

## Organic Farming in Nigeria: Need for Popularization and Policy

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**Abstract:** In Nigeria, certified organic farming (OF) is still in its infancy, hence there is need for its popularization and policy. Organic farming is therefore a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. Its major aim is for the production of safe, highly nutritious food and long term sustainability of the environment. Researchers have discovered that chemical fertilizers and other agro-chemicals used in conventional agriculture destroy the environment by altering the natural balance of the ecosystem and in many cases affect food quality with the intake of minerals such as lead or excess copper by crops which are dangerous for human consumption. This leads to deadly terminal diseases. The paper highlights the benefits of organic farming which include environmental conservation, economic self-reliance, increase in fertility of the soil, prevention of soil erosion, at the same time protects the human and animal kingdom from the side-effects of chemicals and synthetics and thereby promotes long life. Most Nigerian farmers do not seem to be interested in these benefits but more interested in production of more food to meet with the demands of Nigeria's teeming population, hence, they concentrate on conventional agriculture. Many farmers in Nigeria practice OF by default and do not practice certified organic farming. However, Nigeria produces organic farm inputs such as organic fertilizer and Compost Plus (a pure, natural and biodegradable humus for soil fertility) and some products of organic farming such as local rice (ofada), honey, black soap made from natural herbs and wood ash, etc. Organic farmers market was launched in Ibadan, Oyo State, Nigeria in December, 2014. There are many OF stakeholders in Nigeria such as Organic Farmers Association of Nigeria, which coordinates the activities of Nigeria's organic farmers, etc. Organic farmers experience constraints which include lack of technical know-how, standardization of natural substances for use in agriculture, unavailability of market for sale of organic produce, lack of government support for organic farming, etc. The paper suggested that Nigerian governments and private sector should consider the solutions proposed for constraints of OF in Nigeria which include availability of organic fertilizer at affordable prices, availability of market for sale of organic produce, enlightening producers on the new emerging markets attracting higher premium for such products, etc. The paper recommended review of current agricultural policies and programmes and removal of deterrent to organic agriculture for example, subsidies on agrochemicals; establishment of Department of Organic Agriculture in higher institutions of learning, training of extension workers in OF practices, among others.

**Key words:** Organic farming • Nigeria • Popularization

### INTRODUCTION

With the notion that chemical fertilizer destroys the environment by altering the natural balance of the ecosystem, farmers saw the potential detriment of industrialized farming and rejected the idea that this was advancement in agriculture. They developed methods that

increased the long term productivity of their farm system and practiced farming as stewards of the land. This type of farming soon came to be known as "organic". Organic agriculture is a form of agriculture that excludes the use of synthetic fertilizers and pesticides, plant growth regulator and livestock feed additives [1]. International Federation of Organic Movement (IFOAM) [2] describes organic

agriculture as a holistic agricultural system that combines traditional innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. Oyeniran [3] defined organic agriculture as the process of producing food naturally. It is based on minimal use of off-farm inputs and management practices that restore, maintain and enhance ecological harmony. Organic farming has become one of the most favoured options for the production of safe, highly nutritious food and long term sustainability.

The concept of OF avoids the use of synthetic pesticides, herbicides, chemical fertilizers, growth hormones, antibiotics or gene manipulation and the idea behind OF is 'zero impact' on environment hence the motto of the organic farmer is to protect the earth's resources and produce safe, healthy food. Use of chemical fertilizers is one of the causes of climate change and one of the ways of mitigating climate change is by recycling and re-using household materials, rather than throwing them out or burning them. In order to alleviate such threat, soil management must ensure the sustainability of the agricultural production environment, hence OF is a better option for productivity, better management of soil and sustainability.

