

UTILIZATION OF ORGANIC FARMING PRACTICES AMONG VEGETABLE FARMERS IN OWERRI WEST L.G.A. OF IMO STATE.

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ABSTRACT

The study analyzed the utilization of organic farming practices among vegetable farmers. Data for this study were obtained from 80 vegetable farmers through a multi-stage sampling procedure using a structured questionnaire. Data were analyzed with descriptive and inferential statistical tools. The results showed that all the vegetable farmers (100%) in the study area were aware of animal manure, land cultivation and natural weed control. The grand mean of the level of use of organic farming practices was 2.23, indicating that there was low level of use of organic farming practices. The vegetable farmers were agreed that they were constrained in getting certified organic produce (100%), organic farming requires much labour (95%), organic farming is time consuming (72.5%), lack of extension service (87.5%), lack of appropriate research (80%). The multiple regression analysis showed that age, sex, farm size, farming experience, household size, income, organizational membership, level of education and extension contact significantly influenced the level of use of organic farming practiced by the vegetable farmers. The study recommends that extension services should be made available to the farmers, and extension education on organic farming practices should be organized to create awareness and sustain the interest of those already in the practice.

Key words: Socio-economic characteristics, Organic farming, Utilization, Vegetables.

1.0 INTRODUCTION

Vegetables are parts of plants which are consumed as food. They refer to all edible plant matter, including flowers, fruits, stems, leaves, roots and seeds. Vegetables can be eaten either raw or cooked and play an important role in human nutrition, being mostly low in fat and carbohydrates, but high in vitamins, minerals and dietary fibre. Apart from culinary uses, vegetables also possess medicinal properties as people who eat them as part of their daily diet have a reduced risk of many chronic diseases. Nirmal (2011) explained that vegetables are primary source of mineral nutrients, vitamins, secondary plant metabolites and other compounds that support human health and nutrition; they also possess significant caloric value especially the roots and tubers, serving as staple crops in many parts of the world, particularly in the tropics. Their scale of production varies from subsistence production of supplying family needs, to commercial

production of meeting population demand. The past decades have been characterized by public concern towards nutrition, health and food safety issues (Crutchfield *et al.* 2000). As a result, consumers perceive relatively high risks associated with the consumption of conventionally grown produce compared with other public health hazards (Williams and Hammitt, 2000). Hence, organic agriculture has been identified as a response to systems in distress because, crop yield associated with chemical inputs are stagnating in intensively cultivated areas (Ohazurike *et al.* 2003).

Organic farming is a production system that sustains the health of soils, ecosystems and people. It relies on ecological process, bio diversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects (IFOAM, 2005). The system relies on crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation and biological pest control to maintain soil tilth (Atoma, 2015). It endorses the concept that the soil, plant, animals and human beings are linked. It is not a step backwards to traditional methods, but a modern approach. It works in harmony with nature rather than against it. It involves using techniques to achieve good crop yields without harming the natural environment or the people who live and work in it. Organic farming is beneficial in agriculture because it provides basis for healthy food and healthy living. Organic produce are safe to consume as they contain significantly lower/no amount of pesticide residues than conventional produce (Ohazurike *et al.* 2003). Food and Agriculture Organization (2008) clearly stated that organic agriculture promotes ecological resilience, improves bio-diversity, healthy management of farm and surrounding environment and building community knowledge and strength. Based on these backdrop associated with synthetic chemicals to man and environment, the developed countries and some developing countries are making frantic efforts to look into organic agriculture as the only option for sustainable agriculture. However, organic farming in Nigeria is found to be constrained by a number of factors such as certification (Bello, 2008). Organically produced food must meet strict regulations and intensive management and that is why the farming is mostly done on a smaller scale. Despite its several benefits, organic farming has been regarded as low yielding and unproductive. According to Halberg *et al.*; (2009), it is even seen by some people as a luxury production for a few who

can afford to pay extra for its products. Labour input measured in terms of either hours of work or full time job is usually greater on organic farming than on equivalent conventional farms. In addition, organic farming is still hampered by lack of clarity. Atoma (2015) explained that the coverage of organic farming is still low, irrespective of its numerous benefits; and that this may be as a result of lack of awareness of the potentials of organic farming practices.

This study therefore described the socio-economic characteristics of the vegetable farmers in the study area; ascertained the awareness of organic farming practices among vegetable farmers; identified the organic farming practices engaged by vegetable farmers; determined the level of use of organic farming practices; ascertained the perceived benefits of organic farming among vegetable farmers and identified the constraints associated with the practices of organic farming by vegetable farmers in the study area. The null hypothesis of this study was the socio-economic characteristics of the vegetable farmers in the study area do not significantly influence their level of use of organic farming practices.

