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ECONOMIC BENEFIT OF OKRA LEAF PRODUCTION IN IBARAPA CENRAL LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA.

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Abstract

Okra leaf has contributed greatly to the diet of Ibarapa people as one of the most popular soups in the area and also contributes immensely to the economic development of farmers in Ibarapa. Therefore, this study examined the economic benefit of okra leaf production in Ibarapa cenral local government area. Respondents were selected through a multistage sampling technique. In the first stage, two towns (Igboora and Idere) were purposively selected. In the second stage, 80 Okra leaf farmers were randomly selected from Igboora and 60 farmers from Idere, totaling 140 respondents. The data were analysed using descriptive statistics and inferential statistics. The results revealed that majority (82.14%) of the respondents were males with average age of 37 years. Most (83.57%) were married with family member to catered for. Large number (60.00%) of the respondents took farming as their primary occupation with the average years of 9 years. The average cultivated farm size was 3.52 hectares and majority (70.00%) of the farms were inherited. Mixed cropping was mostly (83.57%) practiced. The gross margin (GM) was ₦268,881.10 with the average profit (π) of ₦184,158.46. The benefit cost ratio (BCR) was 1.79, this indicate 179% return on investment. Factors that influence economic benefit of Okra leaf production are; age of the farmer, amount spent on labour, size of farmland, Household size, year spent in school (significant at 5%) and year of experience. Adjusted R^2 was 0.654 which indicated 65.40% of factors that determined the profit of Okra leaves production have been explained by independent variables. It was recommended that farmers should be engaged in commercial production of okra leaf production.

Keywords: Economic, Benefit, Okra leaf, Production

Introduction

Okra (*Abelmoscus esculentus*) known as lady's finger is a vegetable crop commonly grown by most rural farmers in sub-saharan Africa. It is a warm season crop that belongs to the cotton (mallow) family. Okra is referred to as "Gumbo" in some areas and "fingerlicks" due to its draw nature (Douglas, 2001). Okra leaf is rich in vitamins and minerals (Law-Ogbomo *et al.*, 2013) and grown widely in gardens for home use with its excess for markets. Okra is an annual crop belonging to the family Malvaceae. It is an important vegetable especially in West Africa, India, Brazil and the United States (Kemble *et al.*, 1995; ECHO, 2003; Alimi, 2004). Okra has several cultivated species of economic importance, two of which were identified as *Abelmoschus esculentus* and *Abelmoschus caillei* (Siemonsma, 1982). Okra contains valuable food ingredients, which can be successfully utilized to build up and repair the body (Bakhru, 2003; Edet and Etim, 2007). In most countries of the world, vegetable is one of the staple food components whose production has continued to increase (Udoh and Akpan, 2007). Christo and Onuh (2005); Katung and Kashina (2005) documented that okra is consumed throughout Nigeria. Okra is grown basically in all the states in Nigeria both as rain fed and irrigated crop because of the highlighted values. Also, it serves as a source of income to its producers, labourers and marketers (Alimi, 2004). During the lean season okra fruits are produced in low quantities, scarce and expensive to get (Bamire and Oke, 2003).

Over 60% of okra grown in Nigeria are produced under intercropping system and the intercropping of okra with maize and cassava by most small holder farmers is a common coping strategy for poverty reduction in Nigeria (Ibeawuchi, 2007). This practice will allow complementary interactions between crops that have greater system resilience, reduce insect-pest incidence and deliver environmental benefits such as greater soil and water conservation potential (Gupta, 2004). The development of appropriate technologies for okra production and

marketing is sine qua-non to high market value (Oguntade *et.al.*, 2012). However, production has not been sustainable due to climate change and over dependence on rain fed farming. Consequently, okra deteriorate rapidly as there is a poorly developed storage and preservation technology for okra thus, there is a widening gap between the supply and demand of the product in Nigeria (IITA, 1993).

The importance of Okra leaf has been long recognized all over the world (Ndaeyov *et al*, 2007). According to Kebede and Gan, (1999), Okra leaf is a source of farm income for small and limited resources farmers. Despite the importance and income generating tendency of Okra leaf, its production is still low. This problem of under-production of okra leaf in Ibarapa may be due to lack of information about its economic benefit. This lack of information constitutes a gap in research that formed the basis for this study. Hence, the study seeks to achieve the following objectives:

- i. identify socio-economic characteristics of Okra farmers; ii. analyse the gross margin and profitability of okra leaf production and; iii. examine the factors that determine okra leaf profitability.

Methodology

Study Area

This study was carried out in Ibarapa Central Local Government Area of Oyo State. The Ibarapa Central consists of Igboora and Idere town. Its headquarters is in the town of Igboora. The Ibarapa area falls within latitude 70.5'N and 70.55'N and longitudes 30E and 30.30'E. It is located approximately 100km north of the coast of Lagos. The population of the area was 102,979 at the 2006 census (NBC, 2006). In 2018 the population of the area was estimated to be around 322,189. The area is approximately 440km² in geographical size, and consists mostly of rolling savannah with forests situated along the Southern border and in isolated patches along river courses such as the Ogun. The natural vegetation was originally rainforest but has been transformed into derived type savanna as a result of several centuries of slashes and burn agricultural practices. The population is almost made up of Ibarapa people who are in turn, a Yoruba ethnic group. Okra leaf soup is the most popular soup in the area, factually every household eats it.

