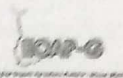




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Factors Influencing Maize Farmers' Attitudes Towards Adoption of Organic Farming Practices in Niger State, Nigeria

Salihu, I. T., Abdullahi, A., Ibrahim, M., Tsado, J. H. and Umar, I.S

Department of Agricultural
Extension and Rural Development,
School of Agriculture and
Agricultural Technology,
Federal University of Technology,
Minna, Niger State,
Nigeria.

Corresponding Author:
E-mail: ibrahimtyabo@yahoo.com
Tel: +234 8069098599

Keywords:
Maize, Farmers,
Organic Farming practices,
Adoption, Attitude

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Abstract

The study assessed the factors influencing maize farmers' attitude towards adoption of organic farming practices in Niger State, Nigeria. The specific objectives includes examining the adoption level of organic farming practices, assessing farmers' attitudes towards organic farming practices and determining factors influencing farmers attitudes towards adoption of organic farming practices. A multi-stage sampling procedure was used to select 222 maize farmers. Data collected through structured questionnaire/interview schedule were analyzed using frequency counts, means, percentages and Logit regression model. Results obtained shows that 62.60% of the respondents have formal education with a mean age of 35.8 years. The three major organic farming practices with the highest percentage scores and have pass through the adoption - decision stages to total practice were crop residues incorporation (83.8%), mix cropping (79.7%) and mix farming (73.0%). The attitudinal statements on organic farming practices that elicited the most favourable attitude include: mix cropping reduces pest and disease infestation (WM = 4.70), organic pesticide protect water from harmful chemicals (WM = 4.39). Factors influencing maize farmer's attitude towards adopting the available organic farming practices were goal of farming, relative advantage, and knowledge on organic farming practices. It is recommended that extension (change) agents should enlighten farmers on various organic methods of weed, pest and disease control through provision of relevant information and training in the area to enhance adoption of organic farming practices to boost their food production.

Introduction

The mainstay of the Nigerian economy prior to the oil boom era was agriculture and even with the discovery and subsequent exploration of oil. Agriculture still accounts for over 38 percent of the non-oil foreign exchange earnings and employs about 70% of the active labour force of the Nigerian population (Olutokunbo and Ibikunle, 2011). However, attempts to meet the food demand of the continuously rising population of the country brought about expansion of farming areas, as well as an increase in the use of agro-chemicals, the long-term effect of which leads to soil depletion and does not support sustainable crop production. The high yields associated with the practice of conventional agriculture are usually accompanied by some side effects such as reduced soil fertility, water pollution and destruction of natural habitat, among others Moses (2015). These have some negative effects on the ecology at large and in the long run on human health.

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Organic farming is a form of agriculture which excludes the use of synthetic fertilizers, pesticides and plant growth regulators. Organic farming is an agricultural technique of naturally producing quality crops, vegetables or animals without harming the environment, the people, the animals as well as other microorganisms that are living around through the use non-synthetic fertilizers and bio-pesticides (Orji, 2013). The system also seeks to maintain the fertility demands of various crops to avoid excessive depletion of soil nutrients. Hence, it enhances sustainable production of quality food with little or no effect on the environment.

Agriculture being the backbone of the Nigeria's economy relies heavily on inorganic agricultural practices through the use of synthetic fertilizers. The horrendous side effects of non-decomposable chemical fertilizer and pesticide applied by most inorganic farming practices over the years is evident in the contaminated water sources, vegetable crops and other edible plants. Although the IFOAM (2004) policy emphasized on the complete substitution of synthetic fertilizers and pesticides with organic fertilizers and bio - pesticides. Surprisingly, despite the threats posed by the conventional agricultural practices, Nigeria crop farmers are still very much in the system of producing crops inorganically. Nigeria appears to be 'lagging' in the adoption of organic farming practices, with very few farms or projects operating at an uncertified organic agricultural level (Oyesola and Obabire, 2011). Therefore for Nigeria to attain the Sustainable Development Goals, environmental conservation must be enhanced through organic farming. Organic farming would contribute greatly to environmental conservation if it is widely adopted and the attitudes of the farmers towards it are well understood.

