Farm Productivity among Small Scale Vegetable Farmers in Lagelu Local Government Area of Oyo State, Nigeria

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Abstract: **The study examined small scale vegetable farmer's farm productivity in Lagelu Local Government Area of Oyo State, Nigeria, using cross sectional data, well-structured questionnaire was use to collect primary data from sixty vegetable farmers and analysed with use of descriptive, frequency, mean and inferential statistics. The result of the study showed that 55% of the vegetable farmers were male and between the working ages of 41- 50 years with mean age of 43.13 years, 75% were married with mean family size of 7 persons, and 63.6% of the farmers had one form of formal education, 75% of them source their credit through personal savings, 41.8% had between 11-20 years of farming experience with mean years of 16.87 years of experience, 54.8% had income of ₦ 5000- ₦ 22,000, 68.4% source their farm land through renting, 36.7% had farm size between 1.0-4. 9 hectares, 88.5% adopt inorganic fertilizer for vegetable production and almost all (93.6%) depends on rain fed vegetable farming. The inferential statistics revealed that farming experience (β=0.573, p<0.01) and extension agent contact (β=9.353, p<0.05) showed positive relationship with vegetable output. Inadequate credit facility, access to viable seed, and pest and disease were the major constraint to vegetable farming in the study.**

*Keywords***: Productivity, Small Scale, Vegetable farmers, Lagelu, Oyo State, Nigeria**

I. INTRODUCTION

In African countries especially in Nigeria vegetables crops are produced in different agro ecological zones through commercial as well as small scale farmers both as a source of income as well as source of food among the rural farmers (Kumilachew, 2014), the production of vegetables varies from cultivating plant into the back yards of home consumption up to large scale for domestic and export market (Dawit *et al.,* 2004). Recently despite the ups and downs observed, the demand for vegetables especially for export is increasing (Tsegay, 2010). In fact vegetables can generate high income for farmers because of high market value and profitability they also have high nutritive value compared to cereals (Earo, 2000). Vegetables are important features of Nigerian's diet that a traditional meal without it is assumed to be incomplete. Vegetable is an integral component of our daily food; it forms important condiment in the national diet (Ibekwe and Adesope, 2011). Naturally vegetable contains the essential nutrients needed for proper body development for instance it is a source of both micro and macro nutrients providing between 20 and 50 percent of iron vitamins and minerals needed in diets as well as roughage which promote digestion and prevent constipation (Schppers, 2000). Medicinally diets rich in fibers from vegetable are source of omega 3 fatty acids which help in the prevention of heart related disease, macro nutrients in vegetable also contribute to reducing incidence of clone and stomach cancer (Grubben and Denton 2004). Vegetables production is profitable, and the actors will require adequate knowledge, capital, and new methods (Dias, 2010) Despite the importance of vegetable in the daily diet and the competitive and comparative advantage the country has in the production, vegetable production is fluctuating Ogunbo, (2015). On the other hand, lack of market infrastructure is one of the limiting factor causing low returns in vegetable cultivation. Profitability is not only determined by the use of input resources, but it is also dependent on the availability of proper vegetable production and of appropriate input such as seed fertilizer and other form of input at appropriate time. This therefore necessitates the reason to provide solution to the following research objectives; examine the socio-economic characteristics of the vegetable farmers in study area, examine the farm specific in vegetable production, analyse the determinant of vegetable production and examine the constraints militating against vegetable production in the study area.

II. METHODOLOGY

2.1 Study Area

The study was carried out in Lagelu Local Government Area of Oyo State Nigeria. It lies between the latitude 7.50^0 and longitude 4.05.It shares boundaries with Egbeda Local Government to the East and Iwo Local Government to the West, Ibadan North Local Government to the North and Akinyele local government Ibadan North East Local Government to the South. Lagelu Local Government Area of Oyo State occupy a total mass 338km square and the population of 148,133 people (NPC, 2006) The Local Government headquarters is at Iyana offa, and has nine major

prominent villages under its jurisdiction namely Iyana-offa, Iwo road Monatan, Lalupon Ejioku Apatere Oyediji, Igbo elerin and other settlement rainfall of the area is averagely 1520mm/a.

2.3 Sampling Procedure

The population of the study consists of vegetable farmers in Lagelu Local Government area of Oyo state. A multistage sampling technique was employed in selecting the representative farmers used for this study. First stage, five wards out of fourteen wards in the local government namely wards 4, 5, 6, 13, 14 were purposively selected due to vegetable farming that is common in this area. The second stage involves the random selection of two villages from each selected ward, making a total of ten villages, the third stage involve the selection of 6 vegetable farmers from each villages making a total of 60 respondents based on the proportionate size of the vegetable farmer in the study area.

2.4 Data collection and data analysis

Data was collected with the aid of well-structured questionnaire to source information from the respondents. Data collected were analyzed using descriptive statistics such as tables, mean, percentages, and frequency to examine the socio economic characteristics of the respondents, the farm specific in vegetable production, the constraints militating against vegetable production in the study while the multiple regression analysis was applied with the following implicit function to analyze the determinant of vegetable production, in the study area.

