

ACCEPTABILITY AND PRACTICE OF ORGANIC AGRICULTURE IN ETCHE AND OMUMA LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

Iyagba, A.G^{1*}, Eze¹, G.I and Isirima, B.C²

¹Department of Agricultural Science, Ignatius Ajuru University of Education
Port Harcourt, Nigeria

²Department of Agricultural Science, Federal College of Education (Technical) Omoku,
Rivers State, Nigeria

E-mail: apegragba@yahoo.com (*Corresponding Author)

Abstract: Organic agriculture for sustainable development in Nigeria is growing. The acceptability and practice of organic agriculture (OA) by farmers in Etche and Omuma Local Government Areas (LGA) of Rivers State, Nigeria was investigated. Structured questionnaires were randomly selected and administered to ten farmers from eight communities in Etche LGA and ten from twelve communities in Omuma LGA. Data analysis was by the use of descriptive statistics. The work showed female dominance in farming in both LGAs, more farmers that have acquired formal education though higher in Etche LGA (97.4%) than Omuma (82.5%), 34.2% and 31.6% in Etche and Omuma LGA respectively have been into farming for more than 40 years. There is low use of fertilizers but higher dependence on organic materials though awareness of OA is low in both LGAs, 27.6% and 37.7% in Etche and Omuma LGAs respectively but very willing to accept it, 68.4% in Etche and 64.9% in Omuma LGAs. Major organic material used is mulch while the least used is ash. Land is adequate for cultivation and common farming practice adopted in both LGAs is shifting cultivation, control weeds mainly by hand weeding and use dry weeds for mulching. Respondents accepted the availability of organic materials, major benefit of OA as control of pests and weeds. Major constrain is bulkiness/difficulty to handle organic materials and irregular visits by extension workers in both LGAs. There is need for increase enlightenment campaign on the acceptability of OA in both LGAs.

Keywords: Acceptability, Etche, Omuma, organic agriculture, Rivers State.

Introduction

Agriculture has played a significant role from the onset of human civilization with the rapidly high population explosion globally, changes in the economic and political systems has necessitated for scientists and farmers to improve and develop systems which depends highly on the use of synthetic chemical input such as fertilizers and pesticides. This is geared towards increasing food production thereby enhancing agriculture which was the mainstay of the Nigerian economy and a major source of income (Matthews–Njoku, 2014). The

ineffective use of chemical inputs to increase food production has posed a serious threat to the whole ecosystem – soil, water and air. It has not only negatively impacted on the ecosystem but affected the quality of food and consequently imposed serious health challenges. This unhealthy situation can be avoided with reliance on organic farming which can enhance biodiversity and the environment. (Treadwell *et al.* 2010; Seufert *et al.* 2012). Kirchmann, Katterer and Bergstrom (2008) posited that organic farming method depends on techniques such as crop rotation, green manure, compost and biological pest control. Organic agriculture has been defined as the process of producing goods naturally (Oyeniran, 2011). Improving the quality of soil and enhancement of the long term sustainability of agriculture can be achieved by increasing the organic matter status of the soil.

Codex (1999) noted that organic farming is a holistic production management system (for livestock and crops) and stressing the utilization of management practices with the option of applying off-farm inputs. This he further noted can be achieved through cultural, mechanical and biological methods instead of employing artificial or chemical methods. The practice of the conventional farming destroys the environment, affect the quality of food produced as a result of high intake of minerals such as copper and lead by crops which can lead to deadly diseases. It is therefore necessary to encourage farming practiced by default by our forefathers (Mgbenka, Onwubuya and Ezeano, 2015). Organic farming has many benefits which include increases soil pH, improves nutrient exchange and water holding capacity of soil, prevents human, animal and plant Kingdoms from the side-effects of chemical inputs and harmful effect in the food we eat, and ensure healthy living and prolonged life (Williams, 1999; IFOAM, 2005; Mgbenka, Onwubuya and Ezeano, 2015). Despite all these benefits of organic agriculture, Nigeria is not on the fast lane to adopt this technology though there are few projects or farms operating organic or certified organic agriculture (Harris, 2006; Oluwasusi, 2014). Adopting this innovation will result into rural development and as such increase agricultural productivity with the aim of improving farmer's income and standard of living (Matthews-Njoku, Adesope and Iruba, 2009). However, organic agriculture in Nigeria is inundated by constraints such as absence of awareness in organic farming; information of activities, technical assistance and knowledge, dearth of trained extension workers on organic farming and poor capacity building among others (Mustapha, Bzungu and Sanusi, 2012; Mgbenka, Onwubuya and Ezeano, 2015). Etche and Omuma Local Government Areas (LGA) are among the 23 LGAs making up Rivers State, Nigeria. Omuma LGA was sometime part of Etche LGA and later to be an independent LGA. Both are in the

Crop/Livestock Agricultural Zone of the State (Iyagba and Nwokocha, 2012). Despite the numerous benefits of organic agriculture, its practice is low as there is still practice of inorganic farming by farmers in some parts of Rivers State (Iyagba and Brown, 2015; Iyagba and Ovai, 2015). This study attempts to determine the acceptability of organic agriculture in the study areas and compare its acceptability and practice by these LGAs which were one sometime.