Organic farming emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. Hence, the primary goal of OF is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people. Muller [4] advocates that an organic production system is designed to a) enhance biological diversity within the whole system; b) increase soil biological activity; c) maintain long-term soil fertility; d) recycle wastes of plant and animal origin in order to return nutrients to the land, thus minimizing the use of non-renewable resources; e) rely on renewable resources in locally organized agricultural systems; f) promote the healthy use of soil, water and air, as well as minimize all forms of pollution that may result from agricultural practices. The philosophy of organic food production maintains certain principles such as biodiversity, ecological balance, sustainability, natural plant fertilization, natural pest management and soil integrity. Hence, the principal guidelines for organic production are to use materials and practices that enhance the ecological balance of natural systems and that integrate the parts of the farming system into an ecological whole which helps to sustain ecosystems and reduce pollution. The techniques that organic farmers use include crop rotation, crop residues,

animal manures and green manure, cover cropping, application of compost, legumes, mineral-bearing rocks to feed the soil and supply plant nutrients. Organic fertilizers are naturally occurring fertilizers which include manure, worm castings, peat moss, seaweed and guano and they are mainly used to enrich the soil through nitrogen fixation from atmosphere by bacterial nodules on plant roots as well as phosphorus content of soil.

It uses natural regulation and crop diversity to prevent pests and diseases. Pest control in organic farming is also done without synthetic pesticides. Organic farmers use a wide range of integrated pest management practices to prevent pests and diseases. These include crop rotation and nutrient management; presence of predators and natural enemies of pests, using cover crops and growing healthier plants. Natural pesticides such as soybean oil, rotenone, pyrethrum, spinosad and neem can be used to control serious pest attacks (<http://www.articlesbase.com/article-tags/sustainable-farmingsanitation>). These remove pest habitat; provision of habitat for beneficial organisms; selection of pest-resistant crops and animals; crop protection using physical barriers, such as row covers; and crop diversification through companion planting or establishment of poly cultures. Additionally, these methods provide other benefits such as soil protection and improvement, pollination, fertilization, season extension, water conservation, etc., weeds and other pests are managed by mechanical cultivation and cultural, biological and bio-rational controls. Organic farmers integrate cultural, biological, mechanical and physical tactics to manage weeds without synthetic herbicides ([http://en.wikipedia.org/wiki/Organic\\_farming](http://en.wikipedia.org/wiki/Organic_farming)). However, organic agriculture practices cannot ensure that products are completely free of residues but these methods are used to minimize pollution from the air, soil and water. Organic food handlers, processors and retailers adhere to standards that maintain the integrity of organic agriculture products.

All over the world, organic food accounts for approximately one or two percent of gross food sales [5]. The author also reported that in Germany, almost all baby foods are completely organic and in some places, up to a third of all bread is baked using organic ingredients. Organic farming is developing rapidly and practiced in more than 120 countries of the world [6]. In 2007, there were over 26 million hectares managed under organic agriculture techniques worldwide (<http://www.articlesbase.com/article-tags/sustainable-farming>). [7], also reported that African countries like Uganda,

Kenya, Tanzania, South Africa, Cameroon and Ghana have gone far ahead of Nigeria in production of certified organic food. Explaining the potential role of organic agriculture in sustainable food security, Kazeem [8] noted that organic agriculture is something that should be given priority in Nigeria because it is demand-driven as the products are needed in advanced countries. The Nigerian farming system was perceived as non-certified organic agriculture production [9]. Presently, most Nigerian farmers do not practice organic agriculture per excellence [10], hence Nigeria is still in the primary or preparatory stage of certified OF.

Nigerian governments and farmers are not interested in OF either because they do not know the overwhelming benefits of it or they are not aware of the new trend that agriculture has taken in the world today. An oral interview held with a researcher at National Root Crops Research Institute (NRCRI), Umudike, Abia State, Nigeria (one of the renowned research institutes in Nigeria) revealed that they do not even have any research work on OF in their programme. Many higher institutions do not have organic farming in their curricula. The growing trend for organic products is definitely headed in the right direction and Nigeria cannot afford to continually be an onlooker given the socio-economic benefits of organic products. Consequently, Nigeria needs to develop the process of certification of its products by the relevant authorities in the world market. There is need, therefore, to review how far Nigerian farmers have gone in OF production and possible areas of emphasis in popularization process of the system of production among Nigerian farmers.

The purpose of the review is to highlight organic farming in Nigeria, benefits of OF such as: environmental conservation, health, economic self-reliance, employment generation, reduction of rural-urban migration, capacity building in organic farming and constraints OF is experiencing and suggest areas of improvement in achieving certified organic farming in Nigeria. The paper relied on literature and participant observation.