$Y = f (X_1 X_2 X_3 X_4 X_5 X_{6 +} \mu)$

$Y = a_0 + X_1 + X_2 + X_3 + X_4 \ldots\ldots\ldots\ldots X_{7+} \mu$

Where Y= Output (bundle)

X_1 = Educational status (years)

X_2 = Farm experience (year)

X_3 = Farm size (ha)

X_4 = Fertilizer used (kg)

X_5 = Source of land (dummy)

X_6 = Frequency of extension visits (number of times)

X_7 = Cost of seed (Naira)

μ=Error term

ao= Parameter estimated

III. RESULTS AND DISCUSSION

3.1 Socio economic characteristics of the respondents in the study area

Table 3.1; Explained the socio economic characteristic of the respondents in the study area, it revealed that 55% of the respondents are female while 45% are male. This shows that majority of the vegetable farmers are female, this may be due to the nature of the farming system which does not required labour intensive, 40% of the vegetable farmers are between the ages of 31 and 40 years, while 28.3% are between the ages of 41-60 years while 10% of them are 60 year old of age and above with mean age of 43 years, this implies that majority of the farmer are within the productive age of farming, and age is very important in agricultural production livelihood activities. This findings is in line with the work of Ekong, (2002), who reported that most of the respondents involved in farming activities were below 50 years in his study, similarly Oyewo *et al*., (2020), validated this assertion when he reported that farmers between the ages of 20- 50 years are most active age in agricultural production; 36.79% had primary education 23.3% had secondary education while 3.3% had tertiary education in all 63.3% of them had one form formal education, Education is said to affect the ability of farmers to accept or adapt to new technology that will improve their way of living and farming activities and enhance farm productivity, 75% of them are married and 8.7% are single This finding is in line with Ojo (2009), who reported that married house hold farmers whose major occupation is farming achieve greater success in farming business than the single household farmers, 50% of them had between 1-5 family household and 6-10 family household respectively with mean household size of 6 persons, this shows that respondents posses fairly number of family labour which could be use for farming activities., 51.7% source their labour through hired while 18.3% use family labour, 68.4% of the respondents source their farmland through hired/rented, 20% inherited, 28% of the respondents had between 1-10 years of farming experience while 41.8%, 23.4% and 6.8% of the vegetable farmers had farming experience of 11-20years, 21-30years and 30 years and above respectively with mean of 16.87 years of farming experience, this will help the farmers to be technical know-how and be able to solve different challenges that may affect their productivity and how it can be prevented and managed as farmers become more experienced in production and marketing of vegetable, this is in line with the findings of Bongiwe (2013) in vegetable production in Swazi land.

3.2 Farm specific in vegetable production in the study

Table 3.2; revealed that 90% of the respondents were commercial farmers while 5% are subsistence farmers, 55% of the respondents earn income of ₦ 11,000-25, 000 while 45% earn between ₦800-11,000 with mean income of ₦ 5,778.33k. 63.3% of the vegetable farmer had between 0.1-49 hectares of farmland while 36.7% had between 5.0 -9. 9 hectares, this shows that these farmers are small scale vegetable farmers who operate on small scale farming, 75.0% of the farmers source their credit through personal savings while 25% through cooperative. 60% of the respondents practice mixed cropping system, 6.7% mono cropping while 8.3% continuous cropping, all (100.0%) adopt the use of fertilizer, 88.3% adopt inorganic type of fertilizer while 11.7% adopted organic this is in line with Akpan, *et al*., (2012)

3.3 Determinant of vegetable production in the study area

Table 3.3 revealed that years of farming experience and extension agent visit were significant at 1% and 5% respectively and had positive relationship to the vegetable production output. This showed that as the year of farming experience and extension agents contact increases the more the level of vegetable production output will become with substantial years of farming experience and having better access to extension agent, there is likelihood that good information can be source from the agent been put into practice by the vegetable farmer which may enhance productivity and bring better farm management system through the respondents adoption of better agricultural technological practices, this conform with Bongigwe, (2013) and Aderounmu, *et al*., (2019) that the aim of the extension service is to introduce farmers to new and improved agricultural inputs in order to improve production and productivity in turn increase marketable supply which has a positive effect on profitability. R^2 was 0.53 showing 53% in the level of variation of the input and or combinations of variable used in the model specifications while the remaining 47% could be explained by the error term. This therefore indicated that year of farming experience and better extension contact were the major determinant of vegetable production an enhance vegetables farmer's productivity in the study area.

3.4 Constraint militating against vegetable production

Table 3.4 Shows the constraints militating against vegetable production it was revealed that 65.0% of the farmers complaint that inadequate credit facility which was ranked 1st was one of the prominent constraints to agricultural production and especially vegetable, and that lack of access to credit by farmers could reduce their efficiency by limiting procurement of farm inputs and access to information needed for improved productivity, since Tijani *et al*., (2006) in their study concluded that access to credit provides farmer with means of expanding and improving their farms, 60.0% of the farmers complained about poor access to improved seedling (seed germination problem) which ranked 2nd, poor marketing ranked 3rd with 51.8% , pest and diseases ranked 4th with 51.7%, price instability ranked 5th with 35.0% among others. This conform with the findings of Adeoye, (2020) that other problems were pests and diseases infestation in the field. Therefore, the aforementioned problems are likely to affect vegetable production negatively and thereby discourage vegetable farmers' production potentials and sustainability in the study area.

