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Economic Analysis of Sugarcane Production in Lau Local Government Area of Taraba State, Nigeria

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ABSTRACT

The study analyzed the Economics of Sugarcane Production in Lau Local Government Area of Taraba State, Nigeria. Primary data were collected from 102 sugarcane farmers using purposive and simple random sampling techniques and were analyzed using descriptive statistic and gross margin analysis. The results of the socio-economic characteristic of the farmers revealed that majority (82.35%) were young adults below 51 years of age, and were predominated by male (92.16%), that were married (77.45%), with large family size (74.51%). The findings also indicated that majority (76.47%) were small holder farmers who depended mainly on their personal savings (79.41%) for funds. The result of the gross margin analysis shows that sugarcane farmers incurred a total variable cost per hectare (TVC) of ₦143, 000 on sugarcane production. While the returns indicate the total revenue, gross margin, net farm income and return on Naira invested on sugarcane production were ₦241, 800, ₦98, 800, ₦91, 320 and ₦0.61K respectively. The constraints to sugarcane production in the study area were identified as: inadequate funds, high cost of farm inputs, high cost of labour, lack of improved seeds, pest and disease attacks among others. Sugarcane farmers are encouraged to form cooperative societies in order to get financial support from government, NGO`s, private companies as well source credit facilities from banks. Government should also subsidize the price of farm inputs as well as provide improved seeds through extension agents to farmers in order to boost sugarcane production in the area.

Keywords: Economic Analysis, Sugarcane, Production, Lau and Taraba State.

Introduction

Sugarcane (*Saccharum spp*) was introduced to Nigeria by European sailors in the fifteenth century along the western coasts and was initially grown for chewing and livestock feed. When it was discovered that the crop required a relatively

higher amount of water to grow well, its cultivation spread into Islands and swamp patches of flood plains. Sugarcane has adapted itself to variety of soils and climatic conditions such that it is now grown widely across Nigeria; but commercial sugarcane production in Nigeria started in the late 1950s.The crop is useful not only for sugar but also for ethanol which can be a substitute for gasoline (Naidu, 1987; Oguntoyinbo, 1978 and Daniel et a*l.*, 2009). Sugar, one of the major products of sugarcane is an essential commodity, a critical raw material in foods, beverage and pharmaceutical industries. The by-product of the crop also has enormous potentials. In developing countries like Nigeria, Sugarcane production has been a source of immediate income to many rural communities (Daniel *et al.*, 2011). Recent studies revealed that about one million hectares of sugarcane plantation in Pakistan supplies raw materials to 77 factories besides indigenous brown sugar cottage industries. Also, Iran`s one million tonnes of annual outputs of sugarcane supply 50% of the country's domestic requirement (Daniel *et al.*, 2011). In Africa, South Africa is said to be the 13th largest producer of sugarcane in the world and is expected to produce 7.3 billion liters of bio-fuel (ethanol) in the next 10 to 15 years (Morris, 2008). Zimbabwe has also been regarded as one of the lowest cost sugar producers in the world after Brazil producing about 600, 000 tones yearly (Tyler, 2008). In Nigeria, sugarcane industry is not a successful story; the sub-sector is largely undeveloped with untapped resources and potentials. The sugarcane production in Nigeria is wide spread and majority of the producers are local farmers using simple tools for cultivation with little or no capital to expand their farms. While the demand for sugar and sugarcane products are always on the increase (Daniel *et al*, 2009). Various efforts had been made by the Federal Government of Nigeria in accelerating sugarcane production, such as the establishment of the National Sugar Development Council (NSDC), which involved government directly investing in sugarcane industry. Also, the National Cereals Research Institute (NCRI) was mandated to develop a 10 tonnes cane per day (TCD) mini plant for cottage brown sugar industries to complement the effort of the large scale plants (Wada *et al.,* 2006). Despite all these efforts, the demand and supply gap still continue to grow wider and wider. This is evident by the mass importation of sugar at the expenses of our foreign exchange which is a national drain to the economy. Various scholars such as Mirchaulum and Eguda 1995 and Daniel *et al.* (2009) have identified several factors as being responsible for the deteriorable state of sugarcane industry in Nigeria such as: poor management, high cost of labour, and high cost of farm inputs, pest and disease attack, foreign competition, low price of sugar among others. However, the problems affecting the production of sugarcane seems not to be addressed and remain unexplored in Lau Local Government Area of Taraba State. Also, now that a

prominent investor and business Mogul, Aliko Dangote is making efforts to establish a sugar processing plant in the study area, this study becomes imperative to sensitize sugarcane farmers on the costs and returns in order to boost sugarcane production in the area.