MATERIALS AND METHODS

This study was carried out in Etche and Omuma Local Government Areas of Rivers State, Nigeria among the 23 LGAs making up the State. The focus were rural farmers in the areas under study. The study sample comprised two hundred and four (204) farmers. From Etche and Omuma LGAs eight (8) and twelve (12) communities each were randomly selected and a random sampling of ten (10) farmers were selected from each of the communities giving a total of eighty-four (84) respondents from Etche LGA and one hundred and twenty (120) respondents from Omuma LGA. The eight (8) communities chosen from Etche LGA were Afara, Egwi, Okomoko, Okehi, Ikem, Egbeke, Abara and Egbu while the twelve (12) communities from Omuma LGA were Obioha, Egbelu, Umuagba, Umuelechi, Umuagwu, Umuoyere, Umudire, Umueke, Amaji, Umunwaka and Umuecheri. The instrument used for data collection for the study was a structured questionnaire, designed with items to gather important information for the study in a question and answer format with options and administered to the respondents. The sampling method used in the study was the multi-stage random sampling. The data collected were analyzed with the aid of descriptive statistical tools of frequency count and percentage.

RESULTS AND DISCUSSION

Table 1 showed there was female dominance in farming from the two LGAs though it was higher in Omuma LGA (43.9%) than in Etche LGA (42.1%).

This female dominance is in line with earlier findings in Abua and Emohua LGAs of the State (Iyagba and Brown, 2015; Iyagba and Ovai, 2015). It has been observed that women bear more burden, if agricultural load is shared between women and men (Morna, 1992). It was further observed that women undertake multiple roles not only as farmers but as mothers, family care takers, water carriers, traders, food processors, income earners, etc (Matthew-Njoku, 2004).

Table 1: Demographic characteristics of farmers in Etche and Omuma LGAs of Rivers State, Nigeria.

Variables	Etche (n=76)		Omuma (n=114)	
	Frequency	%	Frequency	%
<i>Gender</i>				
Male	32	42.1	50	43.9
Female	44	57.9	64	56.1
<i>Age</i>				
<20 years	0	0.0	0	0.0
20-30 years	4	5.3	16	17.5
31-40 years	26	34.2	36	31.6
41-50 years	36	47.4	44	38.6
51-60 years	10	13.1	14	12.3
>60 years	0	0.0	4	3.5
<i>Marital Status</i>				
Single	4	5.3	20	17.5
Married	72	94.7	94	82.5
<i>Educational Status</i>				
No education	2	2.6	20	17.5
Primary	30	39.5	30	26.3
Secondary	38	50.0	50	43.9
Tertiary	6	7.9	14	12.3
<i>Scale of farming</i>				
Subsistence	56	73.7	108	94.7
Commercial	20	22.3	6	5.3
<i>Experience in farming</i>				
<10 years	2	2.6	6	5.3
10-20 years	4	5.3	16	14.0
21-31 years	8	10.5	26	22.8
31-40	36	47.4	36	26.3
>40 years	26	34.2	36	31.6

Source: Field survey, 2013

It has been noted that most women are profit orientated and not job oriented (Matthews-Njoku, Adesope and Iruba, 2009). Most of the farmers in the two LGAs were within the age bracket of 41-50 years which is an active age for farming according to Nweke, Dunstan and Lynam(2002) and Ojo (2012). Most of the farmers were married with very few singles. However, there are more single farmers in Omuma LGA (17.5%) than in Etche LGA (5.3%). More married farmers will translate into having low labour cost as the family members will provide the needed man power for organic farming. The study revealed that 97.4% and 82.5% of the farmers in Etche and Omuma LGAs respectively had some formal education which included primary, secondary and post secondary education. Adoption of new farming practices and technologies is a function of the farmers' level of education as this increases their desire to have them (Alabi and Aruna, 2006, Daramola and Aturamu, 2000). Since farmers in Etche LGA are more educated than their counterparts from Omuma LGA they will be in a better position to adopt new innovations. Majority of the farmers in both LGAs were into subsistence farming though there is more commercial farming in Etche LGA (22.3%) than in Omuma LGA (5.3%). This may be attributed to the level of education of the farmers in Etche LGA. The work revealed that majority of the respondents had a farming experience of between 31-40 years (47.4%) in Etche LGA while in Omuma LGA it is those above 40 years (31.6%). Tashikalma (1998) and Oluwasusi (2014) noted that experience provides better opportunities to the skills required in the enterprise for better performance in the selected farming business.

