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ECONOMICS OF IMPROVED PLANTAIN PRODUCTION IN OGUN STATE

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Abstract

The study was carried out in Abeokuta metropolis in Ogun state. Data were obtained from a random sample of 80 respondents in the study area by means of structured questionnaire. Data collected were analyzed using descriptive statistics and gross margin analysis to determine the profitability of the improved plantain farming. *A two-stage sampling technique was adopted for this study. The socio-economic characteristics of the respondents revealed that, the modal age group of the farmers is between 41-50 years (47.50%). Majority (66.25%) of the respondents are male, 88.75% of them had at least one form of education; majority (78.75%) of the farmers were married. 35% of them had an average of 7years experience in plantain production and 65% of the respondents have about 4.5 hectares of farm size while 27.5% has less than 1 hectare. Most farmers (43.75%) sourced their capital through cooperative societies, 31.25% through personal savings, and 12.5% through money lenders, while only (4%) obtaining loans from commercial banks. The major constraint faced by the farmers in the study area were high cost of labour (37.50%), inadequate availability of land (25%), transportation challenges (18.75%), high cost of capital (12.50%), and less impacts of extension services (6.25%) respectively.* Meanwhile, these constraints affect the production efficiency and farmers income. *H*ence, for efficient production, these constraints must be reduced to the barest minimum. *The Gross Margin (GM) was ₦586, 830.00 while the benefit/cost ratio was ₦4.21. These reveals that plantain farming is profitable in the study area and for every ₦1 invested there was a return of ₦4.21 kobo. The study further recommend an accelerated improvement in scaling up of plantain enterprise and agricultural financing such as provision of improved suckers, agro-chemicals, machineries etc; if agriculture is to make the desired contribution to the Gross Domestic Product (GDP) and boosting of foreign exchange earnings.*

Keywords: economics, improved *plantain farming, profitability, constraints, Abeokuta*

1. Introduction

Nigeria economy is being determined by agriculture which has being experiencing a rapid growth in the last two decades. Agriculture has remained the fastest growing sector in the non-oil sector as it provides employment opportunities for about 70 percent of the people, and 30 percent of income generation for the country. Despite this feat, Nigeria is unable to produce enough food and fiber to meet her demands. This could be attributed among others, to the fact that majority of Nigerian farmers are subsistence smallholder farmers who cultivate between 1-2 hectares, which is usually scattered over a wide area (Akande, 2006). The spread of hunger and malnutrition along with low and stagnating productivity in agriculture tends to be at the top of the list of food and agricultural concerns in developing countries. However, inappropriate application of agro-inputs (suckers, seeds and or seedlings), harvesting and planting time, provision of credit facilities, climate change, ineffective extension services, and government policies has been the major problem of the rural households and food crisis.

Plantain and banana are major sources of food in many regions all over the world. Total world production of these crops is estimated to be over 76 million metric tones, out of which an estimated 12 million metric tones are produced in Africa annually (Fakayode, Rahji, Ayinde, and Nnom, 2011). This is also supported by Frison and Sharrock, (1999) who observed that banana and plantain represent more than 25 percent of the food energy requirement of Africa. Plantain (*Musa* spp.), a staple food crops which occupies a strategic position for rapid food production in Nigeria (Akinyemi, 2010) has a relative importance in terms of carbohydrate and iron to other staple crops such as cassava, maize and rice. It is ranked third among starchy staple crops. Nigeria is one of the largest plantain producing countries in the world (FAO, 2006); it is ranked sixth largest producers with 2.8 MMT following Uganda (9.2MMT), Ghana (3.55MMT), Cameroon (3.4MMT), Colombia (3.3MMT) and Rwanda (3.2MMT) (https://www.mapsofworld.com/world-top-ten/plantain-producing-countries.html). Despite its

prominence, Nigeria does not feature among plantain exporting nations because it produces more for local consumption than for export. Plantain farming which is concentrated in the southern part of the Country, still remains largely in the hands of small scale farmers (Akinyemi, 2010).