2.0 RESEARCH METHODOLOGY

This study was carried out in Owerri West Local Government area (LGA) of Imo State. Owerri West L.G.A in Imo State of Nigeria. It shares boundaries with Ngor Okpala L.G.A in the South-east, Owerri municipal council and Owerri North by the east, Mbaitoli and Oguta L.G.A by the North and Ohaji Egbema L.G.A by the west. Owerri West L.G.A falls within the eastern senatorial district of Imo State otherwise known as Imo east senatorial zone. The population for the study consisted of the entire vegetable farmers in Owerri West L.G.A of Imo state. The study used multi-stage sampling technique in the selection of the respondents for the study. Firstly, 8 communities were purposely selected from the 15 communities in the study area; secondly, 10 vegetable farmers were randomly selected from each of the 8 selected communities, giving a total sample size of 80 respondents. Primary data and structures questionnaire were used for this study. The study employed both descriptive (mean, percentage and frequencies) and inferential (multiple regression) statistical tools in analysing the data. The level of use of organic farming practices and perceived benefits of organic farming among vegetable farmers were realised using mean score from Likert type scale. The mean scores were obtained by adding up the weighted values and dividing by the number of scales. The values of the Likert type scale rating were added together and then divided by the number of scales to obtain the discriminating index (e.g. $4+3+2+1 = 10$, $10/4 = 2.5$). Hence, the discriminating mean index was taken as 2.5 and above.

3.0 RESULTS AND DISCUSSIONS

3.1 Socio-economic Characteristics of Vegetable Farmers

Table 1 shows that the mean age of vegetable farmers was 46.15 years. This implies that the farmers were mature and thus expected to understand the principles and practices of organic farming. This is in line with Egwuonwu (2017) that a relative high proportion of middle aged were farmers. Also majority (85%) of the vegetable farmers were female, this implies that majority of the respondents were women and this corresponds with the assertion of Mgbada (2010) that the agricultural workforce is increasingly skewing towards the female gender. Also, Egwuonwu *et al.*, (2017) opined that women play a key role in supporting their households in achieving food and nutrition security and overall well-being of their household. The majority (83.5%) of the farmers were married, the mean farm size was 0.28 hectares. The average farming experience was 16.34 years, the mean household size was 7 persons which implies that the household size was moderate. This is in agreement with the work of Akinnnagbe and Ajayi (2010) who revealed that majority of households in rural areas in Nigeria maintain household size of 6-10. The average monthly income of the vegetable farmers was ₦35,150. This was an average of ₦1,505 daily, which is above the poverty line of \$1 (one dollar) per day. The result also revealed that 45% of the vegetable farmers were members of an organization while majority (48.75%) had secondary education. This implies that majority of the farmers had secondary education and are educated enough to understand the principles and practices of organic farming. This is good because educational status of farmers influence their adoption of improved technologies even organic farming practices, (Atoma, 2015). Also, majority of the farmers (81.25%) had no extension contact, while majority of the farmers (80%) was not visited monthly by the extension agents.

3.2 Awareness of organic Farming practices Among Vegetable Farmers

The result in Table 2 indicates that all the vegetable farmers (100%) in the study area were aware of animal manure, land cultivation and natural weed control respectively, others were aware of crop rotation (85%), mulching (80%) and farm yard manure (60%) and natural erosion control (60%), crop residue (47.5%), biological pest control (42.5%), green manure (25%) while compost manure had the least awareness of 8.75 %.

3.3 Level of Use of Organic Farming Practices by the Vegetable Farmers

Table 3 indicates that only 3 out of the 12 listed organic farming practices were significantly practiced as their mean (M) were above the discriminating index of 2.5. They include animal manure (M = 3.79), natural weed control (M = 3.61)

and the use of crude implements for land cultivation ($M = 4.00$). Other organic farming practices were insignificantly practiced as their means were below the discriminating index of 2.5. They include crop rotation ($M = 2.08$); crop residue ($M = 1.86$); green manure ($M = 1.71$), farm yard manure ($M = 2.06$), compost manure ($M = 1.00$), mulching ($M = 1.74$), biological pest control ($M = 1.66$), natural erosion control ($M = 2.24$), and use of farm machinery for land cultivation ($M = 1.00$). However, 2 out of the 12 listed organic farming practices were not practiced at all by the vegetable farmers. These are: compost manure and the use of farm machinery for land cultivation. The non-use of compost manure is in line with the work of Adebayo (2014) which revealed that 60.4 % of farmers do not practice composting. This low use of composting may be as a result of stress involved in making compost. Again there are technicalities involved in compost making and not all farmers are knowledgeable about this. The non-use of farm machinery for land cultivation was as a result of the size of farmlands of the vegetable farmers. Most of them saw it as an irrational decision to employ the use of expensive farm machines on very small farms. The grand mean of the level of use of organic farming practices was 2.23, indicating that the general level of use of organic farming practices in the study area was below average (2.5) and that the farmers did not actually practice organic farming significantly.