Objectives of the Study

The broad objective of the study is to analyze the economics of sugarcane production in Lau LGA of Taraba State Nigeria. The specific objectives however are to describe the socio-economic characteristics of sugarcane farmers, estimate the costs and returns of sugarcane production and identify the respondent's constraints to sugarcane production in the study area.

Methodology

The Study Area

The study was carried out in Lau Local Government Area of Taraba State,Nigeria. It lies between Latitude 10° 18' and Longitude 10° 48'East of the Greenwich Meridian and Latitude 8° 13' and Longitude 9°40' North of the equator. The local government area is bounded with Adamawa state to the north, Karim-Lamido Local Government Area to the West, Jalingo and Yorro LGAs to the East and Gassol Local Government to the South. The LGA has an area of about 3,525 square kilometers with a population of 96,590 people (NPC, 2006). It has seven districts namely; Lau, Kunini, Yandang, Mayo-Lope, Donnada, Appawa and Garin Dogo. The study area is heterogeneous in ethnic composition among the major ethnic groups are: Bandawa, Yandang, Jenjo, Fulani's, Mumuye, Lau habe and Hausa. The economic activities in the area are mainly agriculture with few people engaging in trading, civil servants and fishing. Lau local government area has a tropical climate marked by dry and wet seasons with an average annual rainfall of 1000 mm and an average temperature of 27°C. Crops grown in the area include: sugarcane, rice, maize, guinea corn, cotton among others. Also, livestock farming such as cattle, goats and sheep is practiced in the area.

Method of Data Collection

Both primary and secondary data were used for this study. The primary data were obtained through structured questionnaire while the secondary data were obtained from journals, textbooks, past projects and internet.

Sampling Technique

Purposive and simple random sampling techniques were used during this study. Five wards were purposively selected based on their prominence in sugar cane

production which includes: Lau, Kunini, Donadda, Appawa and Garin Dogo. Then 24 respondents were randomly selected from each of the wards giving a total sample size of 120 respondents for this study. However, 102 questionnaires were retrieved and used for data analysis.

Method of Data Analysis

Descriptive statistics such as percentage and frequency were used to analyze the socio-economic characteristics of sugarcane farmers and the constraints to its production in the study area.

Gross Margin Analysis

The gross margin analysis involved the evaluation of the costs and returns to production. It was used to determine the profitability of sugarcane production per hectare. This was because the fixed capital constituted a negligible portion of the total costs of production. (Olukosi and Erhabor, 2005). The model is expressed as follows: -

$$GM=TR - TVC$$

Where,

GM= Gross Margin (₦/ha)

TR= Total revenue or total value of output from the sugarcane enterprise (₦/ha). It is the product of the average output per hectare multiplied by the market price. The price used was the market price of the year 2013.

TVC = Total variable cost or the costs that are specific in producing sugarcane output (₦/ha).

The profit level as measured by Alabi and Adebayo (2008) is specified as:

$$NFI=GM - TFC$$

Where,

NFI= Net Farm Income ((₦/)

GM= Gross Margin ((₦)

TFC = Total Fixed Cost ((₦)

Results and Discussion

Socio-Economic Characteristics of Sugarcane Farmers

The socio-economic characteristics of the farmers are presented in table 1. The result shows that majority of the farmers (82.35%) were below 51 years of age, implying that they are in active productive age capable of doing the vigorous labour involved in sugarcane farming. Most (92.16%) of the farmers were males. The less participation of women in sugarcane farming in the study

area might not be unconnected with the hard labour involved as well as the capital intensive nature of the crop. About 77.45% of the farmers were married and 74.51% had a family size of more than four (4) persons per household. The large family size of most of the respondents is an indication that some of them might depend on their family for labour for sugarcane production. Furthermore, it was found that majority (76.47%) of the respondents had formal education ranging from primary to tertiary level. Education has been found to be a vital component in technology adoption in agriculture (Alabi and Aruna, 2006). Also, most (79.41%) of the farmers had more than six (6) years of farming experience. Experience in farming activities plays an important role in decision making relating to output increase and risk avoidance (Mohammed *et al*, 2009). Majority (73.53%) of the farmers had farm size ranging from less than one (1) to four (4) hectares implying that they were mostly smallholder farmers. The results further shows that most (79.41%) of the farmers depended on their personal savings for funds while only (20.59%) had access to bank credit. This could have negative effects on their production ability as their funds from personal savings might be inadequate to expand their ventures.