Plantain has occupied an important role in rapid food production. In Abeokuta, Ogun State, its mature fruit are consumed boiled, baked, pounded, roasted or sliced and fried into chips (i.e. pekere); while overripe plantain are processed into beer or sliced with chile pepper, fried with palm oil and served as snacks (i.e dodo). Unripe plantain is traditionally processed into flour in Nigeria. The flour produced is mixed with boiling water to prepare amala (i.e. elubo-ogede) which is used to treat diabetic patients. Plantain flour contains 10% of residual humidity and can be hermetically packed in plastic sachets and stored for many months without deterioration in its qualities (Ekunwe, 2010). Industrially, plantain serves as a composite in the making of baby food (FDA, 2000). Besides, being the staple for many people in the humid regions, plantain is a delicacy and favoured snacks for people even in other ecologies. Nevertheless, a growing industry, mainly plantain chips, is believed to be responsible for the high demand being experienced now in the country. Production of plantain in Nigeria (1990-2004), indicates a downward trend in terms of yield per hectare while price per ton have steadily increased within the period (FAO, 2006, FAO-STAT, 2011). The optimal yields in plantain production; and profitability, depends on mode of operation of the farmers. Plantain production is concentrated in the hands of small scale farmers, who do not have the financial sinew for sustainable production due to high cost of labour, inputs and climate change. Also, the inadequate knowledge of improved cultural practices of the crop by the farmers, inefficient extension services and fewer numbers of researchers or specialists in the areas of production, processing and marketing are part of the reasons why yields potential of plantain is still low in the country (Akinyemi, 2010).

Therefore, there is a need to examine the economics of plantain production in Abeokuta metropolis in Ogun State as there are little records on it as reported by (Tijani, 2009). Specifically, this study estimated the cost and returns associated with plantain production and outlined constraints faced by the farmers in the study area.

2. Methodology

The study was carried out in Abeokuta metropolis. This covers Abeokuta South/North, Ewekoro, Ifo Obafemi–Owode, and Odeda. It has a tropical climate with rainforest vegetation on its southern part and a derived savannah on its northern end. Ogun State has twenty (20) Local Government Areas (LGAs). A two-stage sampling technique was adopted for this study. Ogun State Agricultural Development Programme provided the sampling frame utilizing the list of registered plantain producers maintained in

the Rural Institution Development (RID) Department, out of which 40 communities were purposively selected in the first stage, in the second stage, two farmers were randomly selected from each community; making a sample frame of 80 respondents. A well-structured interview schedule was used to collect information from the respondents. Descriptive statistics such as mean, frequency distribution and percentages were used in analyzing the socioeconomic data while the gross margin analysis was used to determine the profitability of plantain production in the study area. Also, Benefit/Cost ratio was used to ascertain the rate of profit margin from plantain production in the study.

3.0 RESULTS AND DISCUSSION

3.1 Socio-Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents presented in table 1 revealed that, the modal age group of the farmers is between 41-50 years (47.50%). This implies that the respondents in this age range are likely to be more energetic and willing to take risks in plantain production (FMARD, 2013). Majority (66.25%) of the respondents are male**,** this indicated that plantain production is energy demanding especially at the point of cutting young suckers from parent plants, digging for planting new suckers and mulching of newly planted suckers. The results further revealed that most of the farmers (88.75%) had at least primary education. This is in line with Abiola and Omoabugan (2001) who reported that close to half of the farmer's population has formal education, thus implying that they may be more willing to adopt improved technologies. The study also revealed that an average household had six members, which implies that family labour is available for the production, consequently reducing the amount spent on hired labour and increasing the profitability of the business. Majority (78.75%) of the farmers were married, while 35% of them had an average of 7years experience in plantain production and thus tends to reduce waste and maximize their returns. Majority (65%) of the respondents have an average farm size of 4.5 hectares while 27.5% had less than 1 hectare. The study also revealed that 46.25% of the farmers used family labour, while 31.25% of them hired labour on the farm. Most farmers (43.75%) sourced their capital through cooperative societies, 31.25% through personal savings, 12.50% through money lenders, while only 4% obtained loans from commercial banks. Farmers interviewed attributed this to the high interest rates charged by commercial banks, and the stringent conditionality required for accessing bank loans. The result of their constraints were also revealed as follows: the major constraint faced by the farmers on production were high cost of labour (37.50%), inadequate land (25%), transportation (18.75%), high cost of capital (12.50%), and inefficient extension services (6.25%) respectively.