In view of the above, this research work seeks to assess the adoption level of organic technologies among rural maize farmers in Niger State, Nigeria. To this end, the study will attempt to achieve the following specific objectives: describe the socio-economic characteristics of maize farmers in the study area; examine the adoption levels of organic farming practices in maize production; assess the attitudes of maize farmers towards the adoption of organic farming practices and; determine the factors that influence the maize farmers' attitude towards adoption of organic farming practices.

Methodology

This study was conducted Niger State, Nigeria. The State is in the North-central part of Nigeria and lies in between Longitude $3^{\circ} 30'$ and $7^{\circ} 20'$ East of the Greenwich Meridian and Latitude $8^{\circ} 20'$ and $11^{\circ} 30'$ North of the equator. The Climate and Ecological conditions of the state is favored with mean annual rainfall of 782-1250mm and temperature is about 27°C to 37°C . The population of the study area was about 3,954,772 people (National Population Commission of Nigeria (NPC), 2016). But, going by the annual population growth rate of 2.5 percent in Nigeria, the population of Niger State was projected to be 5,556,200 (NPC, 2016). In order to achieve the study objectives, multi - stage-sampling technique was employed to collect the data through structure questionnaire/interview schedule. The first stage involved random selection of one Local Government Area from each of the three (3) agricultural zones in the State. Second stage involved random selection of three (3) villages from each of the selected LGA. The third stage involved selection of registered maize farmers from the selected villages as sample frame for the study. The fourth stage involves the use of 10% of the sample frame thus, a total of 222 respondents were selected as sample size from the 2,222 registered maize farmers in the selected villages of Niger State. The data collected were analyzed using logit regression analysis to examine the factors influencing maize farmers' attitude towards adoption of organic farming practices while descriptive statistics involving mean and percentages was used to describe farmer's socioeconomic characteristics, attitude and level of adoption of organic farming practices. However, variables on the level of adoption and attitude towards organic farming practices were measured using 7-point and 5-point Likert rating scale, respectively. The level of adoption of organic farming practices was measured using 7- points Likert type scale involving; Not aware=0, Aware=1, Interest=2, Evaluation=3, Trial=4, Adoption=5, Discontinuance=6. The level of adoption of organic farming practices was calculated as follows:

$$\frac{\text{Frequency of adopters per practice}}{\text{Total number of respondents}} \times 100$$

To determine the attitudes of farmers towards adoption of organic farming practices in the study area. A combination of (positive and negative) attitudinal statements related to organic farming were presented to the respondents and scored accordingly through a 5-point Likert rating scale involving strongly agree (SA)=5, agree (A)=4, undecided (U)=3, disagree (D)=2 and strongly disagree (SD)=1 with the negative attitudinal statements attracting scores in inverse proportion. The reference mean for the scale was three $(5+4+3+2+1=15/5=3)$. Thus, $\bar{X} \geq 3$ is adjudged favourable attitude while $\bar{X} < 3$ is adjudged unfavourable attitude towards adopting organic farming practices.

Logit regression model

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, X_{14}, X_{15}, X_{16})/$$

Thus, its explicit form is expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + e$$

Where:

Y- dependent variable = farmer's attitude (favourable = 1, unfavourable = 0)

$\beta_1 - \beta_{16}$ = Parameters to be estimated

$X_1 - X_{16}$ = independent variables. Where;

X_1 = Age (years)

X_2 = Gender (male = 1, female = 0)

X_3 = Marital status (married = 1, otherwise = 0)

X_4 = Household size (number of people)

X_5 = Education (number of years spent in school)

X_6 = Land ownership (land ownership = 1, otherwise = 0)

X_7 = Farm size (number of hectares cultivated)

X_8 = Goal of farming (Family consumption = 1, otherwise = 0)

X_9 = Farming experience (years)

X_{10} = Extension contact (number of visits)

X_{11} = Farm income (naira)

X_{12} = Cost of organic inputs (naira)

X_{13} = Relative advantage of organic farming practices (No of advantageous practices)

X_{14} = Compatibility of organic farming practices (No of relatively compatible practices)

X_{15} = Complexity of organic farming practices (No of relatively complex practices)

X_{16} = Knowledge on organic farming = (knowledge scores)

e = error term

Results and Discussion

Socio-economic Characteristics of the Farmers

Age: The results in Table 1 reveals that majority (84.2%) of the respondents were between the ages of 21-50 years with an average age of 35.82 years. This implies that the farmers are young and still in their productive age, thereby constituting readily available labour force for organic maize production. This

agrees with the findings of Adesope *et al.* (2012), who reported that young farmers are mostly cosmopolitan in nature and therefore tend to recognize and adopt farm innovation with little bottleneck.