In Etche LGA, 5.3% of the respondents accepted using fertilizer in farming while acceptance in Omuma LGA is 24.6% (Table 2).Majority of the respondents agreed of using organic materials in farming, 81.6% in Etche LGA and 73.7% in Omuma LGA while only 27.6% and 37.7% of the respondents in Etche and Omuma LGAs respectively were aware of organic farming, thus awareness of organic agriculture was higher in Omuma LGA.

There was greater acceptance of this technology among farmers in Etche LGA (78.9%) than in Omuma LGA (61.4%) and the respondents very willing to adopt it in Etche LGA (68.4%) than in Omuma (64.9%). In both LGAs, farmers were more willing to continue its use. Farmers in Etche (86.8%) and Omuma (87.7%) LGAs indicated that land is very much available for farming. Most of the farmers in Etche (31.6%) and Omuma (35.1%) have experience in organic agriculture for only less than 10 years and least experience acquired by

Table 2: Acceptability and practice of organic agriculture by farmers in Etche and Omuma LGAs of Rivers State, Nigeria

Variables	Etche (n=76)		Omuma (n=114)	
	Frequency	%	Frequency	%
<i>Use Fertilizer in farming</i>				
Yes	4	5.3	28	24.6
No	72	94.7	86	75.4
<i>Use of organic materials in farming</i>				
Yes	62	81.6	84	73.7
No	14	18.4	30	26.3
<i>Awareness of organic agriculture</i>				
Aware	21	27.6	43	37.7
Unaware	55	72.4	71	62.3
<i>Acceptance of organic agriculture</i>				
Yes	60	78.9	70	61.4
No	16	21.1	44	38.6
<i>Willing to adopt organic agriculture</i>				
Very willing	52	68.4	74	64.9
Willing	20	26.3	30	26.3
Undecided	4	5.3	10	8.8
<i>Willing to continue organic agriculture</i>				
Yes	70	92.1	104	91.2
No	6	7.9	10	8.8
<i>Major type of organic material used</i>				
Green manure	6	7.9	10	8.8
Animal dropping	12	15.8	22	19.3
Wood ash	6	7.9	12	10.5
Crop waste	22	28.9	30	26.3
Mulch	28	36.8	40	35.1
<i>Experience in organic agriculture</i>				
<10 years	24	31.6	40	35.1
11-20 years	18	23.7	32	28.1
21-30 years	14	18.4	20	17.5
31-40 years	12	15.8	14	12.3

>40 years	8	10.5	8	7.0
<i>Availability of land</i>				
Very much available	66	86.8	100	87.7
Available	10	13.2	10	8.8
Not available	0	0.0	4	3.5

Source: Field survey, 2013.

farmers who are more than 40 years old in the business. The degree of experience decreases with age which corroborates the fact there was acceptance and willingness to adopt organic agriculture in the areas under study. The commonest organic material used by farmers in Etche and Omuma LGA is mulch materials followed by crop waste and the least is ash. The relevance of mulch materials in soil fertility and maintenance has been established. Mulches are used to retain soil moisture, prevent soil erosion, suppress weed growth by intercepting light, regulate soil temperature, aesthetics, etc (Louise and Bush-Brown, 1996; Turgeon, McCarthy and Christians, 2009).

The commonest farming practice adopted by farmers in the two areas is shifting cultivation, 65.8% and 45.6% in Etche and Omuma LGAs respectively (Table 3). However, work by Iyagba and Brown (2015) and Iyagba and Ovai (2015) revealed that Farmers in Abua and Emohua LGAs in the State practice intercropping. The response of farmers on the availability of land for farming in the LGAs under study give credence of practicing shifting cultivation which can only be practiced in areas with vast land for cultivation. Yam/cocoyam are the major crops planted in both areas with more farmers in Omuma LGA into yam/cocoyam growing. In both LGAs the prevalent weeds are broad leaves, 94.7% and 85.0% in Etche and Omuma LGAs respectively and the weed control method practiced in tillage is hand-weeding using the traditional hoe. In as much as this method is advantageous by being effective in removal of weeds and weeds easily within rows or hills, and less disturbance on the soil, there are demerits such as very tedious and time consuming, difficult to use for large scale farming and in crushing the stalks and weeds may grow easily (FAO, 2016). Use of herbicides to control weeds in both areas are not practiced as they apply organic materials and the commonest type used for mulching is dry weeds, 65.8% and 77.2% in Etche and Omuma LGAs respectively. In both areas none of the respondents indicated use of wood shavings for weed control.