3.2 Cost and Return Analysis

Table 2 revealed the analysis of cost and returns of plantain production (farming) on a one-hectare farm land. The Total Variable Cost (TVC) is ₦182, 540 (inclusive of labour: ₦62, 550 and inputs: ₦ 107,480), while the Total Revenue (TR) was ₦ 769, 370 (inclusive of suckers and proceeds from sale of plantain bunches) respectively. The Gross Margin (TR - TVC) was ₦ 586, 830:00 while the benefit/ cost ratio was 4.21. This revealed that plantain production is profitable in the study area and for every ₦1 invested in its production there will be a return of 4.21 kobo.

Table 1: Distribution of Respondents by Socio-economic Characteristics

Variables	Frequency	Percentage (%)
Age (years)		
<30	7.0	8.8
31-40	23.0	28.8
41-50	38.0	47.5
51-60	10.0	12.5
>60	2.0	2.5
Total	80.0	100.0
Gender		
Female	27.0	33.8
Male	53.0	66.3
Total	80.0	100.0
Marital status		
Single	9.0	11.3
Single mother	2.0	2.5
Married	63.0	78.8
Widow	6.0	7.5
Total	80.0	100.0
Household size (No)		
3-5	11.0	13.8
6-8	45.0	56.3
9-11	16.0	20.0
>12	8.0	10.0
Total	80.0	100.0
Farm size (Ha)		
<1	22.0	27.5
2-4	35.0	43.8
5-7	17.0	21.3
>8	6.0	7.5
Total	80.0	100.0
Educational level (years)		
None formally	9.0	11.3

Variables	Frequency	Percentage (%)
Primary education	31.0	38.8
Post primary education	27.0	33.8
Tertiary education	13.0	16.3
Total	80.0	100.0
Experience in farming (yrs)		
1-3	15.0	18.5
4-6	12.0	15.0
7-9	28.0	35.0
>10	25.0	31.3
Total	80.0	100.0
Category of labour type		
Hired	25.0	31.3
Family	37.0	46.3
Both	12.0	15.0
Others	6.0	7.5
Total	80.0	100.0
Sources of Funds		
Personal savings	25.0	31.3
Local cooperative societies	35.0	43.8
Money lenders	10.0	12.5
Relatives	7.0	8.8
Bank loans	3.0	3.8
Total	80.0	100.0
Production Constraints		
Lack of capital (fund)	10.0	12.5
High cost of Labour	30.0	37.5
High cost of transportation	15.0	18.8
Land tenure system	20.0	25.0
Poor extension services	5.0	6.3
Total	**80.0**	**100.0**

Source: field survey, 2016.

Table 2: Analysis of Cost and Returns of Plantain Farming

	Budget Items/ Variables	Unit	Qty	Price(₦)	Value (Total) (₦)
A	**Revenue**				
	Plantain bunch	bunches	998	700	698,600.00
	Plantain suckers (seedlings)	Pcs	1,011	70	70,770.00
	Total				**769, 370.00**
B	**Variable cost/ Capital** (inputs)				
	Plantain suckers	bunches	1,111	80	88,880.00
	Herbicides	liters	4	1,300	5, 200.00
	Fertilizer	bags	2	6,700	13, 400.00
	Total				**107, 480.00**
C	**Labour/ Operations**				
	Land clearing/preparation	Md	4	8,000	32, 000.00
	Double ploughing (tractor service)	Md	2	7,600	15, 200.00
	Herbicides applicant	Md	1	2,000	2, 000.00
	Fertilizer	Md	1	2,000	2, 000.00
	Supplementary weeding	Md	2	2,000	4, 000.00
	Harvesting	Md	2	1,500	3, 000.00
	Transport/fuel	p/up	30L	145	4, 350.00
	Opportunity cost of variable inputs @ 20%	₦12,510			
D	**Total variable cost (TVC) =B+C**	₦182,540			
	Gross margin = TR-TVC = A-D	₦586,830			
	Benefit/cost ratio (A/D)	₦4.21k			

Source: Field survey, 2016.

