Awareness and farmers' level of involvement in organic farming across two vegetation zones of Ekiti State, Nigeria

Oyesola, O. B.[1] and Obabire, I. E[2]

[1]*Department of Agricultural Extension and Rural Development University of Ibadan, Ibadan, Nigeria.*
[2]*Department of Agricultural Extension and Rural Development University of Ibadan, Ibadan, Nigeria.*

ABSTRACT

There is an increasing awareness of the latent danger in the use of pesticides in crop production. There is a clamour for organic production by consumers and researchers, thus, this study investigated the awareness and farmers' level of involvement in organic farming across two vegetation zones of Ekiti State, Nigeria, with specific objectives of assessing socio-economic characteristics of the farmers; investigating crops grown by the farmers; examining farmers' level of awareness of organic farming; investigating constraints associated with organic farming as well as assessing the farmers' level of involvement in organic farming in the study area. A multi-stage sampling technique was used to select 160 farmers in the study area. The data collected were analyzed with the aids of descriptive tools such as frequency counts, percentage and mean. Results of analysis showed that the farmers were mostly male, married with mean family size of 6.7 and mean income of #35,361.70. Crops grown by the farmers include: maize, yam, cassava, sweet potato, plantain/banana, vegetables, pepper, okra, tomato and tree crops such as cocoa, citrus and kola nut. The awareness of organic farming was high among the farmers, while the farmers' level of involvement in organic farming was low. The implication is that sustainable agricultural production may not be achieved, if nothing is done to boost organic farming in the study area. The study recommends that: The farmers should be provided with enlightenment programmes, motivations and adequate trainings on various organic farming activities.

Keywords: Awareness, involvement level, organic farming, training, constraint

Corresponding authour: edwardpel2000@yahoo.com

INTRODUCTION

The history of organic farming according to Odebiyi and Omoloye (2006) can be traced to 1924, when Rudolf Steiner published his book titled "Spiritual Foundation for Renewal of Agriculture", in Germany, and thus popularized the concept of what was then known as biodynamic agriculture. However, it was a British botanist, Sir Albert Howard, who was honoured with the title "the father of modern organic agriculture" for his study of traditional farming practices in Bengal, India which he published in his book, "An Agricultural Testament" in 1940, but it was Lord Nortbourne who was credited with the first use of the term organic agriculture, in his book "Look to the Land" in the same year 1940 (Odebiyi, 2006).

Edward (1992) viewed organic farming as farming in which no inorganic fertilizer or synthetic pesticides are used. To maximum extent, feasible organic system 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 tilt, to supply plant nutrient and to control insects, weed and other pests (Miguel, 1998 and Nicholas, 1990). Robertson and Morgan (1996) explained organic farming as the agricultural system that avoids the use of synthetic fertilizer and pesticides. It relies on developing biological diversity in the field to disrupt habitat for pest organisms and the purposeful maintenance and replenishment of soil fertility. Organic farming as different from other farming systems emphasizes the encouragement of renewable natural resources and their recycling, thus providing an all-adequate allowance to crop and pest management with non-hazardous environmentally safe substances (Ellis *et al.* 1992; Emsley, 2001). It eliminates totally, the use of synthetic pesticides, growth hormones, antibiotics or gene manipulation in the crop production system and this poses a great challenge to crop and pest management specialists to device new tactics along with the conventional ones (Ivbijaro, 1990; Tapondjon *et al*. 2002), for pest control.

Trewavas (1999) and Emsley (2001) observed that, in the developed economies of Europe and America, organic farming gained popular acceptance in the 1990s and market for its products and has since continued to grow due to increasing consumer demand. In the early frontiers of agriculture in Nigeria, agriculture was organic in nature; it was devoid of any off-farm synthetic input in form of organic fertilizer or pesticides. It was characterized by the adoption of land and crop rotation, polyculture, green manuring, and mulching to replenish soil fertility and manage crop pests (Odebiyi and Omoloye, 2006). This natural system of farming began to fade away in an attempt to meet the

food requirement of ever growing population of the country, thereby increasing the area of land put under in-organic production without considering the adverse effect of such agricultural production system.

Quite a number of problems have been found to be associated with in-organic farming, and such problems according to Nicholas (1990) include; damages to soil structure, creating potential health hazards in food, reduction in food quality, energy intensive and economically costly to the society. Environmental pollution of ground and surface water from agricultural sources is also an increasing problem of in-organic farming.

