maize farmers in Kogi State are longer within their productive state and are above their life expectancy. Age is an important determinant of social – economic status of a population since people wear in energy as they advance in age. Although experience is gained with age, farming needs not be dominated with aged populations in any region as this could have negative implications on the future of food production in such region (Table 1).

b. Sex

87.50% the respondents are male while only 12.5% are female. This shows that maize production in the study area was dominated by the male folks. This can be attributed to the fact that males in the study area have right to land as a productive resource than females. Quisumbing (1994), reported that there has been a great disparity between women and men in the size of landholdings and that the mode of women participation in agricultural production varies with the land-owning status of households. The male domination of maize farming may also be due to high demands of time and energy required to work in such enterprise. This agrees with the study of Baiyegunhi and Fraser, (2009).

c. Education Status

Illiteracy is one of the factors militating against agricultural development in Nigeria. The study shows that 37.5% of the farmers had no formal education, while about 62.5% farmers have one form of formal education or the other. Their educational status as it is however is enough to provide them with the ability to read and write, handle and interpret messages relating to their farm operation in the instruction manuals on input and machinery uses, and also enable them to appreciate extension services. Sullumbe, 2004 opined that Education is a major determinant of the Nation's economy. He further argues that the level of formal education attained by an individual goes a long way in shaping his personality, attitude to life and adoption of new and improved practice. Education has also been regarded as an investment in human capital, which is capable of raising the skill and quality of the man, narrow his information gaps and increase his locative efficiency thereby leading to more productive performance (According to Patel, 1985). Therefore, it be said with certainty that introduction of new ideas and adoption of new innovations and technology in Kogi State will be easy. This will in turn increase yield, income and agricultural production in general.

d. Primary Occupation

The study shows that majority of the maize farmers, (77.5%) are full – time farmers, while others engaged in occupations aside farming such as civil servant (18.3%), Trader (4.2%) and Artisan (mechanics, bricklayers, tailors etc). Farmers engaging in other activities often time do not re-invest properly into the farming enterprise as they usually tend to diversify their income into the various activities they engaged in. This practice of course may not be favorable to the agricultural development sector in Kogi State and Nigeria at large.

e. *Credit Source*

Findings from the study show that about 89.2% of the Maize farmers depend solely on their personal saving as their source of farm credit, while few others sourced credit from cooperatives (6.7%), bank (1.70%) and money lender (2.5%). It can be inferred that respondents in the study area do not enjoy credit facility from financial institutions/agency. This is because financial institution such as bank and other lending agencies appears either not accessible or have stringent condition attached to their services such as high interest rate and hiding charges thereby making it inaccessible. These of course have hamper production to a large extent. However, Anon, (2009) asserted that loan is a crucial input and can be used to establish and expand farm sizes thereby increasing production.

f. *Family Size of the Respondents*

The study has also shown that the average family size of the respondents is 12 persons. Although large family size can sometimes be an asset to the farmers in terms of available work force/labour, often time a farmer is faced with the challenges of providing social and welfare facilities such as feeding, education, sheltering, health care and other living expenses for such a large number of dependants. These expenses account for low saving at the end of every harvest season aside the fact that most farm produce are consumed by the large household members. In a related study, Achem, et al 2013 also found low overall output from cassava farmers as a result of large family size.

g. *Farming Experience*

Majority of the farmers (71.4%) have been producing maize for upwards of 10 years, while about (29.6%) have at most 10 years of experience. It can therefore be inferred that majority of the farmers are experienced maize growers. Also, since experience is gained with age and farming being the major occupation of most of the respondents, the number of years of experience in farming can be linked with the age of the farmer. The older the farmer, the more experienced he is and the better his understanding of farming practices.

h. *Membership of Group(s)*

More than 90% of the farmers are members of one cooperative society or the other while 68.3% are members of FADAMA user group or association. From the foregoing, maize farmers in the study area could have benefit in one form or the other from their respective group or associations although these benefit are usually grossly below expectation due corrupt practices. Naturally being members of associations afford farmers to benefit from financial institutions and /or lending agency since such requirement is the determinant factor.

i. *Storage facilities*

About 89.1% of the farmers have no storage facilities. This has negative implication on maize production in Kogi State as the quantity of maize grown are mostly left at the mercy of fungal infestation and moth destruction. Some farmers indicated to limit their production capacity as a result of lack storage facilities.

j. *Annual income*

98.3% of maize farmers Kogi State operate with annual income of less than N400,000, (US\$2500). The average annual income per farmer was N210,000 (US\$1320). This figure when computed for daily expense per each member of the household imply that each member of the household leave on approximately US\$0.45 dollars per day. This reveals the extent at which maize farmers and perhaps other farmers in Kogi State of Nigeria are wallowing in abject poverty.

