

DETERMINATION OF AWARENESS AND UTILIZATION LEVELS OF ORGANIC FARMING PRACTICES BY ARABLE CROP FARMERS IN ABAK AGRICULTURAL ZONE OF AKWA IBOM STATE, NIGERIA

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Abstract

This study was conducted to determine the awareness and utilization levels of organic farming practices by arable crop farmers in Abak Zone of Akwa Ibom State Agricultural Development Programme (AKADEP), Nigeria. A total of 160 arable crop farmers were selected using a multistage sampling technique. Primary data were gathered through the use of a structured questionnaire and oral interview. Descriptive and Inferential statistics were used to analyze the data collected. The findings revealed that 66.88percent of the respondents were male, 57.5percent were below 50 years, 86.25percent were married and 80.62percent had formal education. The mean household size was 6 members while 42.50percent had about 20 years of farming experiences and used a combination of family and hired labour in their farming business. Also, 70.63percent had between 1.5 and 2 hectares of farmland, 81.25percent practiced mixed cropping, 49.38percent acquired their farmland through inheritance and most farmers engaged in farming as their major occupation. All the respondents were aware of mixed cropping and the use of organic manure. Also, 99.38, 95.62, 93.12, 90.0, 86.88, 77.50percent were aware of, and utilized improved varieties, organic fertilizers, animal dung, crop rotation, minimum tillage and cover cropping respectively. However, a good proportion, (45.62, 36.92 and 30.62percent) have low knowledge of alley cropping, integrated pest management and bio-control respectively. The result of hypotheses tested showed that awareness had a significant influence on the utilization of organic farming practices. The study recommends that that Agricultural Development Agencies should intensify efforts in creating awareness on the benefits and importance of organic farming practices for widespread utilization among arable crop farmers.

Keywords: Organic farming practices; Awareness; Utilization; arable crops; Abak zone ADP

Introduction

Cultivating crops on viable land became a target in the face of growing population. The evolution of arable farming came with the improvement in farming tools hence farmers were able to cultivate on larger portion of land. This also led to increase in crop yield. In 1990, it was speculated that about 82 million out of 91 million hectares of total land area of Nigeria were found suitable for arable farming; however, 42 percent of this cultivable area was farmed (Total facts about Nigeria, 2016). The arable land available in Nigeria remains underutilized yet almost all food items consumed is imported. The challenge for agriculture over the decades has been to meet the world's increasing demand for food in a sustainable way. This is so because declining soil fertility and

mismanagement of plant nutrients are the resultant effects of conventional farming. Therefore, as long as agriculture remains a soil based industry; major increases in productivity are unlikely to be attained without ensuring that crop plants have an adequate and balanced supply of nutrients (Peter and Montague, 2006). The application of technology in arable farming is centered on improving the soil by improving the organic content through building up humus which is an essential food for the soil and plant. One of such ways is organic farming which harnesses the biological activities to a level that stimulates the growth of crops and promote optimal yield, and at the same time sustaining the environment. According to Food and Agriculture Organization (FAO, 2008), organic agriculture

promotes ecological resilience, improves biodiversity and healthy management, as well as builds on community knowledge and strength. Its technology relies on agronomic, biological and mechanical methods to improve the soils, the ecosystem as well as the environment. Its high ability to sustain the health of the soils for production of good quality food and ecosystem biodiversity stems from its use and recycling of renewable natural resources which produces a non-harmful effect on soils.

As observed by Olaito (2014) the practice of organic farming in an organized manner is still new to Nigeria even with the increase of land under organic agriculture in 2010 from 3,154 hectares to 11,979 hectares. With the advent of Stakeholders and organizations on organic agriculture since 2004, about 70 per cent of the Nigerian farmers assumed they practice organic agriculture by default (Olaito, 2014). Edeghon, Ajayi and Ugboya, (2008) revealed that only a few of the crop farmers were aware of the practices like alley cropping, the use of green manure, crop rotation and minimum tillage which led to non-usage of these practices. Tatlidil, Boz, and Tatlidil (2009) revealed in their study that high levels of contact with extension services, education, land ownership and greater access to information leads to a greater understanding of farming practices. According to the report of Olaito (2014) only a few farms were transiting to organic production concentrating on ginger, turmeric and lemon grass and a few farmers were adopting the practices. Therefore the study sought to determine the awareness level of organic farming practices and its utilization by arable crop farmers in Akwa Ibom State. Specifically, it examined the socio-economic characteristics of the farmers; assessed the respondents' level of awareness of organic farming practices and determined the arable crop farmers' level of utilization of organic farming practices in the study area. Also, to test the relationship existing between the socio-economic characteristics of the farmers and utilization of organic farming practices, as well as the relationship between awareness and utilization of organic farming practices.