3.4 Perceived Benefits of Organic Farming Practices

The perceived benefits of organic farming were ascertained from the survey. Table 4 shows that nine, out of the ten listed benefits of organic farming were perceived to be true by the vegetable farmers as they had mean scores greater than 2.5. They include: organic farming has increased the yield of crops ($M = 3.65$), organic farming has increased our income ($M = 3.60$), organic farming has raised our standard of living ($M = 3.54$), organic farming is environmentally friendly ($M = 3.29$), organic farming reduces soil erosion ($M = 3.06$), organic farming encourages healthy/quality food production ($M = 3.70$), organically produced vegetables have high demand ($M = 3.68$), organically produced vegetables are poison free ($M = 3.80$) and organically produced vegetables taste better ($M = 3.56$). The farmers did not perceive organic farming as cost effective as this had a mean score of 2.14 which is below the discriminating index of 2.5 and above. This finding corresponds with the work of Morison (2005) who noted that the costs of the organic inputs are now higher than those of industrially produced chemical fertilizers and pesticides including other inputs used in the conventional farming system.

It should be noted that the benefit with the highest ranking was that organically produced vegetables are poison free ($M = 3.80$). This finding is in agreement with the work of Mondelagers *et al*

(2009) who noted that organic vegetables contain less contamination and more nutrients and as such are healthier and more nutritious and safer compared to the conventional.

3.5 Constraints Associated with Organic Farming Practices

Table 5 shows that all the vegetable farmers (100%) agreed that certification of organic produce are difficult to get. This is in line with the work of Bello (2009) that organic farming in Nigeria is found to be constrained by a number of factors such as certification. 95% agreed that organic farming requires much labour, 5% agreed that organic farming does not produce much yield, while none of the farmers agreed that consumers cannot pay for organic products. 72.5% of the vegetable farmers agreed that organic farming is time consuming, 45 % of the farmers were not aware of organic farming practices, 20% agreed that organic farming methods are not convenient to use, 87.5% complained about lack of extension service, 80% complained about lack of appropriate research while 68.75% complained of not knowing the alternative organic products to use in place of agro chemicals (lack of chemical alternative information).

3.6 Estimated Influence of Farmers Socio-Economic Characteristics on Level of Use of Organic Practices

The model showed a good fit with coefficient of multiple determinations (R^2) value of (0.757) and F-ratio of 8.602 statistically significant at 1% level of probability. This implies that the farmers' socio-economic characteristics had a significant influence on their level of use of organic practices and that the regression model has a very high and strong explanatory power. The result from the multiple regression analysis showed that age, sex, farm size, farming experience, household size, income, organizational membership, level of education and extension contact were found to have significantly influenced the level of use of Organic farming practices by the vegetable farmers.

4.0 CONCLUSION AND RECOMMENDATION

The study concludes that the farmers were mature, mostly females, had small farms, had enough farming experience, were educated but had no extension contact. Animal manure, natural weed control and use of crude implements for land cultivation were the major organic farming practices utilized by the vegetable farmers and they did not significantly practice organic farming. Based on the findings of this study, the following recommendations were made: More extension personnel should be hired, trained and deployed to the study area to bridge the gap between farmers and extension services; Capacity building programme should be organized for extension agents in order to develop the knowledge, skills and attitude needed for training farmers on organic farming practices;

Extension education campaign should be organized on organic farming practices to sensitize farmers on the use and benefit. This will create awareness among farmers as well as sustain the interest of those already in the practice; Farmers should be encouraged to join cooperatives or social organizations. This will facilitate the sharing of information on the use of organic farming practices; The government should establish infrastructural facilities that will stimulate and enhance organic farming practices, processing, storage and marketing.

