

Analysis Of Organic Food-Crop Production In Umuahia South Local Government Area Of Abia State, Nigeria.

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ABSTRACT: The study analyzed organic food-crop production in Umuahia South Local Government Area of Abia State, Nigeria. Structured and validated interview schedule was used to collect relevant information from 115 organic food-crop farmers using multistage random sampling technique. Data were analyzed using frequency, percentage, mean and regression statistics. The findings showed that the organic food-crop farmers were dominated by farmers aged 30-49 years representing 68.7% of the total respondents. Majority (61.7%) were females and 80.9% of them were married. Over 45% of the respondents had household size of 4 – 6 people. There was high literacy among the farmers who had farming as their major occupation. The commonly grown organic food-crop were maize, tomato and pepper, vegetables and cassava. Other crops were intercropped with these food-crops to provide the much needed green manure for the crops. Increased productivity (91.3%), low cost of production (79.1%), high yield of product (75.7%) and organic food taste and safety in consumption (53.9%) were the major reasons why farmers engaged in organic food-crop production. Nevertheless, constraints which militated against organic food-crop production in the study area included pest and disease attack (96.5%), poor storage facilities (88.7%), inadequate extension contact with farmers (72.2%), lack of credit facilities and subsidies (71.3%) and lack of infrastructural facilities (70.4%). Results of the regression showed that age, market availability, land tenure system and education correlated significantly with the level of farmers' production of organic food-crops. It was recommended that farmers should be motivated through credit facilities to enable them purchase inputs needed for organic farming in order to ensure sustainable production of food. Again, farmers should be enlightened on various organic methods of controlling weeds, pests and diseases by extension workers.

Key words: Organic Food-Crops, Production, Benefits, Constraints

INTRODUCTION

There have been increasing concerns about the safety to genetically engineered crops and crops produced with externally supplied inputs. This has led to preference for consumption of organic food crops. In 2007, certified land was 32 million hectares involving 1.2 million farmers (Willer, 2009). In addition, in developing countries a huge number of uncertified farmers practice organic agriculture for subsistence purposes International Federation of Organic Agriculture Movement (IFOAM) (2007) defined the overarching goals of organic farming as the production system that sustain the health of soil ecosystem and people. It relies on ecological process and cycles adapted to local condition than the use of input with adverse effect. Organic agriculture combines traditional innovation with good quality of life for all involved (ATTRA 2007). Since 1970, the market for organic products has grown from nothing, reaching \$55 billion in 2009. This demand has driven a similar increase in organically managed farmland which has grown over the past decade at a compounding rate of 8.9% per annum. Approximately 37,000,000 hectares worldwide is now farmed organically, representing approximately 0.9% of total World farmland (Willer, 2009).

Organic farming was the original agriculture and has been practiced for thousands of years. Forest gardening, a fully organic food production system which date from prehistoric times is thought to be the World's oldest resilient agro-ecosystem. Gunnar (2002) mentioned two different kinds of organic farms in the World today. These certified organic farms produce for a premium price market and Non-certified farms in category one are in developed countries and most other farms in category two in developing countries. In sum there are more than 20 million hectares of organic land today. The countries with the largest areas of organic farmland are Australia, Argentina, Italy, Canada and U.S.A. some countries have reached a substantial proportion (close to or more than 10%) of organic land. These include Sweden, Austria, Switzerland, Finland and Italy. The value of the organic market is approximately US \$20 billion. The market share for certified organic products lies between 0.5-4% in industrial countries with the highest market share in Denmark, Austria, Switzerland, Germany and Sweden (Gunnar, 2002). According to IFOAM (2005), the principle aims of organic production and processing are to produce food of high quality in sufficient quality to maintain and increase long term fertility of soils, to minimize all forms of pollution and to process organic products using renewable resources among others. In Nigeria an attempt to promote organic agriculture and ensure production of agricultural goods at a sustainable level prompted the second national conference on organic agriculture which was held in Nigeria under the auspices of the International Federation of Organic Agriculture Movement (IFOAM). The participants at this conference were charged with responsibilities of developing organic agriculture in Nigeria (IFOAM, 2007). Organic farming emphasizes the use of renewable natural resources and their recycling (Emsley, 2001). It eliminates the synthetic pesticides, growth hormones, antibiotics and gene manipulation in the crop production system and this poses a challenge to crop and pest management specialists to device new methods for