Research Methodology

Description of the Study Area

The study was conducted in Akwa Ibom State. The state is located in the South South region of Nigeria. It was carved out of Cross River State capital in 1987. It

is made up of 31 Local Government Areas and has six (6) agricultural zones namely: Uyo, Oron, Ikot Ekpene, Eket, Abak and Etinan. It covers a total land area of 7249km² and lies between latitude 4° 32' and 5° 33' North; and longitude 7° 35' E and 8° 25' East. The State is bordered on the East by Cross River State, on the West by Rivers and Abia states and on the South by the Atlantic Ocean. The landscape of Akwa Ibom State is mostly flat and the land is arable from the saline water swamp forest in the south, to the rainforest in the north and supports extensive agriculture all year round. The population of the state according to National Population Census (NPC, 2006) was 5,450,758. The climate of the state can be described as a tropical rainforest. It experiences abundant rainfall with a very high temperature. It is marked by two distinct seasons; the wet or rainy seasons and dry seasons. The wet or rainy season lasts between eight to nine months starting from mid-March till the end of November. The dry season has a short duration of three to four months. There are 3 major languages spoken in Akwa Ibom State which are Ibibio, Annang and Oron. The people in Abak zone speak annang language. A majority of the rural populace engage in the production cassava, plantain, water leaf, fluted pumpkin, white yam, cocoyam, maize and banana. The state is endowed with enormous wealth.

Sampling Size and Technique

Abak zone was purposively selected out of the 6 agricultural zones in the State because the judgment of the Researcher was that results will be similar to all arable crop farmers in the zones if he can focus effectively on the sample he can handle due to proximity. The zone consists of five (5) Local Government Areas, which are: Abak, Oruk Anam, Etim Ekpo, Ukanafun, and Ika. It has nine (9) blocks with each block comprising of eight (8) cells (villages). Five (5) out of the nine (9) blocks were randomly selected and four (4) out of the eight (8) cells were randomly selected to make up a total of twenty (20) cells. Eight (8) arable crop farmers were selected from each of the cells using a snowballing technique as there was no updated list found with the ADP; this gave a total of one hundred and sixty (160) arable crop farmers used for the study.

Method of Data Collection

Data for the study was from the primary source. A Structured questionnaire was used to collect the data and where possible, personal interviews were carried out to ensure consistency and accuracy.

Analytical Technique

Both descriptive and inferential statistics were used to analyse the data. In examining the respondents' socio-economic and demographic characteristics; frequency count was used. In assessing the respondents level of awareness on organic farming practices; a nominal scale of Aware=1 and Not Aware=0 was used, followed by percentages. Also, a nominal scale of Yes=1 and No=0 was used to identify the respondents' source(s) of information on organic farming practices while a 3 point Likert-type scale of Always=2, Sometimes=1, and Never=0 was used to determine the level of utilization of organic farming practices by the respondents followed by the calculation of the mean. Both the Chi-square and Pearson's Product Moment Correlation (PPMC) were used to test the hypotheses.

Results and Discussion

Socioeconomic characteristics of the respondents

As shown in Table 1, 66.88 percent of the respondents were males, indicating that arable farming in the area is dominated by male farmers. This is rather unusual because females are always seen cultivating crops especially the arable crops. The mean age of the farmers was 40 years. This shows that those involved in arable crop farming were in their active years. The implication could be that productivity would be high as farming activities are left in the hands of vibrant and active individuals. The majority (86.25 percent)

of the respondents were married which agrees with the findings of Onasanya,(2007); Soyebó, Farinde and Dionco-Adetayo,(2005) that arable crop farming, indeed agriculture is very much practiced by married people to make ends meet and cater for their children. The mean household size was 6 members while 42.50 percent of the respondents had about 20 years of farming experiences and used a combination of family and hired labour on the farm. On educational qualification, majority of the respondents (80.62 percent) were educated while 19.38 percent had no formal education. This means that most of the respondents were literate which could help them know the benefits of organic farming. All the respondents were Christians. Again, 70.63 percent of the respondents had between 1.5 to 2 hectares of farmland which was an indication that the respondents were small-scale farmers. This finding agrees with that of Omohan (1996) that small farm holdings constitute most of the farming activities in Nigeria. About, 82 percent of the respondents practiced mixed cropping, thus agreeing with the view of Youdeowei and Akinwumi (1999) that most farmers practice mixed cropping in Nigeria as it produces high total yields. Almost 50.0 percent acquired their farmland through inheritance. Most farmers interviewed engaged in farming as their major occupation.