Household size: In the same vein, the result showed that farmers had a fairly large household size with a mean value of six (6) members per household in the area. This has implication on the availability of family labour for farm work. The large number of household members may be due to the polygamous nature of the rural people who tend to recognize household population as a symbol of authority among farmers. Although, the larger the household size, the higher the demand for food by each person within the household. This result agrees with the findings of Marenya and Barrett (2007) who observed that as the household size increases, the likelihood of expanding cultivated farm land is expected to be high among rural crop farmers.

Educational level: Table 1 reveals that majority (62.6%) of the respondents had formal type of education involving attending primary, secondary and tertiary institutions while 37.4% had non-formal type of education related to skills acquisition and training. Given this level of literacy, it is expected that information on organic practices may be disseminated with ease among farmers and this could influence their decision to adopt organic practices. This finding agrees with Yengoh (2010) who reported that personal characteristic especially, education influences adoption of new technology among rural crop farmers in Nigeria.

Years of farming experience: The mean years of farming experience of the respondents is 15 years as shown in Table 1. The number of years a farmer has spent in maize production is an indication of the practical knowledge acquired by the farmer in maize farming over the years. Therefore, the accumulated years of experience by the respondents may help them in accessing benefit of organic inputs and practices in maize production with relative ease. This agrees with the findings of Kassie *et al.* (2015) who stressed that farmers with long time farming experience easily access opportunities to quality agro-inputs.

Farm size: The result on Table also showed that the size of the farms are relatively small considering that majority (67.6%) had farm sizes less than 2.0 hectares at a mean value of 1.89 hectares per farmer. This implies that the respondents are small scale farmers operating at subsistence level of maize production thus, investing on organic practices such as mixed farming, crop rotation and agro forestry may limit space for maize production. This finding is supported by Kassie *et al.* (2015) who revealed that land ownership and farm size motivate rural farmers to improved farming practices in maize production.

Table 1: Socio-economic Characteristics of the Farmers (n=222)

Variables	Frequency	Percentage (%)	Mean
Age(years)			
20years and below	19	8.6	35.82
21-30years	50	22.5	
31-40years	88	39.6	
41-50years	49	22.1	
51years and above	16	7.2	
Household size			
5 and below	106	47.7	6.00
6-10people	91	41.0	
11-15people	24	10.8	
16 and above	1	0.5	
Formal education			
Non formal	83	37.4	
Primary	31	14.0	7
Secondary	60	27.0	
Tertiary	48	21.6	
Farming experience			
10years and below	87	39.2	15
11-20years	83	37.4	
21-30years	36	16.2	
31years and above	16	7.2	
Farm size			
Less than 2Ha	150	67.6	1.89
2Ha and Above	72	32.4	

Source: Field survey, 2017

Levels of Adoption of Organic Farming Practices among Maize Farmers

The result in Table 2 reveals the level of adoption of organic farming practices among maize producers in the study area. The findings is progressive as majority of the farmers have successfully pass through the adoption - decision stages to total practice of crop residues incorporation (83.8%) and mix cropping (79.7%) as the two major organic farming practices in the area. Other practices adopted by the farmers include mix farming (73.0%), hand weeding (66.2%), flame weeding (61.3%), crop rotation (59.9%), zero/hoe tillage (54.1%) and farm yard manure (53.2%). From the findings it is obvious that farmers adopted eight (8) out of fifteen (15) listed organic farming practices, giving an adoption rate of 53.33%. This indicates that level of adoption of organic farming practices is relatively moderate in the study area. This finding is in contrast with the result of Adesope *et al.* (2012) who reported that adoption of organic farming practices is very low (35.7%) in Owerri, as farmers adopted five (5) out of the fourteen listed organic farming practices in the area.