Estimated Cost and Returns of Sugarcane Production

The estimated costs and returns of sugarcane production are presented in Table 2. The result reveals that the average total variable cost per hectare of sugarcane production was ₦143, 000 which accounted for 95.03% of the total cost of production in the enterprise. Also, for each hectare of sugarcane farm, the values of gross income, gross margin, net farm income and return on Naira invested were ₦241,800, ₦98,800, ₦91,320 and ₦0.61k respectively. This implies that sugarcane production in the study is profitable. This is in conformity to the findings of Hussain *et al*. (2006) and Daniel *et al*, (2009).

Constraints to Sugarcane Production

Table 3 reveals some of the major problems affecting sugarcane production in the study area. About 98.04% of the farmers identified inadequate funds as their major problem. This may account for the reason that most respondents are small-holder farmers. Also, the stringent conditions of credit institutions would hinder farmers from accessing credit facilities to finance their farm operations. Another problem confronting farmers was revealed as high cost of farm inputs as perceived by 96.08% of the respondents. Other severe problems were high cost of labour (94.12%), lack of improved seeds (97.06%), pest and diseases attack (91.18%) and poor price of sugarcane (95.10%). These results agreed with the findings of Abubakar (2002); Hussain *et al* (2006) and Daniel *et al*. (2009).

Conclusion and Recommendation

The sugarcane enterprise in the area is dominated by young married men with large family size, educated with many years of experience, but they are mainly small-holder farmers who depended on their personal savings for farming. The study further revealed that sugar cane production is profitable in the study area. However, the production of sugarcane in the study area is hampered by inadequate funds, high costs of farm inputs, high cost of labour, lack of improved seeds and poor price of the product among others. The study therefore recommends that, farmers should form cooperative society in order to get financial support from government as well as credit from financial institutions. In the same vein, Government should intervene in subsidizing the price of farm inputs as well as regulating the prices of sugarcane by fixing a minimum guaranteed price for the product.

Table 1: Socio-Economic Characteristics of Sugarcane Farmers (n=102)

Variable	Frequency	Percentage (%)
Age (years)		
‹20-30	22	21.57
31-40	25	24.51
41-50	37	36.26
50 and above	18	17.65
Gender		
Male	94	92.16
Female	08	7.84
Marital Status		
Married	79	77.45
Single	17	16.67
Divorce/widow	06	5.88
Family size (number)		
1-4	26	25.49
5-10	48	47.06
11 and above	28	27.45
Educational Level		
Non-formal education	24	25.53
Primary education	29	28.43
Secondary education	32	31.37
Tertiary education	17	16.57
Years of farming experience		
1-5	21	20.59
6-10	49	48.04
11 and above	32	31.37
Farm size (Hectares)		
‹1-4	75	73.53
5-10	18	17.65
11 and above	09	8.82
Sources of finance		
Personal savings	81	79.41
Borrowing from banks	21	20.59

Source: Field Survey, 2014.

Table 2: Average costs and returns per hectare of Sugarcane Production

Production variables		Value₦/ha	Percentage (%)
(a)	**Variable cost**		
	Seed cane	25,000	16.61
	Herbicides	3,000	1.99
	Pesticides	3,000	1.99
	Fertilizer	11,000	7.31
	Labour	76,000	50.51
	Transportation	15,000	9.97
	Other expenses	10,000	6.65
	Total variable costs	143,000	95.03
(b)	**Fixed costs**		
	Depreciation on fixed assets	2,480	1.65
	Rent on land	5,000	3.22
	Total fixed costs	7,480	4.97
	Total cost of production(A+B)	150,480	100
(c)	**Returns**		
	Gross income	241,800	
	Gross margin	98,800	
	Net farm income	91,800	
	Return on Naira invested	0.61k	

Source: Field Survey, 2014.

Table 3: Constraints to Sugarcane Production (n=102)

Constraints	Frequency *	Percentage (%)
Inadequate funds	100	98.04
High cost of farm inputs	98	96.08
High cost of labour	96	94.12
Lack of improved seeds	97	97.06
Pest and diseases attack	93	91.18
Poor price of Sugarcane	97	95.10

Source: Field Survey, 2014.

*** Multiple responses obtained**

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