The results from Table 4 showed that there is availability of organic materials to practice organic agriculture though it is more in Etche LGA (73.7%) than in Omuma LGA (71.9%). This will definitely enhance the practice of organic agriculture here which is inadequate in some areas of the country and as such pose a constrain to its practice (Kutama *et al*, 2013; Olaito, 2016). On dividends of organic agriculture, most of the respondents indicated control of pests and weeds followed by higher crop yield and the least as increase in livestock production in the two (2) LGAs. The major problem encountered by the farmers is the bulkiness of the materials and cumbersome to handle it. This is a constrain facing organic agriculture in the developing countries. Only 23.7% and 29.8% of the farmers in Etche and Omuma LGAs respectively accepted being visited by extension workers while 50.0% (Etche) and 49.1% (Omuma) of the respondents were seldomly visited by extension workers. This as a challenge in organic agriculture has been observed by several workers in Nigeria and elsewhere (Daramola and Aturami, 2000; Daneji, Tafida and Ali; 2006; Wheeler, 2008; Mustapha, Bzungu and Sanusi, 2012; Issa, 2013). Their major source of information about organic agriculture is through the Radio, 31.6% in Etche LGA and 35.1% in Omuma LGA and the lowest source from the

Table 3: Farming practices adopted by farmers in Etche and Omuma LGA of Rivers State, Nigeria

Variables	Etche (n=76)		Omuma (n=114)	
	Frequency	%	Frequency	%
Commonly adopted farming practice				
Crop rotation	2	2.6	4	3.5
Shifting cultivation	50	65.8	52	45.6
Multiple cropping	20	26.3	30	26.3
Bush fallow	4	5.3	28	24.6
Mixed farming	0	0.0	0	0.0
Most planted crop				
Yam/cocoyam	78*	24.7	96	25.1
Cassava	76	24.1	88	23.0
Maize	70	22.2	80	20.9
Plantain/Banana	6	1.9	14	3.7
Melon	8	2.5	12	3.1
Pepper	6	1.9	10	2.6
Vegetable	72	22.8	82	21.5

Weed type commonly encountered

Broad leaves	72	94.7	98	86.0
Grasses	4	5.3	16	24.0

Method of weed control

Herbicide use	0	0	0	0
Slash and burn	18	23.7	30	26.3
Weeding	58	76.3	87	73.7

Common organic material applied to control weeds

Dry weeds	50	65.8	88	77.2
Plantain/banana stem	14	18.4	10	8.8
Wood shaving	0	0.0	2	1.8
Animal waste/dropping	6	7.9	14	12.3

Source: Field survey, 2013

*Multiple responses

Table 4: Problems and dividends of organic agriculture encountered by farmers in Etche and Omuma LGA of Rivers State, Nigeria

Variables	Etche (n=76)		Omuma (n=114)	
	Frequency	%	Frequency	%
Availability of organic materials				
Yes	56	73.7	82	71.9
No	20	26.3	32	28.1
Dividends of organic agriculture				
Control of pest and weeds	34	44.7	60	52.6
Higher crop yield	22	28.9	24	21.1
Improve soil fertility	10	13.2	16	14.0
Increase livestock production	2	2.6	4	3.5
Not harmful to the environment	8	10.5	10	8.8
Problems of organic agriculture				
Difficulty of applying	20	26.3	32	28.1
Expensive	12	15.8	15	13.2
Bulky/cumbersome to handle	36	47.4	60	52.6
Not always available	8	10.5	7	6.1
Visit be extension workers				

Seldom	38	50.0	56	49.1
Frequent	18	23.7	34	29.8
Never	20	26.3	24	21.1
Sources of information of organic agriculture				
Newspaper	16	7.9	8	7.0
Radio	24	31.6	40	35.1
Extension workers	8	10.6	12	10.6
Farmer co-operative society	6	7.9	8	7.0
Television	18	23.7	30	26.3
Fellow farmers	12	15.8	16	14.0

Source: field survey, 2013

Newspaper, 7.9% and 7.0% in Etche and Omuma respectively. This may be partly due to the rural nature of the two (2) LGAs where they hardly had access to Newspaper and the submissions of Ifeanyi-Obi and Agumagu (2008) and Lemchi, Ifeanyi-Obi and Olatunji (2011) that Nigerian dailies hardly cover agricultural news thus farmers do not have easy access to agricultural news through this media.

CONCLUSION

It can be concluded that farmers in Etche and Omuma LGAs are educated though more in Etche LGA, use organic materials which is adequate and land available to practice organic agriculture but most of the respondents are unaware of organic agriculture which they are willing to adopt and continue its use. The major farming practice adopted is shifting cultivation and majorly cultivate yam/cocoyam with more land in Omuma LGA and the major weed control method is manual weeding. With more enlightenment campaign by the State Government and stakeholders in organic agriculture on the benefits of organic agriculture, both LGAs will practice it.

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