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crop and animal production (Ivbirjaro, 1990; Tapondjon *et al.*, 2002). Attention is instead focused on disease resistance and restoring or enhancing ecological processes (Smil, 2001, Adeoye, 2005). Organic systems rely on crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic wastes and aspects of biological pest control to maintain soil productivity and to supply plant nutrient and to control insects, weed and other pests (Lampkin, 1990, Miguel, 1998). In Nigeria about 70% of the population practice organic agriculture by default because of the prohibitive costs of chemical fertilizers and other agro-chemicals. These farmers are not touched by government policies on input supply and other incentives to optimize agricultural productivity (Adeoye, 2011). Organic agriculture can contribute to meaningful socio-economic and ecologically sustainable development. It is therefore, an advantage for the country to fully embrace the practice of organic agriculture to maximize profits of its agricultural exports in the world market. From the foregoing, Umuahia South Local Government Area, Abia State, Nigeria farmers have been involved in organic farming for years, despite the introduction of inorganic system. The study therefore found answers to the following research questions:

1. What are the demographic characteristics of the farmers in Umuahia South L.G.A of Abia State, Nigeria?
2. What are the major organic crops grown by the farmers?
3. What influenced farmers to engage in organic food crop production?
4. What are the constraints that militate against farmers' production of organic food-crop?

Methodology

The study was conducted in Umuahia South L.G.A. of Abia State, Nigeria. The headquarters is at Apumiri-Ubalaka. It has an area of 140km² and a population of 138, 570 people (National Population Census, 2006). The L.G.A. is bordered in the South by Isialangwa L.G.A and in the north by Umuahia North L.G.A. Umuahia South L.G.A has a longitude of 5^o.31" and latitude 4^o.27" and elevation of 55 meters above sea level. The climate is tropical and humid all year round. Annual rainfall ranges from 2000mm to 2500mm while the temperature ranges from 22^o C and 31^oC. The major occupation of the people is farming. The soils in the area are fertile and the major food-crops grown in the area are cassava, yams, maize, cocoyam, local beans, melon and various types of vegetables. Crops grown under plantation are raffia palm, palm tree, plantain and banana. The farm animals reared include sheep, goat, pigs, rabbits, chickens and snail.

Sampling Procedure

Multi-stage sampling procedure was used in the selection of the sample size of the study. Umuahia South L.G.A is made up of one block, five cells and one circle. From this block, cells and circle, twenty-three households were randomly selected. Also five cells were randomly selected from the circle. Finally, twenty-three households were selected from each cell bringing the total to one hundred and fifteen (115) as the sample size of the study. Data were collected from the primary sources (respondents) with the aid of a

structured interview schedule. The data collected were analyzed with the aid of descriptive statistical tools of frequency count, percentage, and mean. An inferential statistical tool, the probit model was used in testing the hypothesis of the study.

Results and Discussion

Table 1: Demographic characteristics of the Respondents (n = 115)

| Variables | Frequency | Percentage |
|---------------------------|-----------|------------|
| Age: | | |
| ≤ 29 | 19 | 16.5 |
| 30-39 | 36 | 31.3 |
| 40-49 | 43 | 37.4 |
| 50 and Above | 17 | 14.8 |
| Gender: | | |
| Male | 44 | 38.3 |
| Female | 71 | 61.7 |
| Marital Status | | |
| Married | 93 | 80.9 |
| Others | 22 | 19.1 |
| Household Size: | | |
| None | 9 | 7.8 |
| 1 – 3 | 18 | 15.7 |
| 4 – 6 | 52 | 45.2 |
| 7 – 9 | 33 | 28.7 |
| 10 – 12 | 3 | 2.6 |
| Level of Education | | |
| No formal education | 11 | 9.6 |
| Primary education | 52 | 45.2 |
| Secondary education | 35 | 30.4 |
| Tertiary education | 17 | 14.8 |
| Occupation | | |
| Farming | 50 | 43.5 |
| Trading | 45 | 39.1 |
| Civil Servant | 15 | 13.0 |
| Artisans | 5 | 4.4 |

Source: Field Survey, 2012.

Entries in Table 1 shows the demographic characteristics of the respondents which are relevant in the study and they include age, gender, marital status, household size, level of education and occupation. The result indicated that 37.5% of the farmers were between the ages of 40-49 years while 31.3% fell between 30-39 years. Meanwhile, the distribution of other respondents showed that ≤ 29 years of age represented 16.5% while 50 years of age and above represented 14.74%. The result also indicated that majority of organic food-crop farmers in the study area were dominated by farmers aged 30-49 years representing 68.7% of the total respondents. The mean age of the farmers was 42 years while the youth comprised only 17%. This agrees with findings of Oyesola and Obabire (2011) that the mean age of farmers was 40 years meaning that fairly older people were involved in organic farming activities more than the younger ones. Majority (61.7%) of the respondents were females suggesting that farming in the study area might mostly be practiced by females. This