Table 1: Socio-economic characteristics of respondents

Variables	Frequency	Percentage	Mean
Gender			
Male	107	66.88	
Female	53	33.12	
	160	100	
Age			
Less than 30 years	6	3.75	
31-40 years	28	17.50	
41-50 years	58	36.25	40
51-60 years	49	30.62	
60 years and above	19	11.88	
	160	100	
Marital Status			
Single	7	4.38	
Married	138	86.25	
Divorced	-	-	
Widow	11	6.88	
Widower	4	2.50	
	160	100	
Household size			
None	4	2.50	
1-5 members	79	49.38	6
6-10 members	64	40.00	
11-15 members	13	8.12	
	160	100	
Farming experience			
Not up to a year	6	3.75	
1-5 years	20	12.50	
6-10 years	28	17.50	20
11-15 years	38	23.75	
20 years and above	68	42.50	
	160	100	
Labour			
Family labour (A)	36	22.5	
Hired labour (B)	15	9.75	
Group labour (C)	6	3.75	
A and B	90	56.25	
B and C	4	2.50	
A and C	9	5.63	
	160	100	
Educational attainment			
No formal education	31	19.38	
Primary education	30	18.75	
Secondary education	46	28.75	
Tertiary education	53	33.12	
	160	100	
Religion			
Christianity	160	100	
Islam	-	-	
Traditional	-	-	
Farm size (ha)			
½ - 1	34	21.25	
1 ½ -2	79	49.38	
2½ -3	37	23.12	
Above 3	10	6.24	
	160	100	
Cropping system			
Mono cropping	10	6.25	
Mixed cropping	130	81.25	
Both	20	12.50	
	160	100	
Land acquisition method			
Inheritance	79	49.38	
Lease	27	16.88	
Gift	6	3.75	
Purchase	43	26.88	
Co-operative	1	0.62	
Communal	4	2.50	
	160	100	
Occupation			
Farming	87	54.38	
Others	73	45.63	
	160	100	

Source: Field survey 2016

Table 2 shows the list of different organic farming practices and demanded to know the ones the respondents were aware of. The findings show that all the respondents were aware of mixed cropping as well as organic manuring. The majority (99.38 percent) were aware of improved varieties, organic fertilizer application (95.62 percent) and the use of animal manure (93.12 percent). Also, 90 percent of the respondents were aware of crop rotation, minimum

tillage (86.88 percent) and cover cropping (77.5 percent), less than 50 percent of the respondents were aware of alley cropping (45.62 percent), Integrated Pest Management (36.92 percent) and Bio-control (30.62 percent). These results were in agreement with the findings of Akinbile and Odebode (2002) who reported that farmers were aware of these organic farming practices.

Table 2: Respondents' level of awareness of organic farming practices

Organic farming Practices	Aware	Not aware
	Percentage (%)	Percentage (%)
Mixed cropping	100	-
Organic manure	100	-
Improved varieties	99.38	0.62
Organic fertilizer	95.62	4.38
Animal manure	93.12	6.68
Crop rotation	90.0	10.00
Inter cropping	88.75	11.25
Minimum tillage	86.88	13.12
Farm sanitation	86.88	13.12
Mulching	83.75	16.25
Cover cropping	77.50	22.50
Green manure	72.50	27.50
Composting	70.62	29.38
Afforestation	47.79	52.21
Alley cropping	45.62	54.38
Integrated pest mgt	36.92	64.00
Bio control	30.62	69.38
Others	4.40	95.60