In Sub-Saharan Africa, poor soil fertility is one of the major causes of low agricultural productivity (Bationo and Mokwunye 1991; Williams, 1999). Research indicates that organic manure increases yields of food crops and forages. It augments soil organic matter content, raises soil pH, and improves nutrient exchange and water holding capacity of soil (Williams, 1999). However, despite these beneficial effects as well as the vital role in supporting crop production and soil fertility improvement, organic manure is not regularly applied by most farmers, even in areas where aggregate livestock population may permit its use (Adejobi and Kormawa, 2002) in Sub-Saharan Africa. Nigeria appears to be at the early stage of the development of organic agriculture, with very few farms or projects claiming to be organic and even fewer operating a recognized form of certified organic agriculture (Harris, 2006).

Lack of adequate information on the detrimental effect of inorganic farming in Ekiti State has strengthened its continuous use, while less attention is being paid to organic farming practices. Sustainable production of quality food with little or no effect on the environment is the major goal of any successful agricultural practices. The achievement of this goal has not been fully realized by the current agricultural practices, i.e. conventional farming in the study area, hence, the need to examine farmers' awareness and level of involvement in organic farming, so as to make recommendations that are capable of increasing production of quality food at sustainable level.

Therefore, this study was designed to examine the awareness and level of involvement of farmers in organic farming across two vegetation zones of Ekiti State, Nigeria. This was achieved by the following objectives.

- determine the selected socio-economic characteristics of the farmers that are relevant to the study;
- investigate crops grown by the farmers in the study area;
- ascertain the farmers' level of awareness of organic farming in the study area.
- assess constraints associated with organic farming in the study area.
- assess farmers' level of involvement in organic farming in the study area.

MATERIALS AND METHODS

Study Area

The study was carried out in Ekiti State, Nigeria in 2009. The state was purposively selected based on its agricultural history in the country. Ekiti State was calved out of old Ondo State, under the administration of the former military head of state, Late General Sanni Abacha, in 1996 and had Ado-Ekiti as the headquarters. The state is located between latitude $7^0$40'N and longitude $5^0$15'E. The state enjoys a tropical climate with two distinct seasons (Raining season, April to October) and dry season, November to March). The temperature ranges from 21^0C to 28^0C with high humidity (Above 60%). Tropical forest and Guinea savanna exist in the southern part of the state and the northern peripheries, respectively. Agriculture remains the predominant occupation of the people in the state. The population of the inhabitants of the state numbered 2,384,212 according to 2006 population census (NPC, 2006).

Population, Sampling Procedure and Sample Size

The population of the study consisted of farmers in Ekiti State. Ekiti State was stratified into two (2) vegetation zones according to ADP zoning, with each zone consisting of eight local government areas. A multi-stage random sampling technique was used to select respondents for this study. The first stage involved selection of one local government from each zone. The selected local government areas were; Ekiti South-West Local Government area from zone one and Ikere Local Government area from zone two. In the second stage, 40% of the political wards in each local government were randomly selected (four out of 11 political wards) in each local government area. The selected wards were: wards 2, 5, 9, and 10 from Ekiti South-West Local Government area), (Agbado-Oyo, Afao-Kajola, Atiba-Aafin, and Ogbonjana wards from Ikere Local Government area). While at the third stage, twenty (20) farmers were selected from each ward to make a total of 160 respondents which constituted the sample size for the study. The choice of twenty (20) respondents in each ward was to maximize the number of farmers included within the time frame and financial constraints of the study.

Data Collection and Analysis

Data was collected from the primary source (respondents) with the aid of well-structured interview schedule consisting of both open and close ended questions. The data collected was analyzed with the aid of descriptive statistical tools such as frequency count, percentage and mean.

RESULTS AND DISCUSSION

Socio-economic characteristics

The Demographic characteristics of the respondents which are relevant to individuals' awareness and involvement level of organic farming, include: sex, marital status, family size and income. Result of analysis (Table 1) reveals that majority (86.3%) of the respondents were males, indicating that most of the farmers practicing organic farming were males. This is supported by Dipeolu *et al*. (2006) who noted that organic farmers are mostly male. This may be due to the facts that, female in the study area were mostly charged with the responsibilities of post harvest activities.

Result of analysis (Table 1), further reveals that majority (95.6%) of the farmers were married while only (1.3%) were single. This support the findings of Dipeolu *et al*. (2006) who affirmed that majority of organic farmers were married. Therefore, married people are more involved in activities relating to organic farming and may receive assistance from their spouse in carrying out some organic farming related activities on the farm.

In terms of family size, the study reveals that the mean family size of the respondents in the study area was 6.7. This implies that the farmers have an average of 7 people depending on them. The dependants could be of help in terms of labour to carry out some organic farming activities such as preparing organic manure, mulching as well as weeding.