Table 2: Levels of Adoption of Organic Farming Practices Among Maize Farmers (n=222)

Organic Farming Practices	NA	AW	I	E	T	A	D	Rank
Crop rotation	23(10.4)	48(21.6)	6(2.7)	2(9)	6(2.7)	133(59.9)*	4(1.8)	6 th
Mixed cropping	4(1.8)	17(7.7)	11(5.0)	0(0)	13(5.9)	177(79.7)*	0(0)	2 nd
Mixed farming	11(5.0)	22(9.9)	4(1.8)	18(8.1)	0(0)	162(73.0)*	5(2.3)	3 rd
Zero/hoe Tillage	6(2.7)	47(21.2)	18(8.1)	11(5.0)	20(9.0)	120(54.1)*	0(0)	7 th
Green manure	70(31.5)	70(31.5)	41(18.5)	28(12.6)	14(6.3)	0(0)	0(0)	14 th
Composting	56(25.2)	74(33.3)	62(27.9)	18(8.1)	12(5.4)	0(0)	0(0)	15 th
Hand picking of insects	57(25.7)	69(31.1)	46(20.7)	8(3.6)	8(3.6)	29(13.1)	6(2.7)	12 th
Organic pesticide	27(12.2)	66(29.7)	25(11.3)	14(6.3)	46(20.7)	42(18.9)	0(0)	11 th
Bio pest control	95(42.8)	86(38.7)	11(5.0)	12(5.4)	8(3.6)	10(4.5)	0(0)	13 th
Hoeing/hand weeding	11(5.0)	22(9.9)	6(2.7)	14(6.3)	13(5.9)	147(66.2)*	9(4.1)	4 th
Use of organic fertilizer	5(2.3)	38(17.1)	23(10.4)	0(0)	45(20.3)	106(47.7)	5(2.3)	9 th
Farm Yard Manure	0(0)	35(15.8)	20(9.0)	6(2.7)	43(19.4)	118(53.2)*	5(2.3)	8 th
Planting trees/hedges	0(0)	18(8.1)	15(6.8)	19(8.6)	58(26.1)	81(36.5)	31(14)	10 th
Residues incorporation	9(4.1)	27(12.2)	0(0)	0(0)	0(0)	186(83.8)*	0(0)	1 st

Source: Field Survey, 2017

Farmers' Attitude towards Adoption of Organic Farming Practices

The decision of farmers to adopt organic farming practices begins with their attitude towards the practices (Olutokunbo and Ibikunle, 2011). The results on the attitude of respondents towards adoption of organic farming practices in maize production were as presented in Table 3. The result shows that the respondents expressed favourable attitudes/perception towards eight (8) out of fifteen (14) statements bordering on organic farming practices. Among these statements 5 were positive statements, while 3 were negative statements. Specifically, the attitudinal statements on organic farming practices that elicited the most favourable attitude from the respondents include: mix cropping reduces pest and disease infestation (WM = 4.70), organic pesticide protect water from harmful chemicals (WM = 4.39), crop rotation in the long run improves soil fertility (WM = 3.90), zero/hoe tillage prevents erosion and disturbance in soil structure (WM = 3.39) and mix farming provides manure that increases soil fertility (WM = 3.23). Based on this finding, it is obvious that farmers in the study area have favourable attitudes towards adoption of organic farming practices in maize production due to their high level of perception about it. The knowledge farmers have about a new practice closely relates to their behaviours toward such a practice which together frame the farmers' attitude as whether to adopt the practice or not (Meijer *et al.*, 2015). The result of this study can be supported by Oyesola *et al.* (2011) and Adesope *et al.* (2012) who reported that rural crop farmers generally had a favourable attitude towards organic farming practices. The reasons for adoption of organic farming practices by the maize farmers cannot be unconnected with the belief that it decreases production costs by reducing input purchases (Mondal *et al.*, 2014). In a similar vein, Moses (2015) reported that adoption of organic farming practices has significantly contributed to increasing the output in maize and beans production by more than a third (36.7%).