findings contradicted Solomon (2008) and Dipeolu *et al.*, (2006) observation that females are usually engaged in post-harvesting operations such as transportation, processing and marketing of agricultural produce. The result presented in Table 1 shows that majority (80.9%) of the respondents were married while a corresponding 19.1% of the respondents were either single, widowed or divorced. This implied that married people were involved in farming and might receive assistance from their partners in carrying out some activities on the farm. Over 45% of the respondents had a household size of 7 to 9 persons and 2.6% had a household size of 5 people. This implies that the farmers had fairly large household size which might serve as an insurance against short falls in supply of farm labour. Household size has a great role to play in family labour provision in agricultural sector (Akinagbe and Ajayi, 2010). In terms of education, most of the farmers had primary and secondary education representing 45.2% and 30.4% respectively. Few (14.8%) had tertiary education while 9.6% of the farmers had no formal education. This implies that learned people were involving in farming. According to Solomon (2008), majority of present day farmers have some formal education. High literacy among the farmers might enhance adoption of innovations that were related to organic farming. The result presented in Table 1 Showed the various distributions of occupation of respondents in the study area. From the findings, farmers dominated with 43.5% of the respondents while 39.1% and 4.4% of the respondents represented the distribution by traders, civil servants and artisans respectively. This findings is in tandem with Ekong (2010) and Nwachukwu (2008) who reported that majority of the rural farming communities were dominated by farmers.

Table 2: Distribution of the Respondents based on types of Organic Crops Grown.

| Crops | Frequency | Percentage |
|---------------------|-----------|------------|
| Cassava | 85 | 13.9 |
| Yam | 62 | 10.2 |
| Maize | 110 | 18.0 |
| Plantain, Banana | 55 | 9.0 |
| Melon | 67 | 10.9 |
| Tomato, | 106 | 17.4 |
| Pepper | | |
| Vegetable | 104 | 17.0 |
| Cocoyam | 21 | 3.4 |

Source: Field Survey, 2012.

*Multiple choice responses

Table 2 shows organic food-crops commonly grown in large quantity for commercial purpose by the farmers in the study area. The crops were identified by asking the farmers to indicate which of the organic food-crops they grow from the list of various crops presented to them. Maize (18.0%), Tomato and pepper (17.4%), vegetable (17.0%) and cassava (13.9%) respectively were grown in large quantity. Yam, plantain and banana and cocoyam were 10.2%, 9.0% and 3.4% respectively were not grown in large quantity. These foods crops were planted individual land, family land and rented lands of the farmers. Other crops were seen as complementing the commonly grown food-crops and were

intercropped to provide green manure after harvest. Nitrogen fixation by leguminous crops is important activities in organic farming. According to Taiwo *et al.*, (2006) green manure crops improve the soil condition.

Table 3: Distribution of Respondents based on their reasons for Engaging in Organic Food-crop Production.

| Variables | Frequency | Percentage |
|--|-----------|------------|
| Low cost of production | 91 | 79.1 |
| High yield of product | 87 | 75.7 |
| Organic food taste and safety in consumption | 62 | 53.9 |
| Increased productivity | 105 | 91.3 |
| Enhanced bio-diversity of farm land | 47 | 40.9 |
| Helps in water preservation for the farm animals | 31 | 27.0 |

Source: Field Survey, 2012.

*Multiple choice responses

Data in Table 3 shows why the respondents engaged in organic food-crop production. The findings indicated that increased productivity (91.3%); low cost of production (79.1%); high yield of product (75.7%) and safety in organic food consumption (53.9%) were the major reasons farmers engage in organic food-crop production. Other reasons were enhanced bio-diversity of the farm land (40.9%) and preservation of water for farm animals (27.0%). Majority (91.3%) were involved in organic food-crop production because of increased productivity of food-crops. Bationo and Mokwunye (1991) observed that organic fertilizers were used primarily to enhance food-crop production.

Table 4: Farmers Constraints to Organic Food-crop Production.

| Constraints | Frequency | Percentage |
|---|-----------|------------|
| Lack of credit facilities and subsidies | 82 | 71.3 |
| Poor market for food-crops | 78 | 67.8 |
| Pests and diseases attack | 111 | 96.5 |
| Low prices of food product | 52 | 45.2 |
| Lack of infrastructural facilities | 81 | 70.4 |
| Poor storage facilities | 102 | 88.7 |
| Dearth of information | 62 | 53.9 |
| Low soil fertility | 62 | 53.9 |
| High cost of planting materials | 48 | 41.7 |
| Inadequate extension contact with farmers | 83 | 72.2 |

Source: Field Survey, 2012.

