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Opportunities and Constraints to Organic Farming in Abua/Odual Local Government Area of Rivers State, Nigeria

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Abstract **– Organic farming is gradually gaining ground globally at the expense of conventional agriculture though with bottle necks. This study was designed to examine the opportunities and constraints of organic farming in Abua/Odual Local Government Area (LGA) of Rivers State, Nigeria. The data for the research were generated by the use of structured questionnaire administered to ten villages out of forty villages that made up this LGA. Descriptive statistics was used to analyze the data. The main findings were more females (87.5%) and married (66.2%) in farming but a high level of illiteracy (66.3%) in women. The study also indicated that most of the farmers adopt intercropping (41.2%), preferred chemical fertilizers (68.1%), 70% of them desiring to practice organic farming, only 21.3% aware of organic farming, and use mulch (31.3%) as the major type of organic material and 88.1% accepted the availability of organic materials. They are aware of the negative effects of chemical inputs on people's health (96.2%) and on the environment (93.8%). Their perceived ecological benefits of organic farming were increase in crop yield (31.4%) and improved soil fertility (25.5%) hence a desire to adopt organic farming. Other constraints observed were difficulty in the application of organic farming, the bulky nature of the materials to be handled and infrequent visits by extension agents. Collaboration between the LGA and State Governments with Nigerian Organic Agriculture Network(NOAN) to enlighten the farmers through Television and Radio Programmes and education of women and the girl child are suggested.**

Keywords **– Organic Farming, Opportunities, Constraints, Abua/Odual, Rivers State.**

I. INTRODUCTION

Agriculture also called farming is very important to mankind for human existence. Nigeria before the oil boom was mainly an agricultural country exporting palm oil, cocoa and groundnut that let to economic growth (Abdullahi and Kutama, 2012). Farmers adopt diverse methods in their operations depending on their locations. Traditionally, farmers in Nigeria leave organic materials after harvesting their crops on the farm which help to improve the fertility of the soil leading to yield increase. With civilization, came the conventional agriculture using modern methods applying chemical inputs into environment and abandoning their tradition. The use of chemicals inputs was adopted by farmers in Nigeria but had limited use due to bottleneck in production, policy, cost and distribution problems. In another vein rural farmers lack the required know-how in their handling and application to crops and animals. Conventional agriculture has not been able to sustain the environment and the world is turning to sustainable agriculture which is geared towards conserving the natural resources and environmental preservation (Narayanan, 2005). One way to maintain the environment is organic farming with its origin in England, Albert Howard becoming the father of organic farming which is in line with traditional farming.

The Directorate General for Agriculture and Rural Development for the European Commission (2009) broadly defined organic farming as the form of agriculture that relies on techniques such as crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and control pests, excluding the use of synthetic fertilizers and synthetic pesticides, plant growth regulators, livestock feed additives and generally modified organisms. It therefore implies that organic farming accommodates the use of inputs (fertilizers, pesticides) but restricts the use of manufactured (synthetic) fertilizer, pesticides (i.e. herbicides, fungicides, and insecticides), plant growth regulars such as hormones, livestock antibiotics, food additives, generally modified organisms. The International Federation for Organic Agriculture Movement (IFOAM) stated that the major objectives of organic farming include : (i) production of high quality food in sufficient quality in harmony with natural systems and cycles, (ii) enhancing biological cycles within the farming systems involving microorganisms, soil flora and fauna, plants and animals, (iii) maintaining long-time soil fertility and the genetic diversity of the production system and its surroundings including plant and wildlife, (iv) promoting healthy use with proper care of water resources and all life therein, (v) creating harmonious balance between crop production and animal husbandry and (vi) minimizing all forms of pollution (Willer, Yussef-Menzler and Sorensen, 2008).

Rivers State in the Niger Delta of Nigeria is blessed with human and land resources with great deposits of crude oil. This has economic benefits but has adversely affected the eco social and health of the people and environmental degradation by the oil exploration and exploitation, activities of the oil companies(Onyenekenwa, 2011; Ojimba and Iyagba, 2012). The focus of this study is centred on the Abua/Odual Local Government Area (LGA) which is one of the 23 LGAs of Rivers State, Nigeria in the Agricultural Zone 2 (a fishing zone). There are also few crop farmers in this zone though they are predominantly fishermen. Their forests, lands and seas experience oil pollution leading to lower crop yield and fish catch/harvest. Adding to the detrimental effects of

conventional agriculture, they are worst hit as both lands and seas are polluted. Sustainable agriculture is therefore not an option here but imperative to make a living. The survey work of Glasbergen and Driessen (2011) to investigate the disposition of farmers towards sustainable practices revealed that farmers are willing to change their modes of production, if they have good reasons to do so. However, Vanclay and Lawrence (1994) indicated that if farmers are not willing to adopt any innovations, there are valid and rational reasons. The objective of this study is to determine the status and potential of organic farming and the constraints militating against the adoption of organic farming in Abua/Odual Government Area of Rivers State, Nigeria.