Sample Size, Sampling Technique and Analysis

Respondents were selected through a multistage sampling technique. In the first stage, two towns (Igboora and Idere) were purposively selected. In the second stage, 80 Okra leaf farmers were randomly selected from Igboora and 60 farmers from Idere, totaling 140 respondents. Data collected were analysed by descriptive statistics (frequency table, mean and percentage) and inferential statistics (Gross Margin and Regression).

Model Specification

Gross Margin

$$GM = \sum p_i q_i - \sum r_j x_j$$

Where

GM= Gross Margin, P_i = Unit Price of Output i , q_i = quantity of output i , r_j = unit cost of variable input j , x_j = quantity of the variable input j , $p_i q_i$ = Total Revenue (TR), $r_j x_j$ = Total, Variable cost (TVC), $GM = TR - TVC$

$\pi = GM - TFC$

Where;

π = Profit

TFC = Total Fixed Cost

Multiple Regression Model

$$\ln Y_i = \ln \beta_0 + \sum_{j=1}^8 \beta_j \ln X_{ij} + \mu$$

$$\ln Y_i = \ln \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + \beta_7 \ln X_7 + \beta_8 \ln X_8 + \mu$$

Where;

$\ln$ = the natural logarithm

Y_i = Profit (₦)

X_{ij} = Vector of farm inputs ($X_1 - X_8$) used, X_1 = Farmers' age (Year), X_2 = Marital status, X_3 = Household size, X_4 = Year spent in school (year), X_5 = Years of experience (year), X_6 = Farm size (Ha), X_7 = Type of farming, X_8 = Labour used (Number/quantity)

Results and discussion

Socio-Economic Characteristics of the Respondents

Age: Table 1 revealed that majority (70.00%) of the respondents have age between 31-40years. Only 2.85% of the respondents were above 50years while 9.29% and 17.86% were between 21-30years and 41-50years respectively. The mean age was approximately 37years. This implied that the okra leaf farmers were young and in their active ages.

Sex: Table 1 showed that majority (82.14%) of the farmers were males while only 17.86% were females. This implied that males were more involved in Okro farming than females.

Marital Status: It was revealed from table 1 that large number (83.57%) of the respondents were married while only 10.00% were single. Divorced respondents were 1.43%. This implied that majority of the okra leaf farmers were married and have families to cater for.

Year of Experience: table 1 revealed that 41.43% of the respondents have between 6-10years of farming experience while 30.00% have between 1-5 years of experience. Only 4.29% have between above 16years if experience. The mean years of experience was approximately 9years. This implies that okra leaf farmers in the study area are not now in the business.

Primary Occupation: Table 1 showed that large number (60.00%) of the respondents taken farming as their primary occupation while only 21.42% were primarily artisans. Those who chosen trading and civil service as their main occupations were 9.29% each. This implies that respondents engaged more in farming as main occupation than other occupations.

Means of Land Ownership: It was revealed from table 1 that majority (70.00%) of the farmers inherited their farmland while only 4.29% purchased theirs. Those who got their farmland by gift and lease were 15.00% and 10.71% respectively.

Farm Size: The mean cultivated farm size was 3.52 hectares. The farmers that cultivated between 5-6hectares were 30.71% while 44.29% cultivated between 3-4%. Also, 30.00% cultivated between 1-2hectares.

Farming System: Table 1 showed that most (83.57%) of the respondents practiced mixed cropping and 13.57% practiced mono cropping. Only 2.86% of the respondents practiced crop rotation. This implied that mixed cropping was most practiced in the study area.

Table 1: Socioeconomic characteristics of the respondents (N=140)

VARIABLE	FREQUENCY	PERCENT	MEAN
AGE(Years)			
21-30	13		9.29
31-40	98		70.00
41-50	25		17.86
51 and above	4		2.85
SEX			
Male	115		82.14
Female	25		17.86
MARITAL STATUS			
Single	14		10.00
Married	117	83.57	
Separated/Divorced	2		1.43
YEAR OF EXPERIENCE			
1-5 years	42		30.00
6-10	58		41.43
11-15	34		24.29
16-20	6		4.29
PRIMARY OCCUPATION			
Farming	84		60.00
Trading/business	13		9.29
Civil service	13		9.29
Artisan	30		21.42
MEANS OF LAND OWNERSHIP			
Inheritance	98		70.00
Purchased	6		4.29
Leasing	15	10.71	
Gift	21		15.00
FARM SIZE			
1-2ha	35		30.00
3-4ha	62		44.29
5-6ha	43		30.71
FARMING SYSTEM			
Mono cropping	19	13.57	
Mixed cropping	117	83.57	
Crop rotation	4		2.86

Source: Field Survey, 2020.