**Principles of Organic Agriculture:** According to USDA ORGANIC [11], generally organic food products:

- Are grown or raised by a producer who uses practices in balance with the natural environment, using methods and materials that minimize negative impact on the environment.
- Are produced on land that has been free of known and perceived toxic and persistent chemical pesticides and fertilizers for at least three years prior to certification.

- Are planted on a rotating basis within the farm system. Cover crops such as clover are planted to add nutrients to the soil and prevent weeds.
- Organic meat, poultry and egg products come from farms that use organic feed, do not administer added hormones to promote growth or any antibiotics and they allow animals the space and freedom to behave naturally.

### **Benefits of Organic Farming**

**Environmental Conservation:** Organic farming is environment-friendly and thereby helps in keeping the environment clean and enhances good human and animal health. [12], reported that organic farming makes use of refuse and waste in the environment to produce healthy foods. This method of farming production was designed to keep the nutrients in the system, to economize on the use of energy and reduce climate change effect as well as generation of greenhouse gases. It therefore reduces environmental pollution and promotes renewed uptake of nutrients from the soil.

Organic fertilizers such as bat guano, compost, peat moss, wood ash and manure, vermin-compost, cow dung, poultry manure are general soil amendments. They improve the physical properties, the biological status and prevents soil erosion. They do not burn or harm plants and have long term positive effects on the soil without damaging ground water. Vegetative materials called mulch such as hay, peat moss, leaves, grass, bark wood chips, seed hulls and corn husks help to aerate the soil, insulate the soil against temperature change and add needed nutrients [13]. By nature, organic fertilizers provide increased physical and biological storage mechanisms to soils, reducing risks of over fertilization.

It avoids nutrient exploitation and increases soil organic matter content. Consequently, soils under organic agriculture capture and store more water than soils under conventional cultivation. Many studies have shown that nitrates leach out at slower rates in organic farms than conventional farms. (<http://www.articlebase.com/article-tags/sustainablefarming>). [14], believes that production in organic farming system is thus less prone to extreme weather conditions, such as drought, flooding and water-logging.

[15], also reports that organic farming reduces the vulnerability of the farmers to climate change. It was also observed that the most important of the advantages of OF is that it maintains the life of the soil, not only for the current generation, but also for the future generation. It was also observed that organic plots have significantly

greater number of earthworms, biomass, soil aggregate stability and population diversity than conventional plots. Through composting, organic farmers can bring nutrients from the cities back to the farmland.

Organic farms had higher abundant and a wider variety of natural enemies to pests that affected the crops, which led to better pest control (<http://www.articlesbase.com/article-tags/sustainable-farming>). Using such agro-ecological practices helps farmers to intensify and increase production without necessarily depending on chemical pesticides and fertilizers, which again reduces their risk to become poisoned by pesticides. The life of organically grown plants is longer than the plants cultivated by conventional methods.

**Health Benefits:** Organic food is natural and enhances good health and promotes long life. Products of OF are wholesome foods that assist in the management of non-communicable diseases such as diabetes, cancer and hypertension [16]. EPA in Other-Agri, Plant-Crops [17] reports that a French study has revealed that the nutritional quality and micro-nutrients are present in higher quantities in organically produced crop. The nutrients promote good health. The same author reported that organically grown food tastes better too. This agrees with the findings of the author during an oral interview with some farmers in Anambra State, Nigeria as regards to their reasons for practicing organic agriculture.

**Financial Benefits:** Financially, farmers choose organic methods of agricultural production for a variety of reasons which include the possibility of reduced input costs among others. One of the attractions of organic farming is that it sometimes brings a 10-30% higher premium in the marketplace. According to Eyhorn [18], first, organic farming comprises highly diverse farming systems and thus increases the diversity of income sources and the flexibility to cope with adverse effects of climate change and variability, such as rainfall patterns. This leads to higher economic and ecological stability through optimized ecological balance and risk-spreading. Secondly, OF is a low-risk farming strategy with reduced input costs and, therefore, low risks with partial or total crop failure due to extreme weather events or changed conditions in the wake of climate change and viability. In addition, higher prices can be realized for the produce via organic certification. Higher farm incomes are thus possible due to lower input costs and higher sale prices. The coping capacity of the farms is increased and the risk of indebtedness is lowered.