This call for concerted effort on the part of policy makers to immediately come up sustainable intervention and policies such as the current Agricultural Transformation Agenda (ATA) under way.

Table 1: Socio-economic Characteristics of the Respondents

Variable	Description	Frequency	Percentage
Age of Respondent	≤ 30	13	3.3
	31 – 45	67	16.7
	46 – 55	217	54.2
	≥55	103	25.8
	Total	400	100.0
Gender	Male	350	87.5
	Female	50	12.5
	Total	400	100.0
Education Status	No formal education	150	37.5
	Primary education	137	34.2
	Secondary Education	70	17.5
	Tertiary education	37	9.2
	Quaranic education	7	1.7
	Total	400	100.00

Variable	Description	Frequency	Percentage
Membership of cooperative society	Yes	380	95.0
	No	20	5.0
	Total	400	100.0
Main Occupation	Farming	310	77.5
	Civil servant	73	18.3
	Trader	17	4.2
	Artisan	400	100.0
	Total	310	77.5
Annual income ('000)	<400	393	98.3
	400-600	7	1.7
	700-900	0	0.0
	>900	0	0.0
	Total	400	100.0
Major Source of Fund	Personal	357	89.2
	Money lender	10	2.5
	Bank loan	7	1.7
	Cooperative	27	6.7
	Total	400	100.0
Family Size	≤ 5	270	67.5
	6 – 10	107	26.7
	11 – 15	20	5.0
	≥ 16	3	0.8
	Total	400	100.0
Years of Experience	≤ 10	118	29.6
	11 – 20	215	53.7
	21 – 30	56	13.9
	≥ 31	11	2.8
	Total	400	100.0
Storage Facility	Yes	44	10.9
	No	356	89.1
	Total	400	100.0

Production Characteristics

a. Farm size

Table 2 shows that majority of the farmers cultivated farmlands ranging from 1 to 2.5 hectares (87.8%) and thus could be referred to as small scale farmers. Just a handful of farmers practiced on the large scale level of between 2.5 hectares and above (12.5%). Factors such as long distances to farm site, high cost of land, high cost of labour and low income level was responsible for this phenomenon. This surely has a negative implication on output of maize and the overall production and food security system in the study area and the country at large.

b. Farming Practice

The study revealed that mixed cropping dominated the farming practice (94.7%), while mono cropping were 5.3%. Reason for practicing mixed cropping is to minimize cost of production in order to maximize profit, security against crop failure. According to them, if one crop should fail as a result of pests and diseases or bad weather, the income from the other crops will augment for this failure. Mixed cropping also helps to maintain soil fertility and protect the soil from erosion. The practice of mixed cropping was also meant to satisfy the farmer's family taste for variety of food crops and also feeding of farm animals. Olayide and Heady (1982) in their study also found that since profit maximization is one of the goals of every farmer, the practice of mixed cropping has always been adopted by most peasant farmers.

c. Maize Variety

More than 80% of the farmers adopted the used improved/hybrid seed as planting inputs although on a limited supply and scale. It is therefore expected that high yield and/or output should be the case, all other things being equal. However, since majority of the farmers are small scale farmers, such inference does not apply.

d. Land Acquisition

With the *once upon a time land use decree of 1978*, one would have expected that land acquisition was through government. However, the finding from the study shows that no farmers acquired his/her farmland with the aid of government or cooperative society/group membership. 60.8% of the farmers borrowed the farmland used for cultivation while 35.8% acquired land through inheritance. The implication of this is that the farmers operate with fragmented piece of land since a borrower has limited choice to make.

e. Subsidy on inputs

Most farmers indicated the use of fertilizer and agro chemicals for better yield. In fact, on the average about 73.5% of the farmers apply fertilizer/agro chemicals. Interestingly, 60.2% of these fertilizers were subsidized and just about 15% of the agro chemicals/planting seed were subsidized. Additional information suggests that the so called subsidize fertilizer was grossly below requirement. Regardless of the farm size of an average beneficiary, just about 1 bag or 2 is allocated to him/her.

f. Market/sales Outlet

Most maize farm produce (79.2%) in the study area are sold in local markets where price is often at give away price. This implies farmers usually don't decide at what price to sell their maize output since there is no guaranteed market for them. This type of market usually does not give a good return on investment due low pricing of farm produce.