Table 3: Farmers' Attitude Towards Adoption of Organic Practices

Farmers' Attitude Towards OP	SA	A	NS	D	SD	WM	Remark
Crop rotation in the long run improves soil fertility	81(36.5)	66(29.7)	46(20.7)	29(13.1)	0(0)	3.90	Agree
Mix cropping reduces pest and disease infestation	183(82.4)	27(12.2)	0(0)	8(3.6)	4(1.8)	4.70	Agree
Mix farming provides manure that increases soil fertility	42(18.9)	39(17.6)	91(43.5)	17(7.7)	27(12.2)	3.23	Agree
Slash-burn/flare weeding suppresses weed growth	19(8.6)	39(17.6)	105(47.3)	22(9.9)	37(16.7)	2.91	Disagree
Zero/hoe tillage prevents erosion and disturbance in soil structure	86(38.7)	22(9.9)	51(23.0)	18(8.1)	45(20.3)	3.39	Agree
Production of green manure takes much time and resources	2(0.9)	58(26.1)	65(29.3)	86(38.7)	11(5.0)	2.79	Disagree
Compost manure are slow in releasing nutrient to the soil	16(7.2)	17(7.7)	118(53.2)	48(21.6)	23(10.4)	2.80	Disagree
Hand picking of insects are less efficient pest control measure	38(17.1)	180(81.1)	4(1.8)	0(0)	0(0)	4.15	Agree
Organic pesticide protect water from harmful chemicals	101(45.5)	113(50.9)	5(2.3)	0(0)	3(1.4)	4.39	Agree
Bio pest control are safe to human health	8(3.6)	34(15.3)	137(61.7)	18(8.1)	25(11.3)	2.92	Disagree
Organic fertilizer delays harvest	176(79.3)	41(18.5)	0(0)	5(2.3)	0(0)	4.75	Agree
Use of Farm Yard Manure decreases maize yield	2(0.9)	58(26.1)	65(29.3)	86(38.7)	11(5.0)	2.79	Disagree
Planting trees reduces size of land for maize production	98(44.1)	91(41.0)	19(8.6)	14(6.3)	0(0)	4.23	Agree
Incorporating plant residues exposes the soil to erosion	2(0.9)	58(26.1)	65(29.3)	86(38.7)	11(5.0)	2.79	Disagree

Source: Field Survey, 2017

Factors influencing Farmer's Attitude towards Organic Farming Practices

The result of the regression analysis as shown in Table 4, revealed Pseudo R^2 of 0.4511 implying that 45% of variation on maize farmers' attitude towards adoption of Organic farming practices were explained by the independent variables included in the model. While the remaining 55% unexplained variation could be due to other externalities outside the control of the researcher. The chi-square statistic of 120.28 was significant at 1% level of probability indicating the goodness of fit of the overall model. From the t values, six variables (age, gender, farm size, goal of farming, relative advantage, and knowledge on organic farming) out of the sixteen (16) variables included in the model were statistically significant at 10% and 1% level of probability respectively.

Table 4: Factors Influencing Farmer's Attitude Towards Organic Farming Practices

Variables	Coefficient	Standard error	Z-value	p> z
Age	-0.0571914	0.0306955	-1.86*	0.062
Gender	-0.8537255	0.4559367	-1.87*	0.061
Marital status	-0.4347791	0.4781156	-0.91	0.363
House size	0.055518	0.1097585	0.51	0.613
Formal education	-0.0089577	0.0334529	-0.27	0.789
Land ownership	0.1047783	0.4391417	0.24	0.811
Farm size	-0.2501719	0.1389603	-1.80*	0.072
Goal of farming	1.137079	0.6480647	1.75*	0.079
Farm Experience	0.0150141	0.0343839	0.44	0.662
Access to Extension services	0.1523957	0.2917362	-0.52	0.601
Farm income	-5.37e-07	3.54e-06	-0.15	0.879
Cost of organic farm inputs	1.87e-06	3.13e-06	0.60	0.549
Relative Advantage	1.416749	0.4813429	2.94***	0.003
Compatibility	0.1295338	0.1425442	0.91	0.363
Complexity	0.0002604	0.0006511	0.40	0.689
Knowledge on Organic farming	3.886343	0.5855544	6.64***	0.000
Cons	0.0284971	1.128942	0.03	0.980
Number of obs	222			
LR chi2(16)	120.28			
Prob>chi ²	0.0000***			
Pseudo R ²	0.4511			