Gross margin and Profitability Analysis of Okra leaf production

Table 2 presented the result of Gross Margin and Profitability Analysis of Okra leaf production in the study area. It was revealed that average total variable cost (TVC) was ₦149,690.30 while the average total fixed cost (TFC) was ₦84,722.64. The average total cost (TC) was ₦234,412.94.

The average total revenue (TR) received by the farmers was ₦234,412.94. The gross margin (GM) was ₦268,881.10. This indicated that okra leaf production is highly profitable in the study area with average profit (π) of ₦184,158.46.

The benefit cost ratio (BCR) was 1.79, this indicated 179% return on investment. It simply means that every ₦1 invested in okra leaf production, will bring ₦1.79k. This implied 79% profit margin on invest.

Table 2: Gross margin and Profitability Analysis of Okra leaf Production

Variables	Mean Values(₦)
A. Variable costs	
Labour cost	90,500.00
Cost of seed	5,378.50
Cost of fertilizer	14,275.00
Cost of chemical (pesticides)	22,365.50
Cost of transportation	9,278.50
Market charges	7,892.80
Total Variable Cost (TVC)	149,690.30
B. Fixed cost	
Depreciated cost of land	33,089.29
Depreciated cost of equipment	51,633.35
Total Fixed Cost (TFC)	84,722.64
C. Total Cost (TC)	234,412.94
D. Total Revenue (TR)	418,571.40
E. Gross Margin (GM) = TR-TVC = (418,571.40 – 149,690.30)	268,881.10
F. Profitability (π) = TR-TC = (418,571.40–234,412.94)	230,530.11
G. Benefit Cost Ratio (BCR)= (TR /TC) = (418,571.40÷234,412.94) = 1.79	

Source: Field Survey, 2020

Regression Analysis (Factor Affecting Profitability of Okra Leaf Production)

Table 3 showed the result of multiple regression which was used to determine the factors that influenced the profitability of okra leaf. It was revealed that age of the farmer was negatively correlated with profit with coefficient of 2488.10 and was significant at 10% level of significant. This implied that as the farmers are getting old, the profit making is declining. Amount spent on Labour was also significant at 1% level with negative correlation with profit which means that an increase in amount spent on labour brings about 477.303 decreases in profit.

Size of farmland was positively correlated with profit with coefficient of 97484.55 and was significant at 1% level of significant. This means that an increased in the land used for okra leaf cultivation will bring ₦97,484.55 increase in profit accrued. Also, Household size (significant at 5%), Year spent in school (significant at 5%) and Year of experience (significant at 1%) were all positively correlated with profit and were significant at different level. This implied that an increase in any of these factors brings about certain increase in profit generated. Marital status and types of farming had no significant influence on profit.

Adjusted R^2 was 0.654 which means 65.40% of factors that determine the profit of Okra leaf production had been explained by independent variables while the rest has been captured by stochastic error term.

Table 3: Factor Affecting Profitability of Okra Leaf Production

Variables	Coefficient	Standard Errors	P> t	Sign. Level
Age	-2488.10	937.2395	-2.65	0.009***
Marital status	6622.95	8092.2395	0.82	0.415
Household size	1121.183	478.8215	2.34	0.021**
Year spent in school	2943.824	1451.883	2.03	0.045**
Year of experience	11372.30	936.82	12.14	0.000***
Size of land	97484.55	12421.16	7.85	0.000***
Type of farming	5543.025	7676.591	0.72	0.472
Labour	-477.303	0.2315664	-2.06	0.041**
Constant	42925.04	43376.86	0.99	0.324
ADJUSTED R² = 0.654				

Source: Data Analysis, 2020.

Note: *Significant at 10%, ** Significant at 5%, ***Significant at 1%

Conclusion and recommendaions

It can be concluded that majority (82.14%) of the okra leaf farmers were males with average age of 37years. Most (83.57%) were married with family member to catered for. Large number (60.00%) of the respondents taken farming as their primary occupation with the average years of 9years. The average cultivated farm size was 3.52 hectares and majority (70.00%) of the farmers inherited their farmland. Mixed cropping was mostly (83.57%) practiced by the respondents and large number (60.71%) of the respondents got information from other farmers.

The gross margin (GM) was ₦268,881.10 with the average profit (π) of ₦184,158.46. The benefit cost ratio (BCR) was 1.79, this indicated 179% return on investment. Factors that influence profitability of Okra leaf production are; age of the farmer, Amount spent on Labour, Size of farmland, Household size, Year spent in school (significant at 5%) and Year of experience. Marital status and types of farming have no significant influence on profit. Adjusted R² was 0.654 which means 65.40% of factors that determine the profit of Okra leaf production have been explained by independent variables while the rest has been captured by stochastic error term.

It is recommended that Government should provide credit facility and extension service for okra leaf farmers. Farmers should engage in commercial production of okra leaf to improve the economic benefits of okra leaf production. Young agronomy graduates in Ibarapa central should consider okra leaf production farming as a means of living.

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