II. Materials and Methods

The multi-stage sampling technique was used in collecting the data. The Local Government Area is divided into two parts namely Abua and Odual made up of forty villages. The study sample of this work is comprised of two hundred (200) farmers who were randomly selected from the ten (10) villages to ensure a fair representation of the farmers in the study area. The 10 villages chosen were Adada, Anyu, Okolom-ade, Obedum, Emirikpoko, Ognokom, Agada 1, Agada 2, Iyak and Omalem. The instrument used for data collection for the research was a structured questionnaire to gather relevant information. Extension agents in the Local Government assisted in the compilation of the farmers for the study. One hundred and sixty (160) questionnaires were retrieved for analysis using simple percentages and frequency tables.

III. Results and Discussion

The socio-economic characteristics of the respondents is presented in Table 1. The finding showed that while 87.5% of the farmers were females only 12.5% of the farmers in the area were males, showing a very high level of females in the farming enterprise and rural women have played great roles in Agricultural production. This is typical of the farmers in Southern part of Nigeria (Ani, Ogunnika and Ifah, 2004) but male dominated in the Northern States of the Country (Kolo, 2004; Ojo, 2012). The extent of gender involvement in agricultural activities varies across ethnic groups in the country (Anon, 2014). The Federal Ministry of Agriculture and Rural Development reported that women account for 75% of the farming population in Nigeria (Anon, 2014). These Nigerian women play active role in the production of crops like yam, cassava, rice, maize and other food crops (Adeyeye, 1988; Adekanye and Udoh, 2005). It also showed that most of the farmers are between 51-60 years old (27.3%) with few farmers below the age of 20 years (7.5%). This result showed that majority of the farmers are young (below 50 years) indicating a high level of involvement of young people in farming activities and this agreed with the finding of Ojo (2012) who also recorded youth involvement in farming in Borno State Nigeria. It was observed that majority of the farmers (53.8%) only attended primary school (53.8%) with 27.5% of them attaining secondary school education indicating a very high level of illiteracy of the farmers in the area. As a result of this there is need to pay attention to women and the girl child education in the area since majority of the farmers are females. This will stimulate the farmers' adoption of agricultural innovations as noted by Ani; Ogunnika and Ifah (2004) and make them better farm managers. Majority of the farmers were married (66.2%) with the lowest either divorced or single parents (8.0%). Ojo (2012) opined that because farm lands are owned by men, marriage is the commonest source of farm land among women in this part of the country.

The result from Table 2 indicated that 28.8% of the farmers have gained farming experience between 21-30 years with a continuous decline from this point in the experienced acquired by the farmers. The least experience were those with less than 10 years (12.5%), 70% the farmers were peasants and farm size acquired by majority of the farmers (37.5%) is between 1 and 1.99 hectares of land. These group of farmers are the major food producers in Nigeria and use crude/local implements to farm (Iyagba, 2010; Fami, Sammie and Sadati, 2009). The commonest type of farming adopted in this area of study is intercropping (41.2%) with mixed farming as the least (12.5%). They practice intercropping because of the inherent advantages in it such as improved soil fertility leading to increase yield. The most cropped plant is cassava (38.8%) followed by yam/cocoyam (26.9%).

Table 3 revealed that 68.1% preferred chemical fertilizer probably because of indoctrination. This has largely affected the soil structure and pollution of the water ways already polluted as a result of the oil exploration activities in the area. Majority of the farmers have practiced organic farming in less than 10 years (28.7%) showing its relative newness in this area. This is further buttressed by only 21.3% of the farmers having knowledge on the importance of organic farming. Mustapha, Bzugu and Sanusi (2012) Kutama *et al. (*2013) had reported that lack of awareness is one of the problems of organic farming in Nigeria. However, 70% of them have desire to practice organic farming.This in an affirmation of the findings of Glasbergen and Driessen (2011) in Netherlands that farmers are willing to adopt technological innovations if they have good reasons for such a change. The commonest organic material used is mulch (31.3%) followed by crop waste (22.4%), the least available is wood ash (12.5%) with 88.1% of the respondents indicating the availability of organic materials. Mulching materials and crop waste will improve the organic matter status of the soil, lower soil temperature and increase microbial activities of the soil (Wikipedia, 2015; Anon, 2015b) Kutama *et al.* (2013) had noted that available organic materials left on the farm are easily destroyed or turned into other uses thereby not meeting up with the quantity required for organic farming. Majority of the respondents from Table 4 indicated that chemical input have negative effects on the people's health (96.2%) and environment (93.8%). The greatest perceived benefits derived by the respondents were on increase in crop yield (31.4%) and improvement of the soil

fertility (25.5%) Burton, Rigby and Young (1999) reported that farmers will desire to practice organic farming because of the detrimental effects of conventional farming which they had experienced. Thus, there is a positive disposition towards organic farming by the farmers which is one of the opportunities in this area.