It could also be seen from the result of the findings Table 1, that the mean income of the farmers per month during harvesting period was 35,361.70. The implication is that a farmer with family size of 7, earning 35,361.70 per month on average during the harvesting period may not have enough funds to purchase organic fertilizer and pay labour for weeding and some other labour related activities in the farm.

Table 1: Distribution of respondents by selected Socio-economic characteristics n = 160

Variables	Frequency	Percentages	Mean
Sex			
Male	138	86.3	
Female	22	13.7	
Marital status			
Single	2	1.3	
Married	153	95.6	
Widowed	5	3.1	
Divorced	-	-	
Family size			
1 – 4	12	7.5	
5 – 8	128	80.0	6.7
9 – 12	18	11.3	
Above 12	2	1.2	
Income per month (Naira)			
<10,000	13	8.1	
10,000 – 29,000	49	30.6	35,361.7
30,000 – 49,000	75	46.9	
Above 50,000	23	14.4	

Crops Grown by the Farmers

The crops were identified by asking the farmers to indicate which of the crops they grow from the list of various crops presented to them. The result of analysis (Table 2) shows that majority of the respondents grow the following crops; Maize (86.3%), Yam (77.5%), Cassava (76.9%) and Plantain/Banana (50.0%), while less than half of the respondents grow the following crops; Cocoa, Kolanut and Citrus (43.8%), tomato/pepper (26.3%), vegetables (24.4%), okra (15.6%), cowpea (9.4%) and sweet potato (4.4%). This implies that crops such as Maize, Cassava, Yam and Plantain among others were widely planted in the study area on large individual, borrowed and family land. These crops form the major crops planted by the respondents and as a result formed their major sources of income. Other crops were reportedly seen as complementing the major crops. Some of them were planted in-between the major crops for intercropping as well as green manuring which are major pest/disease management and Soil fertility practices in organic farming. (green manuring involves planting leguminous crops

that encourage nitrogen fixation to the soil, thus increasing the fertility of the soil. Taiwo *et al.* 2006 confirmed that green manuring improves the soil condition.

Table 2: Distribution of the respondents based on types of crop grown n = 160

Types of crop grown	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Maize	138	86.2	22	13.8
Cassava	123	76.9	27	23.1
Yam	124	77.5	36	22.5
Rice	7	4.4	153	95.6
Tomato/Pepper	42	26.3	118	73.7
Plantain/Banana	80	50.0	80	50.0
Cowpea	15	9.4	145	90.6
Sweet potatoes	7	4.4	153	95.6
Vegetable	39	24.4	121	75.6
Okra	25	15.6	135	84.4
Cocoa/Kolanut citrus	70	43.8	90	56.3

Awareness of Organic Farming

Awareness is very important in organic farming, because it will be difficult to practice what one is not aware of. Awareness was measured by asking the respondents to indicate whether they were aware of various organic farming activities/methods presented to them or not. Yes response was scored 1 and No response 0. The highest score, lowest score and means score were obtained. The mean score was used to determine the level of awareness of organic farming (High or low). The highest score for awareness was 21, while the lowest score was 0, the mean score was 10.5. Therefore, all the respondents having score below 10.5 were categorized as people that were lowly aware of organic farming, while respondents having score 10.5 and above were categorized as people that were highly aware of organic farming.

The result of analysis (Table 3) shows that majority (59.4%) of the respondents were highly aware of organic farming while (40.6%) of the respondents have low level of awareness of organic farming. This shows that respondents have high level of awareness of organic farming practices in the study areas. The high awareness of organic farming's activities among the respondents in the study area is in line with the findings of Elizade *et al*. (2008) who stated that awareness level is in an

acceptable range. Although (40.6%) of the respondents that were less aware are still large enough to draw the attention of the professionals in organic farming for enlightenment campaign. The implication of this finding is that, high awareness among respondents may increase the knowledge of farmers about organic farming which will in turn improve their involvement level in organic farming, thus enhancing sustainable agricultural production.

Table 3: Distribution of respondents by level of awareness of organic farming

Level of awareness of organic farming /	score	Frequency	Percentage
High level of awareness of organic farming	(11 – 21)	95	59.4
Low level of awareness of organic farming	(0 – 10.5)	65	40.6
Total		160	100.0

Constraints Associated with Organic Farming

These are the various problems encountered by the farmers in organic farming. It was measured by presenting the lists of constraints associated with organic farming in the study area to the respondents and asked them to rank the constraints in order of severity. Result of analysis (Table 4) shows that majority (78.7%) of the respondents considered labour and laborious nature of organic farming as a severe problem. The implication of this is that, it may result in drudgery as many of farmers might need to do most of the work themselves. The result further reveals that unavailability of materials for organic manure was considered by majority (55.0%) of the respondents as a problem not severe. This implies that farmers can conveniently maintain their production upon the available materials for organic manure. It could be seen from the result that majority (73.7%) of the respondents agreed that weed problem was indeed a severe problem in organic farming. This implies that weed problem was a major problem among the respondents in the study area and the success of any organic farming depend to certain extent on proper and adequate control of weed because weed reduces the quantity and quality of farm produce.