Source: Field survey, 2017

***= Significant at (1%), **= Significant at (5%), *= Significant at (10%)

In relation to the age of the household heads, the result shows negative coefficient and statistically significant at 1% probability level implying that age of the respondents had inverse relationship with farmers' attitude towards adoption of organic farming practices. Thus, the probability of favourable attitude towards organic farming practices was higher for younger farmers than it is for old farmers (-1.86*) implying that younger farmers are more venturesome and better able to assess the attributes of organic farming technologies than the more conservative older farmers. This finding is in agreement with Ukoha *et al.* (2010) who also reported negative relationship between age of the respondents in their study area and rural participation in social capital formation: suggesting that participation declines with age. On the contrary, Oyesola *et al.* (2011) however reported different result when he observed a positive relationship between age of the household head and the adoption of improved farming technologies. As for the gender of the household head, the study established that the probability of a female headed household having favourable attitude towards organic farming practices was higher than that of a male headed household (-1.87*). This is perhaps due to the high knowledge and closeness women tend to have to their natural environment than men. Also, most rural women doesn't have access to inorganic fertilizers, agro chemicals and tractors due to their limited financial resources hence, they favours the use of animals dung, hoe and other local natural resources for land cultivation and these local farm inputs are organic in nature. This finding is supported by Solomon (2008) who observed that the attitude of women to conservative farming as well as their contribution to agricultural productivity is positively significant in crop production.

Similarly, the study established an inverse relationship between farm size and farmers' attitude towards adoption of organic farming practices (-1.80*). Implying that larger farm size farmers does not favour adopting organic farming practices in their operations probably due to the strenuous nature of organic farming practices for example; hoe tillage and hand picking of insects on a larger hectares of land will not only takes more time and resources to accomplish but also may be inefficient to say the least, considering the fact that agricultural productions are time bound. This assertion agreed with the findings of Adesope *et al.* (2012) who reported that small farms adopt conservative farming practices to attain higher productivity levels than larger farms. In relation to the goal of farming, the study established that the probability of more farmers who produces food for family consumption to have favourable attitude towards organic farming practices was higher than that of farmers who produces maize at commercial level (1.75*). This is because farmers who produces at subsistence level are usually low income earners with relatively little farming resources as such may not favour the use of heavy machines and agro chemicals on their small farm land. Equally, with increasing spread of information on the negative effects of agro chemical to human health, farmers are becoming more appreciative of organic farming practices.

With regards to the relative advantage of the organic practices, the result came out as expected i.e. Practices with relative advantage would be positively and significantly related to farmers' attitude towards organic farming (2.94***) implying that maize farmers' preference for organic farming practices is highly due to its superior advantages than the inorganic technologies. Oyesola *et al.* (2011) attest to these findings when, in his studies observed a positive relationship between relative advantage of organic farming practices and the attitude of crop farmers towards improved agricultural technologies. In relation to farmers knowledge on organic farming, the study established that the probability of farmers to have favourable attitude towards organic farming practices is high with increase in knowledge on organic farming (6.64***). More educated farmers were also more likely to adopt organic farming practices than farmers with less knowledge on organic farming. This is because high knowledge is likely to expose farmers to more vital information on organic farming practices. These results agreed with the findings of Yengoh (2010) who all found higher knowledge on organic farming to enhance information access by the farmer for improved technology up take and higher farm productivity. They also observed education to enhance the farmers' ability to receive, decipher and comprehend information relevant to making innovative decisions in their farms.