*Multiple choice responses

Table 4 presents the constraints to organic food-crop production in the study area. Pest and disease attack (96.5%), poor storage facilities (88.7%), inadequate extension contact with farmers (72.2%), lack of credit and subsidies facilities (71.3%), lack of infrastructural facilities (70.4%) and poor market for food-crops (67.8%) respectively were discovered to be the major constraints that affected the production of organic food-crop. Also dearth of information and low soil fertility (53.9%) each, low prices of food product (45.2%) and high cost of planting

materials were some other constraints faced by organic food-crop production. Gunnar (2002) observed that decreasing soil fertility and build up of pest population and resistance contribute to the going down in organic food-crop production.

Table 5: Socio-economic factors influencing income of Farmers using organic fertilizer food-crop production.

| Variables | Linear + | Exponenti al | Double-log | Semi-log |
|-------------------------------|---------------------------|----------------------|---------------------|---------------------------|
| Intercept | 3006.813 (2.65)*** | 7.2631 (56.37)*** | 4.1976 (2.77)*** | - 16223.53 (-0.30) |
| Age (x_1) | 858.754 (20.93)** * | 0.0133 (2.86)*** | 0.517 (7.09)*** | 9691.495 (3.73)** * |
| Market availability (x_2) | 0.239 (3.09)*** | 0.00005 (5.74)*** | 0.544 (3.33)*** | 8440.416 (1.45) |
| Land tenure system (x_3) | 32.247 (2.31)** | 0.0055 (3.51)*** | 0.0004 (0.00) | - 10331.61 (-1.22) |
| Education (x_4) | 0.035 (4.09)*** | -2.10 (-2.19)** | -0.049 (-1.10) | - 16223.53 (-0.30) |
| R^2 | 0.9868 | 0.9526 | 0.9416 | 0.7334 |
| R^{-2} | 0.9855 | 0.9482 | 0.9361 | 0.7087 |
| F-ratio | 20.57*** | 16.97 | 16.25 | 7.34 |

Source: Field Survey, 2012.

*** = Significant at 1 percent

** = Significant at 5 percent

* = Significant at 10 percent

+ = Lead equation

(-) = t-ratios

The socio-economic factor influencing the farmers is present in table 5. The linear functional form was chosen as the lead equation. This was based on the magnitude of the coefficient of determinant on (R^2) the number of significant variables the conformity of the sign of the variable to-a prior expectations. The coefficient of determination was 98.68%. This implies that 98.68% of variations in income of the farmers' organic fertilizer were explained by the variables included in the models. The f-ratio was significant at 1% indicating the good fit of the model. All the included variables were significant and significant and positively related to income. Age was significant at 1%. The implication of this result is that the older people are in less contact with extension services. Consequently, they stick to the farming practices transferred from their generations which are affordable, available indigenous technologies and inputs (Rosset, 1999). Market availability was positive and significantly related to organic farming at 1%. The implication is that farmers will only increase production if there is market for their products. Food produced by farmers is not to demonstrate how much can be grown but to make economic use of it (Sen, 2004). Land tenure system positively correlated with organic farming and was

significant at 5% level. Because of land fragmentation in the study area expansion of land to increase production was not feasible and the rural small-holder could not afford high level external inputs, and so they fall back to renewable on – farm inputs. Education was positive and significantly related to organic farming at 1% level of significant. The implication of this result is that educated people know the health value of food produced with agrochemicals and the food produced organically. The practice of organic farming can be determined by the level of education acquired and the level of outside orientation from ones community.

Conclusion

The study analyzed organic food-crops production in Umuahia South Local Government Area of Abia State, Nigeria. The findings of the study showed that majority of organic food-crop farmers were fairly old, females, married and had sizeable household size. Learned people were involved in farming and their major occupation was farming. Commonly grown organic food-crops were maize, tomato and pepper, vegetable and cassava. Others were yam, plantain and banana and cocoyam. These crops were intercropped with other crops to provide green manure. The farmers in the study area engaged in organic farming majority because of increased productivity, low cost of production, high yield, taste of product and safety of consumption. Conversely, majority constraints the farmers mentioned in organic food production included pests and diseases attack, poor storage facilities, inadequate extension agents' contact with farmers, lack of credit facilities, lack of infrastructural facilities and poor market for organic food-crops. Other constraints were dearth of information, low soil fertility, low prices of products and high cost of planting materials. The test of the hypothesis showed that the variables: age, market availability, land tenure system and education correlated significantly with the level of farmers' production of organic food-crops. Based on the findings from this study the following recommendations were proffered:

1. Extension agents should intensify information dissemination on organic food-crop production techniques to encourage farmers into organic food production, marketing and various organic methods of controlling weeds, pests ad diseases.
2. Inputs such as planting materials, herbicides should be provided to check the incidence of pests and disease attack.
3. Provision of storage facilities by government, NGO's or cooperatives to stop food wastage through spoilage.

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