Furthermore, majority (55.6%) of the respondents opined that difficulty in application of organic manure was a major problem. Application of organic manure requires technical- know- how which majority of the farmers do not have, thus reducing the usage of such manure. This is in support of the findings of Adeoluwa *et al.* (2006), that lack of know – how or technologies adjusted to

local condition in scale and simplicity can be a factor obstructing the way to reduce utilization. The implication is that, many of the farmers harm their crops in an attempt to improve yield whenever manure is applied.

It was also revealed by the study that majority of the respondents considered problems such as disease transmission through organic manure (66.9%) and unpleasant odour of certain organic manure (76.9%) as severe problems in organic farming. This implies that farmers would be selective in the choice of organic manure they use, thereby reducing their involvement in organic farming which may in turn reduce sustainable production.

Finally, the result of analysis Table 4, shows that majority (70.6%) of the respondents stated that time consumption was a severe problems in organic farming. This confirms the findings of Solomon, (2008) that farmers however disagreed that organic farming saves time. The implication is that farmers spend more time on farm which they could have used for other income generating activities.

Table 4: Percentage Distribution of respondents based on constraints faced in organic farming. n = 160

Constraints	Severe	Not Severe
Labour and laborious nature of organic farming	78.7	21.3
Unavailability of materials for organic farming	45.0	55.0
Weed problem	73.7	26.3
Application difficulty of organic manure	56.9	44.4
Disease transmission through organic manure	66.9	33.1
Unpleasant odour of certain organic manure	76.9	23.1
Time consuming nature of organic farming	70.6	29.4

Farmers' Level of Involvement in Organic Farming

This was measured by asking the respondents to indicate whether they use various organic farming methods presented to them or not. If yes, how frequent do they use it. Yes response was scored 1 while No response was scored 0, regularly use was scored 2 while occasionally used was scored 1. The mean score was obtained and used to determine the respondents' level of involvement in organic farming. The highest score was 24 and the lowest score 0. The mean score was 12.0. Therefore, the respondents having score below 12.0 were categorized as people that were less involved in organic farming, while the respondents having score of 12.0 and above were categorized as people that were more involved in organic farming.

The result of analysis (Table 5) shows that majority (62.5%) of the respondents were seen as people that were less involved in organic farming

activities, while the remaining (37.5%) of the respondents were regarded as people that were highly involved in organic farming. This implies that the level of involvement in organic farming among the farmers in the study area was low despite their high awareness. Their commitment towards organic farming was not enough. It further implies that sustainable production of agricultural produce may not be achieved in the study area if nothing is done to encourage farmers to go organic.

Table 5: Distribution of respondents based on the level of involvement in organic farming

Level of involvement in Organic Farming	Score	Frequency	Percentage
More involved in organic farming	**(12 – 24)**	**60**	**37.5**
Less involved in organic farming	**(0 – 11)**	**100**	**62.5**
Total	**160**	**100**	

CONCLUSION

Based on the findings of this study, it could be concluded that the farmers in the study area were mostly males, married with a family size of 7 and an average income of #35, 361.70. The crops grown by the farmers in the study area mostly among others include Maize, Yam, Cassava and Banna/Plantain. The level of awareness of organic farming among the farmers was high, although the considerable number of the respondents had low level of awareness on organic farming. The major constraints associated with organic farming in the study area include: non availability of labour, unpleasant odour of certain organic manure, organic manure application difficulty, time consumption and weed management problem. The level of involvement of farmers in organic farming activities in the study area was low despite their high awareness. The following recommendations are therefore made based on the finding of this study:

Trainings on organic farming practices in the study area should take women into consideration as no meaningful sustainable farming can be achieved without their contributions.

Enlightenments programmes on various organic farming activities should be provided to boost the level of awareness of organic farming beyond what presently operates in the study area.

Farmers should be provided adequate trainings on technical- know – how of organic manure application, time management, pest/weed management practices and other organic farming techniques.

Organic farming should be adopted by the state government in formulating agricultural policies, as this will go a long way in enhancing sustainable agricultural production.

Farmers should be motivated and assisted to be more involved in organic farming activities in the study area, through adequate training, supervision and monitoring by extension agents.

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