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APPENDICES

Table 1: Socio-economic characteristics of vegetable farmers

Socio-economic characteristics	Frequency/mode	Percentage	Mean
Age (Years)	41-50years	40.00	46.15years
Sex	Female	85.00	
Marital Status	Married	83.50	
Farming Size	0.1 – 1.0 ha	65.00	0.28ha
Farming experience (Years)	1-10years	41.25	16.34years
Household size (Persons)	6-10 persons	66.25	7 persons
Income (Naira)	₦ 31,000 – ₦ 40,000	36.67	₦ 35,150.00
Organization Membership	Member	45.00	
Educational Level	Secondary education	48.75	
Access to Extension Service	No	81.25	

N = 80 Source: Field Survey, 2019

Table 2. Vegetable Farmers' based on Awareness of Organic Farming Practices

Organic Farming Practices	Aware	Percentage
Crop rotation	68	85.00
Crop residue	38	47.50
Animal manure	80	100.00
Green manure	20	25.00
Farm yard manure	48	60.00
Compost manure	7	8.75
Mulching	64	80.00
Land cultivation	80	100.00
Biological pest control	34	42.50
Natural weed control	80	100.00
Natural erosion control	48	60.00

N = 80 Source: Field Survey, 2019

Table 3: Level of Use of Organic Farming Practices by the Vegetable Farmers

S/N	Organic Farming Practices	Mostly Utilized	Moderately Utilized	Rarely Utilized	Never Utilized	Mean (M)
1	Crop rotation	4(5.00)	28(35.00)	18(22.50)	30(37.50)	2.08
2	Crop residue	9(11.25)	17(21.25)	8(10.00)	46(57.50)	1.86
3	Animal manure	63(78.75)	17(21.25)	0	0	3.79
4	Green manure	17(21.25)	3(3.75)	0	60(75.00)	1.71
5	Farm yard manure	3(3.75)	37(46.25)	2(2.50)	38(47.50)	2.06
6	Compost manure	0	0	0	80(100.00)	1.00
7	Mulching	1(1.25)	17(21.25)	22(27.50)	40(50.00)	1.74
8	Biological pest control	0	16(20.00)	2(26.25)	43(53.75)	1.66
9	Natural weed control	51(63.00)	27(33.75)	2(2.50)	0	3.61
10	Natural erosion control	6(7.50)	37(46.25)	7(8.75)	30(37.50)	2.24
11	Use of Crude implements	80(100.0)	0	0	0	4.00
12	Use of Farm machinery	0	0	0	80(100.00)	1.00

N = 80, Accepted mean = ≥ 2.5 , Grand mean = 2.23, values in parenthesis represent percentage; Source: Field Survey, 2019

Table 4: Perceived Benefits of Organic Farming Practices by Vegetable Farmers

Perceived Benefits	Mean (M)
Organic farming has increased the yield of crops	3.65
Organic farming has increased our income	3.60
Organic farming has raised our standard of living	3.54
Organic farming is cost effective	2.14
Organic farming is environmentally friendly	3.29
Organic farming reduces soil erosion	3.06
Organic farming encourages healthy/quality food production	3.70
Organically produced vegetables have high demand	3.68
Organically produced vegetables are poison-free	3.80
Organically produced vegetables taste better	3.56

Source: Field Survey Data, 2019. Grand Mean: 3.40 Discriminating index = ≥ 2.5

Table 5: Distribution of Vegetable Farmers by Constraints associated with Organic Farming Practices

Constraints	Agree	Percentage
Certification is difficult to get	80	100.00
It requires much labour	76	95.00
It does not produce much yield	4	5.00
Organic farming is time consuming	58	72.5
Lack of awareness of organic farming practices	36	45.00
Organic farming methods are not convenient to use	16	20.00
Lack of extension services	70	87.50
Lack of appropriate research	80	80.00
Lack of chemical alternative information	55	68.75

Source: Field Survey Data, 2019. N = 80

Table 7: Regression Estimates of the Influence of Farmers Socio-economic Characteristic on Level of Use of Organic Practices

Explanatory Variables	Coefficient	t-ratio
Constant	3.927	12.487**
Age (X ₁)	-0.011	-2.178*
Sex (X ₂)	-0.027	-2.778**
Marital Status (X ₃)	0.003	0.091
Farm Size (X ₄)	0.068	3.684**
Farming Experience (X ₅)	0.001	2.044*
Household Size (X ₆)	0.094	2.846**
Income (X ₇)	0.059	2.050*
Organizational Membership (X ₈)	0.038	2.339*
Level of Education (X ₉)	0.028	2.545**
Extension Contact (X ₁₀)	0.036	2.556*
R ²	0.757	
F-Ratio		8.602**

Note: * Significant at 5% level; ** Statistically Significant at 1% level