Organic farming creates employment, transfers knowledge and improves access to high value markets. Agriculture is the main employer in rural areas and wage labour provides an important source of income for the poor. Thus, by being labour intensive, organic agriculture creates not only employment but improves returns on labour. A study was carried out by Alimi *et al.* (2006) to determine the change in net income of users of commercial organic fertilizer (UCOF) relative to non-users of organic fertilizers (NUF) in vegetable crop production in Osun State, Nigeria to find out whether the use of commercial organic fertilizer should be encouraged based on economic reason only. Analyses indicated that UCOF applied 610kg ha<sup>-1</sup> of commercial organic fertilizer resulting in additional yield (3,375kg ha<sup>-1</sup>) and rate of returns (401%) over and above the NUF, making the use of organic fertilizer technology economically superior to non-use of organic fertilizers [19].

**Organic Farming in Nigeria:** Majority of small scale farmers (about 70 per cent of the population) practice organic agriculture by default either because of the prohibitive costs of chemical fertilizers and other agrochemicals [20, 21] or as a habit because according to the farmers, organically farm produce store longer and taste better than inorganic farm produce. They produce non-certified organic products, not purely organic according to modern organic farming principles and some of the farmers adopted the use of animal droppings as manure. Even, some of the extension agents interviewed reported that they do not teach OF to farmers according to the modern methods but do so through alley farming (farming in the garden path or park).

Presently, in an effort to achieve food security for 162 million people in Nigeria [17]. Nigerian governments are advocating massive use of inorganic fertilizers by Nigeria farmers; hence there are more distribution of inorganic fertilizers so they could be readily available to farmers. Nigerian governments have not shown any interest in certified OF, instead they are promoting inorganic farming. So far, only one state governor in Nigeria, Governor Gabriel Suswan of Benue State got interested in organic farming and has procured tractors for farmers at subsidized rate and secured a one billion Naira (N1,000,000,000) loan to be distributed to farmers for farmers who are interested in OF.

However, many Nigerian farmers practice non-certified OF through which they produce some organic products such as local rice (ofada), honey, black soap made from natural herbs and wood ash. Certified organic agriculture is at present poorly developed in Nigeria

although there are recent moves for the production of certified organic crops. According to AdeOluwa (2010) [1], organic agriculture in an organized manner is still young in the country, with less than five years of experience. Certified organic agriculture has already started in Nigeria especially in the western and southwestern states and few areas in the southeastern states. Nigeria had 3,154 hectares under organic farming, of which 50 ha were fully converted [21].

The first certified organic farm in Nigeria is Eurobridge at Odogbolu, Ogun State [8]. The farm, according to the author, is currently producing five products for local and export markets. Hence, Nigeria can boast of few organically produced food products such as lemon grass tea, under the trade mark of Daradara herbal tea, *Tumericcucuma longa* for food seasoning; the product is like ginger; *Ofada* rice (Nigerian indigenous rice), Red hibiscus (*Hibiscus sabdariffa*) for a local soft drink production (popularly known as *Sobo*). Other organic farm products include: tropical fruits, herbs, spices, mushrooms, cashew, fruit juices, quail, guinea fowl, chicken, cane rats, snails, ginger, turmeric and water melon. An organic kiosk has been established at University of Agriculture, Abeokuta, Nigeria which has been in the forefront in the promotion of organic agriculture in Nigeria [8].