4.0 Conclusion and Recommendations

The findings reveals that improved plantain farming is economically viable and worthwhile investment in Ogun state. Therefore, plantain farmers in the study area should be encouraged by providing them with good and adequate social infrastructure such as roads, health care facilities

and provision of efficient extension services. A stringent policy that will address land tenure problem, persistent increase in the provision of agricultural inputs such as fertilizer, improved suckers, seeds and seedlings, subsidizing of improved technologies for both production and processing of plantain, and loan facility are recommended. Farmers should be encouraged to revitalize failing rural farmer's cooperative societies as a way of overcoming the credit constraint in financing their production activities.

Conclusively, development of infrastructures and provision of basic amenities at the rural sector is seriously recommended in other to stem rural-urban migration which hitherto has been reducing the rural population thereby making labour charges at the rural areas to be high.

References:

Abiola, R. O and Omoabugan, E. B. (2001): Women Involvement in Food Crop Production, Processing and Marketing in Nigeria. Bullion mag., pp. 39-43.

Akinyemi, S. O. S.; Aiyelaagbe, Israel; and Akyeampong, E. (2010**)**: Plantain (Musa spp.) Cultivation in Nigeria: a Review of Its Production, Marketing and Research in the Last Two Decades (http://journal-dl.com/item/591088503fbb6e1374402855).

Ekunwe, P.A. and Ajayi, H.I., (2010): Economics of Plantain Production in Edo State, Nigeria: Research Journal of Agriculture and Biological Sciences, 6(6): 902-905, 2010 © 2010, INSI net Publication.

Fakayode, B. S., M. A. Y.Rahji, Ayinde, O. and G. O. Nnom, (2011): An Economic Assessment of Plantain Production in Rivers State, Nigeria. International Journal of Agricultural Economics & Rural Development - 4 (2): 2011 © IJAERD, 2011.

Food and Agriculture Organization FAO STAT (2006): FAO Statistics Division 2006. Food and Agriculture Organization of the United Nations. *Production Year book*, FAO Rome. **Food and Agriculture Organization FAO STAT (2011):** Plantain Production Quantity in Nigeria 1961-2009. Food and Agriculture Organization of the United Nations. FAO Rome. Journal of Agriculture and Social Research (JASR) Vol. 12, No. 1, 2012.

FDA, (2000): Economics of Plantain Production in Oil Producing Communities of Bayelsa State, Nigeria. Nigerian Journal of Agricultural Economics (NJAE). Volume 5(1), 2015: Pages 54-60.

FMARD, (2013): Agriculture in Nigeria: The New Policy Thrust. Federal Ministry of Agriculture and Rural Development, Abuja, Nigeria.

Frison, E.A. and S.L Sharrock (1999): "Introduction: The Economic, Social and Nutritional Importance of Banana in the World" In Banana and Food Security. Journal of Agriculture and Social Research (JASR) Vol. 12, No. 1, 2012.

Ojo, A.A. (2005): Reflections on the Nigerian Cocoa Economy. Precious Pearls Books, Akure, Nigeria. 2005; 192.

Okunlola, J.O and Adekunle (2000): Indigenous Knowledge Approach for Rice Pests and Diseases Control for sustainable Environmental Management by Rice Farmers in Niger State, Nigeria. Journal of Environmental Extension 1 (1) 28-35.

Tijani, I. A., B.T. Omonona, Ashaolu, O.F. and O.M. Bamiro, (2009): Economic Analysis of Plantain Production in Irewole Local Government Area, Osun State, Nigeria: Advances in Natural and Applied Sciences, 3(2): 183- 187, 2009. ISSN 1995-0772.

World Health Organisation (WHO): 2003. "World Health Organisation News Reports". International Journal of Agricultural Economics & Rural Development, 4 (2): 2011.

Stover, R.H. (1987): Simmonds NW. Bananas. Tropical Agricultural Series, Scientific and Technical, UK. 1987; 467. *Asian Journal of Agricultural Extension, Economics & Sociology 3(6): 630-637, 2014; Article no. AJAEES.2014.6.014.*