Conclusion and Recommendations

From the findings, it is obvious that farmers in the study area were mainly small land holders in their productive age and with high level of knowledge on organic farming which help built their attitude towards adoption of organic farming practices in maize farming. To this end, farmers adopted eight (8) out of the 15 organic practices identified in the area. Therefore, adoption level of organic farming practices among rural maize farmers in Niger State can be said to be moderate. However, farmer's attitude towards the identified organic practices was favourable as they prefer the use of farm inputs and tools that are soil friendly. Factors influencing farmers attitude towards adoption of organic farming practices include: goal of farming, relative advantage, and knowledge on organic farming while Age, gender and farm size had inverse relationship with farmers' attitude. It is recommended that extension (change) agents should enlighten farmers on various organic methods of weed, pest and disease control through provision of relevant information and training in the area to enhance adoption of organic farming practices to boost their food production. Agricultural input suppliers, donor agencies and financial institutions should provide young female farmers with relevant assistance to strive in their farming operations seeing that they share favourable attitude towards adopting organic farming practices.

References

- Adesope, O. M., Oguzor, N. S. & Ugwuja, V. C. (2012). Effect of socio-economic characteristics of farmers on their adoption of organic farming practices. *crop production technologies*, Peeyush Sharma (Ed.), InTech, Retrieved from: <http://www.intechopen.com/books/crop-production-technologies/effect-of-socio-economic-characteristics-offarmers-on-their-adoption-of-organic-farming-practices>, February 22, 2018.
- IFOAM (International Federation of Organic Agriculture Movements). (2004). What is organic agriculture? Germany, Bonn: IFOAM.
- Kassie, M., Teklewold, H., Jaleta, M., Marennya, P., & Erenstein, O. (2015). Understanding the adoption of a portfolio of sustainable intensification practices in eastern and southern Africa. *Land Use Policy*, 42 (2015), 400–411.
- Marennya, P. P. & Barrett, C. B. (2007). Household-level determinants of adoption of improved natural resources management practices among smallholder farmers in Western Kenya. *Journal of Food Policy*, 32(4), 515-536.
- Meijer, S. S., Catacutan, D., Ajayi, O. C., Sileshi, G. W. & Nieuwenhuis, M. (2015). The role of knowledge, attitudes and perceptions in the uptake of agricultural and agro forestry innovations among smallholder farmers in sub-Saharan Africa. *International Journal of Agricultural Sustainability*, 13(1), 40-54.
- Mondal, S., Haitook, T. & Simaraks, S. (2014). Farmers knowledge, attitude and practice toward organic vegetables cultivation in Northeast Thailand. *Kasetsart Journal of Social Science*, 35: 158–166.
- Moses Kathuri Njeru (2015). Challenges and Benefits of Organic Farming among Farmers in Nembure Division, Embu County-Kenya. *International Journal of Humanities and Social Sciences* 5 (12): 59- 69.
- National Population Commission of Nigeria (NPCN) (2016). Available online: Retrieved from <https://www.citypopulation.de/php/nigeria-admin.php?adm1id=NGA027>: 21 March, 2016.
- Orji, S.C. (2013). How to solve Nigeria's Problem of food through organic farming. Retrieved from <http://www.nigeriasinamerica.com/article/6000/1/how-to-solve-Nigeria-problem-of-food-through-organic-farming/page1.html>.
- Olutokunbo, B. & Ibikunle, E. (2011). Farmers' perceptions of organic farming in selected Local Government Areas of Ekiti State, Nigeria. *Journal of Organic system*, 6(1), 20–26.
- Oyesola, O. & Obabire, I. E. (2011). Farmers perceptions of organic farming in selected Local Government Areas of Ekiti State, Nigeria. *Journal of Organic Systems*, 6(1), 20-26.
- Solomon, O. (2008). Small scale oil palm farmers' perception of organic agriculture in Imo State, Nigeria. *Journal of Environmental Extension*, 7(1), 67-71.
- Ukoha, O.O., Okoye, B.C. and Emetu, J. (2010). Analysis of the Determinants of Total Factor Productivity among Small-holder Cassava Farmers in Ohafia Local Government Area of Abia State. Munich Personal Repec Archive (MPRA) paper, 26125. pp.1-7.
- Yengoh, G. T., Armah, F. A., & Svensson, M. G. (2010). Technology adoption in small-scale agriculture. *Science, technology & innovation studies*, 5(2), 111–131.

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شبكة الباحثين في الزراعة العضوية بالافريقيا