Traditionally, farmers engage in composting to supply organic fertilizers at the subsistence level to their farms. Organic farmers in Nigeria rely heavily on crop residues, animal manures, legumes, green manures, organic wastes and mineral-bearing rocks to feed the soil and supply plant nutrients. Nwachukwu [16] also reported crop rotation practice, planting of indigenous varieties, application of compost, mulching of crops, intercropping, mixed cropping, use of crop residues, animal manuring, planting of legumes, green manure, off farm organic waste, minimum tillage and alley cropping as the technologies in organic agriculture in Imo State. Olusegun Obasanjo Centre for Organic Research and Development (OOCORD), in collaboration with agronomists at the University of Ibadan have developed organic fertilizer from waste products generated in large quantities in urban centres and raised awareness of importance of organic produce to the health of Nigerians [8]. Earth Care Nigeria Limited Company produced Earth care Compost Plus which is pure, natural and biodegradable humus for soil fertility. This method duplicates the rejuvenation of the soil without loss of planting time. Integrated organic fertilizer processing plants have been installed at strategic places in some parts of Nigeria such as Oyo and Ondo States. And with the intervention of the Nigeria Network for Awareness and Action for Environment (NINAFFE),

a local non-governmental organization, the products are being distributed to small scale farmers to "create wealth from waste". The products are now in high demand among organic farmers in Ondo and Oyo States of Nigeria where more farmers practice certified organic farming.

**Market for Organic Products in Nigeria:** In most parts of Nigeria, there is little knowledge on organic food products. Kazeem [8] also reports little knowledge of certified organic vegetables in Southwestern Nigeria although, Dipeolu, *et al.* [12] reports awareness of importance of organic food products among food consumers in Southwestern Nigeria. He also reports that in southwestern Nigeria, most consumers had prior knowledge of organic farming, had seen and eaten organic vegetables before. About one-third of them were willing to pay extra for organic vegetables. Many of the respondents agreed with the healthier, better quality characteristics of organic vegetables. The local rice (*ofada* rice), one of the organically produced crops is in high demand in Lagos and other southwestern part of the country [8]. Organic farmers market was launched in Ibadan, Oyo State, Nigeria in December, 2014. (Health of Mother Earth foundation (HOMEF), 2014). These indications show that in the event of extensive cultivation, there is a ready market in the southwestern part of Nigeria.

**Capacity Building in Organic Farming in Nigeria:** According to Sanni *et al.* [19], since 2004 when organic agriculture movement was initiated in Nigeria by the University of Agriculture, Abeokuta, over 30 universities, polytechnics and Colleges of Education and private organizations have joined in promoting sustainable development of the organic sector. Initial efforts were geared towards advocacy, skill development and capacity building. Between 2007 and 2008, structure curriculum on organic agriculture was developed and circulated among over 50 universities in the country. Currently, the University of Agriculture, Abeokuta, University of Calabar and Kebbi State University now teach structured courses at the undergraduate level, ranging from 100 to 500 levels. The awareness campaign involved the joint effort of Olusegun Obasanjo Centre for Organic Research and Development (OOCORD), Nigerian Organic Agriculture Network (NOAN) and a foreign partner, Agro-Eco Louis Bulk Institute. Concerned people (OOCORD, NOAN and Agro-Eco Louis Bulk Institute) have called for experts who are much more experienced to assist Nigeria in building up a network and a system that will endure.

The expanding market for organic produce creates opportunities for Nigerians to make decent livelihoods through self-employment in agriculture. Most of them are unable to access this opportunity because they lack skills in organic agriculture and entrepreneurship. The University of Agriculture, Abeokuta, Nigeria in collaboration with Coventry University, UK articulated the Work, Learn, and Earn Programme (WELP) [7]. The aim was to equip Nigerian graduates with entrepreneurial skills leading to the establishment of sustainable and profitable organic agricultural enterprises. Under this programme, 23 graduates were trained in 2009 and 69% of them opted to start their own small scale businesses in organic agriculture. The enterprises preferred were; vegetable production (30%), marketing of organic produce (26%), poultry or snail production (13%).

The management of the Nigerian Export Promotion Council in collaboration with ECOCERT, an International Certification Agency organized a one-day training programme on organic products and certification. In a workshop/training held in the University of Agriculture, Abeokuta, Nigeria, the middle cadre staff of Agricultural Development Programmes (ADPs) nationwide were trained so they can in turn train the farmers.