Table 2: Production Characteristics Maize Farmers in the Study area

Variable	Description	Frequency	Percentage
Farm Size (ha)	<1.5	217	54.2
	1.5 - 2.5	133	33.3
	2.6 – 5.5	37	9.2
	>5.5	13	3.3
	Total	400	100
Farming Practice	Mono cropping	21	5.3
	Mixed cropping	379	94.7
	Total	400	100.0
Land Acquisition	Inheritance	143	35.8
	Purchase	13	3.3
	Borrowed	243	60.8
	Total	400	100.0
	Total	400	100.0
Maize Variety	Local	30	7.5
	Hybrid	333	83.3
	Both	33	8.3
	I don't know	3	.8
	Total	400	100.0
Subsidy on farm inputs	Yes	241	60.2
	No	159	39.8
	Total	400	100.0
Market outlet	Local market	317	79.2
	Middle men	10	2.5
	Wholesale	57	14.2
	Retailer	17	4.2
	Total	400	100.0

Author's analysis based on data collected from the field.

Problems Affecting Maize Production

The primary objective of farmers and perhaps any party in production enterprise is profit maximization; this is also true of maize farmers in Kogi State of Nigeria. This is as a result of the fact that maize is not only consumed, but also serve as feed and residual, has the potential to be exported Annon 3, (2010). Table 3 explained some problems affecting maize production in the study area. These includes but not limited to high cost of labor, transportation, low fund, lack of access to extension services etc. 66.9% of the farmers identified High cost of labor as a very severe Constraints. Although family labor was used, but hired labor was mostly use. Scarcity is usually characterized by high cost of input variables of production; therefore the high cost of labor could imply unavailability of labor. Hence the amount charged per man-day was high. This explains the reason behind the high cost of labor.

The result reveals that fund is one of the very severe constraints to maize production (67.5%). Since most respondents are small scale farmers, they have low capital base and therefore cannot afford the high cost of inputs. Also, the stringent conditions and bureaucratic tendencies of formal credit agencies shy farmers away from obtaining loans to finance their farm operation.

Another problem identified by maize farmers in the study area is lack of available market for maize product. This is seen from the fact that about 70% of respondents acknowledge poor pricing of maize product. This is not peculiar to maize alone. In a related study, Aduba, et al (2011) found lack of available markets as one of the severe constraints for marketability of sorghum output. Lack of good road which also has a bearing with high cost of transportation among other things was also cited by farmers in the study area as very severe problems.

Table 3: Problems/Constraints affecting maize production

Constraints	Severity (%)				Total
	VS	S	NS	Indiff.	
Lack of access to improved/hybrid seed	19.2	11.7	63.3	5.8	100.0
Lack of access to Extension services	15.8	7.5	65.0	11.7	100.0
Lack of market for product	40.0	31.7	26.7	1.7	100.0
Lack of recommended Agrochemicals	15.8	6.7	23.3	54.2	100.0
Problems of pest and diseases	8.3	16.7	44.2	30.8	100.0
Lack of access road	51.7	38.3	9.2	0.8	100.0
Inadequate fund	67.5	31.7	0.8	0.0	100.0
High cost of transportation	64.5	28.9	2.4	4.2	100.0
High cost of labour	66.9	30.5	1.7	0.8	100.0
Poor pricing of maize products	70.0	6.7	8.3	15.0	100.0

Author's analysis based on data collected from the field

Conclusions

The study identifies some socio-economic characteristics as gap that needs to be close if maize farmers are expected to reach optimum production in maize output in the study area. The following chasms were identified;

1. Maize farming was basically a male dominated enterprise due to landholding issues which gives men more access to land than women in the study area.
2. The average annual income of farmers in the study area was N210,000 (US\$1320). This imply that imply that each member of household of these farmers leave on approximately US\$0.45 dollars per day.
3. Personal savings was chiefly the main source of credit facilities used to finance maize production in the study area.
4. Large family size has prove to lower overall production output in the study area because as staple food, large portion of maize produce are usually consumed by the large family members.
5. More than 80% of maize growers experimented on fragment landholdings of 2.5 hectares and below.
6. There were no guaranteed market for produce in the study area

Recommendations

Having identified the various gaps in maize production in Kogi State, the following recommendations are made;

1. Women should be encouraged and given equal opportunities to all factors of production including land in the study area. This may improve the status of maize production and the overall food security in Kogi State in particular and Nigeria at large.
2. Maize growers should be encouraged to channel their resources into the farming enterprise for proper utilization of time and resources. This can be done by the use of extension officers reaching and training the farmers' on full resource utilization.
3. Since sustainable agriculture is private driven, private sectors should delve into investing in agriculture through farmers. One way of doing this is by providing credit facilities to the farmers.

4. Farmers should be encouraged to use contraceptives in order to limit or control the observed large family size.
5. Government should create an enabling environment that guarantee available farmland to farmers with appropriate farm inputs and guarantee market for farm produce.

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