From Table 5, 88.7% of the respondents accepted non-availability of farmland. This corroborates the result from Table 2 that 37.5% of the farmers have farm land of 1-1.99 hectares and only 3.1% having farm land beyond 4 hectares. Farmers in the area cultivate large quantities of vegetables/fruits such as tomatoes, fluted pumpkin and pine-apples and large quantities of organic materials are especially needed and this require adequate land for cultivation which will provide the much needed organic materials. The greatest difficulty the farmers encounter in practicing organic farming is their inability to apply the materials. This might be due to the labour needed in its application and lack of technical know-how (Bello, 2008; Mustapha *et. al*., 2010). The farmers reported that farm visits by extension staff was very infrequent (89.0%) and this finding is in conformity with the work of Mustapha, Bzugu and Sanusi (2012). This can be attributed to dearth of extension workers in the country (Madukwe, 2008; Issa, 2013). Since most of the farmers are illiterates, frequent interaction with the extension staff will enhance their acceptance of organic farming and also train the farmers. Mustapha, Bzugu and Sanusi (2012) posited that one of the barriers of organic farming in the country is the government agencies involved in extension services. It has been noted that these extension staff still believe in the conventional farming and so promote the use of chemical inputs to reduce production risk (Age, Unongo and Shaakaa, 2010). On the other hand, Mustapha, Bzugu and Sanusi (2012) also indicated that the extension workers complained of lack of training on organic farming and lack of funds for their activities by the government.

IV. Conclusion

Farmers in Abua/Odual LGA are faced with high level of illiteracy, small farm holdings, lack of awareness on the importance of organic farming and infrequent visits by extension officers. They are however, blessed with the availability of organic materials, willingness to adopt organic farming and perceived the negative effects of chemicals inputs on the people and on the environment. More work is needed in this area to create awareness on the importance of organic farming.

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Table 1: Socio-economic characteristics of farmers in Abua/Odual LGA

Item	Frequency	% Frequency
Sex		
Male	20	12.5
Female	140	87.5
Age of Farmers		
< 20 years	12	7.5
21-30 years	14	8.8
31-40 years	30	18.6
41-50 years	42	26.3
51-60 years	44	27.5
>60 years	18	11.3
Educational Status		
No formal education	20	12.5
Primary	86	53.8
Secondary	44	27.5
Post Secondary	10	6.3
Marital Status		
Single	24	15.0
Married	106	66.2
Divorced/Separated	8	5.0
Widow/widower	14	8.8
Single parent	8	5.0

Source: Field Survey, 2014.

Table 2: Farming methods adopted by farmers in Abua/Odual LGA

Item	Frequency	% Frequency
Farming experience		
< 10 years	20	12.5
11-20 years	32	20.0
21-30 years	46	28.8
31-40 years	36	22.5
>40years	26	16.2
Scale of farming business		
Peasant	112	70.0
Large scale	48	30.0
Farm sizes (Hectare)		
< 1	55	34.4
1-1.99	60	37.5
2-2.99	32	20.0
3-3.99	8	5.0
>4	5	3.1
Type of farming Practices adopted		
Shifting cultivation	36	22.5
Crop rotation	40	25.0
Bush fallow	30	18.8
Inter cropping	66	41.2
Mixed farming	20	12.5
Most planted crops		
Yam/cocoyam	43	26.9
Cassava	62	38.8
Maize	27	16.8
Plantain/Banana	12	7.5
Vegetables/fruits	16	10.0

Source: Field survey, 2014

Table 3:Awareness on organic farming by farmers in Abua/Odual LGA

Item	Frequency	% Frequency
Types of fertilizer preferred		
Chemical	109	68.1
Organic	41	31.9
Years into organic farming		
< 10 years	46	28.7
11-20 years	36	22.5
21-30 years	32	20.0
31-40 years	26	16.3
>40 years	20	12.5
Awareness on the importance of organic farming		
Aware	34	21.3
Unaware	126	78.7
Desire to use organic farming		
Yes	112	70
No	48	30
Types of organic materials used		
Wood ash	20	12.5
Mulch	50	31.3
Green Manure	30	18.8
Animal droppings	24	15.0
Crop waste	36	22.4
Availability of Organic Materials		
Yes	141	88.1
No	19	11.9

Source: Field Survey, 2014

Table 4: Ecological benefits of organic farming by farmers in Abua/Odual LGA

Item	Frequency	% Frequency
Use of chemical input on people's health		
Positive effect	6	3.8
Negative effect	154	96.2
Use of chemical input on the environment		
Positive effect	10	6.2
Negative effect	150	93.8
Benefits derived from organic farming		
Improves soil fertility	137*	25.5
Controls pests and weeds	83	15.4
Increase crop yield	169	31.4
Increase livestock production	21	3.9
Not harmful to the environment	128	23.8
Visits by Extension Staff		

Source: Field survey, 2014
*Multiple responses

Table 5: Constraints to Organic farming by farmers in Abua/Odual LGA

Item	Frequency	% Frequency
Availability of Land for agriculture		
Yes	18	11.3
No	142	88.7
Problems encountered in Organic farming		
Expensive	10	6.3
Materials not always available	25	43.8
Difficult to apply	70	43.7
Bulky and cumbersome to handle	55	34.4
Visit by Extension staff		
Frequent	18	11
Seldom	142	89

Source: Field survey, 2014