**Organic Farming Stakeholders in Nigeria:** 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 [1]. However, there are many organic agriculture stakeholders that are involved in organic activities in one way or the other:

- International Federation of Organic Movement (IFOAM) is an organic movement whose mission is to lead, unite and assist the organic movement in its full diversity all over the world including Nigeria.
- Nigerian Organic Agriculture Network (NOAN), which was formed as an initiative of OOCORD and designated to be an umbrella body for organic agriculture activities in Nigeria in August 2008. Its function is to network organic agriculture organizations in Nigeria. NOAN also serves as a link body between organic agriculture stakeholders in Nigeria and international bodies interested in organic agriculture. Membership is drawn from farmers, scientists, processors, exporters, individuals, institutions, NGOs and organizations that are key players in the organic agriculture sector in Nigeria.
- University of Agriculture, Abeokuta, Nigeria in collaboration with Coventry University, UK articulated the programme, The Work, Learn, Earn Programme (WELP) for developing entrepreneurship in organic agriculture among graduates in Nigeria.
- World-Wide Opportunities on Organic Farms (WWOOF), which offers volunteers the chance to gain short term experience on organic farms. Such opportunities as selling most of its farm produce, while some go into humanitarian and personal consumption; a 30 hectare farm growing fruits, food crops and livestock production organically.
- Olusegun Obasanjo Centre for Organic Agriculture Research and Development (OOCORD), which was established in 2007 and is the first of its kind in Nigeria. It focuses on research and development in organic farming.
- Organic Agriculture Project in Tertiary Institutions in Nigeria (OAPTIN), which organized a pioneering network in 2004. Its activities focus on capacity building, dissemination of research findings via annual conferences and networking of academics in organic agriculture.
- Nigeria Network for Awareness and Action for Environment (NINAAFE), a local non-governmental organization that assisted in distributing organic fertilizers to small scale farmers to “create wealth from waste”.
- “Nigeria Go Organic”, which is currently focusing on a campaign for “Ibadan Go Organic”, organic beekeepers, snail keeping, etc.
- Food Basket of Nigeria, producing various crops-arable and cash crops in small holdings using mainly organic means.
- Earth Care Nigeria Limited is one of the first organic product manufacturers in Nigeria. The company produced Earthcare Compost Plus which is pure, natural and biodegradable humus (the building block of organic agriculture) for soil fertility.
- Dara/Eurobridge Farm, which is the known pioneer organic farm in Nigeria that produces lemon grass, turmeric, plantain and medicinal herbs.
- Lautech Agricultural Services Ltd, a Nigerian university company in partnership with the National Poverty Eradication Programme (NAPEP) to enhance living standard as social responsibility. Produces fair trade and organic, tropical fruits, herbs, spices, mushrooms, cashew, fruit juices, quail, guinea fowl, chicken, cane rats, snails, ginger, turmeric, lemon grass, golden and water melon.

- All Nigeria Organic Farmers Association, a co-operative formed to assist local farmers in learning organic systems.
- Organic Farmers Association of Nigeria, which coordinates the activities of Nigeria's organic farmers.
- Organic Fertilizer Association of Nigeria, which coordinates the activities for organic agriculture fertilizer production.

**Constraints to the Development of Organic Farming in Nigeria:** *Low yields:* The basic criticism against organic farms is that yields are 20% lower than conventional farms. One factor that contributes to lower yields in organic farms is the presence of weeds. Several researchers have found higher weed densities and weed biomass in organic farms compared with conventional farms (<http://www.articlesbase.com/article-tags/sustainable-farming>). The results of a study carried out by Nwajiuba and Akinsanmi [17] in Abia, Nigeria shows that with about 5% lower yield in OF, inorganic fertilizer added about 20% to costs of production in conventional farming.

**Additional Labour Demand:** There is additional labour demand in OF because of higher presence of weeds. This requires 10% more labour in man-hours. Labour scarcity and costs are problems in the area. This can be a serious limitation to widespread recommendation of organic farming.

**Lacks of Technical Know-how:** Nigeria lacks technical know-how for OF. Agriculture officers, researchers, extension officers, academics and lead-farmers are not yet very familiar with the principles and practices of organic agriculture in a practical way in order to be able to train others.

**Difficulties in Use of Commercial Organic Fertilizer:** Constraints to the use of commercial organic fertilizer include: doubtful efficacy, offensive odour, heavy weed infestation, bulkiness and lack of funds [10].