Source: Field survey 2016

Respondents' Source(S) of Information on Organic Farming Practices

Response pattern on the sources of information for arable crop farmers on organic farming practices presented in Table 4 revealed that 100 percent of the respondents got their information from extension agents, 91.88% from radio and 88.75 percent from fellow farmers. By implication therefore, the respondents mostly got information on organic farming practices from Extension agents which is a pointer to the fact that Extension workers in the study area were living up to their expectation and actively carrying out their role of information dissemination. With Radio being the respondents' second highest source of information, many studies have revealed that most farmers got information on their farming activities from the Radio. Ajayi (2003) found out that radio was the most frequently used media to obtain agricultural information by farmers in South-West Nigeria. The findings further revealed that 68.75

percent of the respondents could access information through Mobile phones which corroborates reports by Morrow (2002) and Oyesola and Obabire (2011) on the use of communication technologies among farmers. Farmers now use Mobile phones to get information on various farming needs by phoning their relatives and friends who are in urban centers. However, 28.7 percent and 29.38 percent of the respondents sourced information on organic farming practices through the internet and magazines respectively, while 10 percent never got information on organic farming practices from any of these sources. With the exception of extension agents, radio, television and phones, farmers in the study area have low access to sources of information on organic farming. The lack of preference for internet-based information sources could have resulted from inadequate accessibility to internet facilities in the study area.

Table 3: Distribution of respondents based on sources of information on organic farming practice

Sources	Frequency	Percentage	n=160
Extension agents	160*	100	
Radio	147*	91.88	
Fellow farmers	142*	88.75	
Television	114*	71.25	
Mobiles phones	110*	68.75	
Town crier	86*	53.75	
Member of Cooperatives	68*	42.50	
Posters	67*	41.88	
Newspaper	66*	41.25	
Bulletin	55*	34.38	
Magazines	47*	29.38	
Internet	46*	28.7	
Others	16*	10.00	

Source: Field survey 2016. *(multiple responses)

Level of Utilization of Organic Farming Practices by the Respondents

Response pattern on the utilization of organic farming practices as presented in Table 4 shows that 86.88 percent of arable crop farmers always practiced mixed cropping followed by farm sanitation (65.62 percent), organic manuring (63.75 percent) and improved varieties (63.13 percent). This result agrees with the findings of Akinbile and Odebode (2002) who reported that crop farmers identified and practiced mixed cropping and use of improved varieties as organic farming practices but contradicts the findings of Sijuwade and Idowu (2014) which reported that the most prominently used organic agricultural practices were minimum tillage. The respondents also indicated

that they sometimes used mulching (44.12 percent), green manure (42.50 percent) and composting (38.12 percent) as supported by Sijuwade et al (2014) that mulching is not commonly used among vegetable farmers. The findings of Junge, Deji, Abaidoo, Chikoye, & Stahr(2009) showed that mulching and cover cropping were mostly regarded as not labour-intensive, highly cost-effective, compatible, easy and cheap to adopt. The percentages of respondents who never used Alley cropping (63.12 percent), Afforestation (68.12 percent), Bio-control (70 percent) and integrated pest management (70.63 percent) was high. This may be as a result of the lack of awareness on these organic farming practices.

Table 4: Respondents' level of utilization of organic farming practices

Organic farming practices	Never Frequency (%)	Sometimes Frequency (%)	Always Frequency (%)	Ranking
Mixed cropping	- (-)	21 (13.12)	139 (86.68)	99.67 ¹
Organic Maturing	5 (3.12)	53 (33.13)	102 (63.75)	85.67 ³
Improved varieties	3 (1.87)	56 (35.00)	101 (63.13)	86.00 ²
Organic fertilizer	7 (4.38)	53 (33.12)	100 (62.50)	84.33 ⁴
Animal manuring	4 (2.50)	63 (39.38)	93 (58.12)	83.00 ⁵
Farm sanitation	17 (10.63)	38 (23.75)	105 (65.62)	82.67 ⁶
Intercropping	16 (10.00)	54 (33.75)	90 (56.25)	78.00 ⁷
Minimum tillage	12 (7.50)	66 (41.25)	82 (51.25)	54.67 ¹³
Crop rotation	24 (15.00)	47 (29.38)	89 (55.63)	75.00 ⁸
Mulching	19 (11.88)	71 (44.37)	70 (43.75)	70.33 ⁹
Cover cropping	28 (17.50)	59 (36.88)	73 (45.62)	68.33 ¹⁰
Green manure	3 (20.00)	68 (42.50)	60 (37.50)	62.67 ¹¹
Composting	43 (26.88)	61 (38.12)	56 (35.00)	57.67 ¹²
Alley cropping	101 (63.12)	39 (24.38)	20 (12.50)	26.33 ¹⁶
Afforestation	109 (68.12)	32 (20.00)	19 (11.87)	48.67 ¹⁴
Bio control	112 (70.00)	31 (19.38)	17 (10.62)	44.33 ¹⁵
Integrated pest mgt	113 (70.63)	34 (21.25)	13 (8.12)	20.00 ¹⁷
Others	157 (98.12)	- (-)	3 (1.88)	02.00 ¹⁸

Source: (Field survey 2016). Likert-type scale: 2= always, 1= sometimes, 0= never, Figures in bracket are in percentages.