IV. CONCLUSION

It was concluded that majority 55% of the vegetable farmers were male and between the working ages of 41- 50 years with mean age of 43.13 years, 75% were married with mean family size of 7 persons, and 63.6% of the farmers had one form of formal education, it was also revealed that 75% of them source their credit through personal savings, 51.7% hired labour, 41.8% had between 11- 20 years of farming

experience with mean years of 16.87 years of farming experience, more than half (54.8%) of the farmers earn income of ₦ 5000- ₦ 22,000 from sales of vegetable, majority of the farmers rented their farmland, which in one way hindered land diversification for crop production and productivity, 36.7% had a farm size of 1.0-4. 9 hectares, 88.5% adopted the use of inorganic fertilizer for vegetable production, 93.6% relied on rain for vegetable farming and use of irrigation for dry season farming has not been appreciably adopted, among the tested variable of the determinants of vegetable production, farming experience and extension contact showed positive effect on or increasing vegetable output production in the study. Constraints to vegetable production amongst others are inadequate credit facility, access to viable seed problem, poor marketing, and pest and disease etcetera.

V. RECOMMENDATIONS

It is thereby recommended among others that the activities of the extension agents whom are saddled with the responsibilities of dissemination of information to farmers on adoption improved farming techniques should be sustained and improved on organic vegetable farming system should be adopted and encouraged by the farmers in the study.

CONFLICT OF INTEREST

It is hereby declared that there is no conflict of interest

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Table 3.1 Socio economic characteristics of the respondents in the study area

Variable	Frequency (N=60)	Percentage (%)	Mean
Gender			
Female	33	55.0	
Male	27	45.0	
Age			
21- 30	7	11.7	
31-40	24	40.0	
41-60	17	28.3	
51-60	6	10.0	
61 above	6	10.0	43.13
Educational level			
No formal education	22	36.7	
Primary education	22	36.7	
Secondary education	14	23.3	
Tertiary education	2	3.3	
Marital status			
Single	5	8.5	
Married	45	75.0	
Divorced	7	11.5	
Widow/Widower	3	5.0	
Family size			
1-5	30	50.0	
6-10	30	50.0	5.65
Source of labour			
Hired	31	51.7	
Family	11	18.3	
Both	18	30.0	
Source of land			
Hired or rented	41	68.4	
Purchase	2	3.3	
Inherited	12	20.0	
Communal	2	3.3	
Gift	3	5.0	
Years of experience			
1-10	17	28.0	
11-20	25	41.8	

21-30	14	23.4	
30and above	4.0	6.8	16.87

Table 3.2 Farm specific in vegetable production in the study

Variables	Frequency (N=60)	Percentage (%)	Mean
Farming type			
Subsistence	3	5.0	
Commercial	54	90.0	
Peasant	3	5.0	
Income amount (₦)			
8000-10,000	27	45.2	
11,000-25,000	33	54.8	5778.33
Farm size (hectares)			
0.1-4. 9	38	63.3	
5.0-9. 9	22	36.7	
Source of credit			
Cooperative	15	25.0	
Personal saving	45	75.0	
Cropping system			
Mixed cropping	36	60.0	
Mono cropping	4	6.7	
Continuous cropping	5	8.3	
Land rotation	14	23.3	
Other	1	1.7	
Adoption of fertilizer			
Yes	60	100.0	
Fertilizer type			
Organic	7	11.7	
Inorganic	53	88.3	

Table: 3.3 Determinant of vegetable production in the study area.

Variable	Beta	Standard Error	T- values
Constant	35.346	4.194	8.429
Education(X_1)	-0.483	1.314	-0.368
Farming experience (X_2)	0.573***	0.095	6.021
Farm size (X_3)	0.907	1.426	0.637
Fertilizer use (X_4)	-1.924	1.590	-1.211
Source of land (X_5)	-0.205	0.827	-0.247
Extension agent (X_6)	9.353**	3.980	2.350
Cost of vegetable seed(X_7)	0.000	0.000	-0.654
R^2	0.53		

Source; Author computation Note (***), (**) mean significant at 1% and 5%

Table 3.4 Constraint militating against vegetable production

Variables	Frequency (N= 60)	Percentage (%)	Ranking
Credit facility	31	61.8	1st
Seed problem	36	60.0	2nd
Poor marketing	32	51.8	3rd
Pest and disease	31	51.7	4th
Price instability	21	35.0	5th
Land tenure	20	33.3	6th
Poor transportation	40	31.3	7th
Storage facilities	19	31.0	8th
Weather	18	30.0	9th
Aging of farmer	8	13.3	10th
Theft	7	11.7	12th
Low return from buss	5	8.3	13th
High cost of pro	3	5.0	14th
Lack of research inst	1	1.7	15th