Relationship between Respondents' Socio-Economic Characteristics and Utilization of Organic Farming Practices

As shown in Table 5, some socio- economic characteristics of the farmers were significant with utilization of organic farming practices at 0.05 level of probability. Age ($p>0.018$), educational qualification ($P>0.001$), household size ($p>0.000$) and farming experience ($p>0.030$) were significantly related to the utilization of organic farming practices as their P values were greater than the asymptotic sign. This implies that educational qualification of a farmer will determine the level of utilization of organic farming practices. Again, the socio-economic characteristics such as marital status ($p<0.056$) and farm size ($p<0.260$) did not have a significant relationship with the utilization of organic farming practices. This implies that whether married single or

widowed did not play a significant role in the utilization of organic farming practices. Therefore the null hypothesis was upheld. The significant relationship that existed between farming experience and utilization of organic farming practices agrees with Edoehgon, Ajayi and Ugboya (2008) on their studies on awareness and the use of sustainable agricultural practices by arable crop farmers in Ikpaba Okha local government area of Edo State which reported that there was a significant relationship between farming experience and use of sustainable agricultural practices. While the non significant relationship between farm size and utilization of organic farming practices contradicts the results of the findings of Akinbile and Odebo (2002) which stated that respondents' farm size had significant relationship with the respondents' use of sustainable agricultural practices in Osun state.

Table 5: Chi-Square result for the relationship between Socio-economic Characteristics of Respondents and Utilization of Organic Farming Practices

Socio-economic characteristics	Df	χ^2	Asymptotic sign	P value	Remark
Gender	2	8.289 ^a	0.016	0.05	Reject H ₀
Age	8	18.403 ^a	0.018	0.05	Reject H ₀
Marital status	6	12.268 ^a	0.056	0.05	Accept H ₀
Educational qualification	6	21.959 ^a	0.001	0.05	Reject H ₀
Household size	6	32.571 ^a	0.000	0.05	Reject H ₀
Farm Size	8	10.072 ^a	0.260	0.05	Accept H ₀
Cropping System	6	18.548 ^a	0.005	0.05	Reject H ₀
Farming Experience	8	17.028 ^a	0.030	0.05	Reject H ₀
Land Acquisition	10	15.429 ^a	0.117	0.05	Accept H ₀
Labour	10	26.573 ^a	0.003	0.05	Reject H ₀
Occupation	4	2.776 ^a	0.596	0.05	Accept H ₀
Religion	4	4.880 ^a	0.300	0.05	Accept H ₀

(Source: Computed from Field Data, 2016)

Hypothesis: There is no significant relationship between respondents' awareness and utilization of organic farming practices.

Table 6 shows that, there was a significant relationship between respondents' awareness and utilization of organic farming practices ($r=0.478$). This implies that the higher the level of awareness of the respondents on organic farming practices, the higher the likelihood of utilization of same. This result conforms to the casual data presented in Tables 3 and 4 which showed that the most organic farming practices respondents were aware of were also the most utilized practices.

Table 6: Pearson's product moment correlation (PPMC) result for Relationship between respondents' awareness and utilization of organic farming practices

		Awareness	Utilization
Awareness	Pearson correlation	1	.478**
	Significant.(2-tailed)		.000
	N	160	160
Utilization	Pearson correlation	.478**	1
	Significant.(2-tailed)	.000	
	N	160	160

**Correlation is significant at the 0.01 level (2-tailed)

Conclusion

The research showed that awareness had a significant influence on arable crop farmers' ability to utilize organic farming practices. Therefore, awareness is an important indicator of utilization of organic farming practices. Based on the findings of the study therefore, government and other relevant agencies should intensify effort in creating awareness on the benefits of organic farming practices to farmers to enhance its utilization.

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