**Lack of Awareness of Techniques:** Many farmers are aware of non-certified OF but not the modern methods [9]. Result of interviews with some extension agents reveals that they do not emphasize OF practices to farmers except through alley farming (farming in the garden path or park). *High certification costs:* Many organic farmers cannot afford the cost of certification of organic agriculture since they have limited access to capital.

**Delays in Acceptance of Nigeria Organic Products in the World Market:** Potential buyers of the products in Nigeria need considerable efforts to assure their confidence; and standardization of natural substances for use in agriculture because it is difficult to standardize natural substances [13].

**Lack of Research:** An oral interview held with some staff of research institutes by the author reveals that they do not carry out researches in OF; most universities also do not even teach OF techniques how much more carrying out researches [17].

**Poor Local Marketing:** Organic farming thrives with efficient marketing systems. Generally, many farmers have been discouraged from going into organic production because of the lack of or poorly developed local markets for organic products. For example, majority of the organic farmers in West Africa focus on export markets but cannot afford third party certification which makes it difficult to get good premiums from the sale of their organic products.

**Low Level of Organic Certification:** Low level of organic certification as a result of cost made most farmers in West Africa, Nigeria inclusive to go for third party certification which they cannot even afford [1].

**Lack of Information on Activities:** There is little information on OF activities in many of the countries in sub-Saharan Africa [2]. Perhaps, more farmers would have become interested in OF if they had access to information showing how feasible it is to invest in the practice.

**Little or No Polices to Safeguard of Activities:** One of the disturbing challenges that causes set back on OF is little or no polices to safeguard OF activities by the governments.

*Indiscriminate use of agrochemicals and other synthetic inputs* is not yet recognized as a serious problem in Nigeria hence serious campaign on use of inorganic fertilizer for increased agricultural production is on.

**Lack of Institutional Support:** Nigerian governments are more interested in inorganic farming and advocating massive use of inorganic fertilizers by Nigeria farmers. There is conflict on use of organic inputs versus promotion of inorganic chemical inputs and also difficulty in obtaining organic materials in the quantity and time needed.

**Lack of Appropriate Inputs:** Sourcing of appropriate inputs for organic farming is not easy because of lack of appropriate inputs such as bio-fertilizer and bio-pesticides.

**Poor Private Sector Involvement in Organic Farming System:** The current level of involvement of the private sector in OF in Nigeria is very low. In other places of the world, private firms invest heavily in production, processing and marketing of organic products. The resultant effects are increased activities and the expansion of the organic farming sector.

**Lack of Technical Assistance:** In Nigeria, there are inadequate OF service providers. Often, farmers need technical assistance in terms of agriculture operators.

**Possible Solutions to Constraints of Organic Farming in Nigeria:** The study suggested the following solutions to the challenges facing OF in Nigeria:

- Ensuring price transmission mechanisms that benefits the primary producer will encourage more production.
- Involvement of government for capacity building by teaching of new technologies/innovations on organic farming to extension agents for farmers.
- Extension agents should also undergo various field experiences related to organic agriculture in order to form a knowledge base.
- Provision of loan facilities to organic farmers.
- Availability of organic fertilizer at affordable prices.
- Provision of market for sale of organic produce and enlightening producers on the new emerging markets that attract higher premium for such products.
- Encouraging capacity building for key stakeholders at different levels in the value chain.
- Establishment of trade promotion and quality control organizations.
- Promotion of increased exports of Nigeria's agricultural and other products under organic label and possible realization of higher premium.
- Educating and sensitizing Nigerians on benefits of OF,
- Involvement of policy-makers, regulatory authorities, scientists and consumers in the campaign for organic agriculture.

## CONCLUSION

Nigeria's traditional farming system has been organic by default, hence most Nigerian farmers are producing non-certified organic produce. Nigerian governments are not interested in organic farming hence there is no governmental support to the sector, instead, they are encouraging intensive use of inorganic farm inputs such as fertilizers and other agro-chemicals. Private companies are not interested in investing in OF activities either. There are no policies concerning OF in Nigeria. However, certified OF has started skeletal in Nigeria. Very few private companies, individuals and universities are involved in certified OF. So far, there is one certified organic farm, one centre for organic farming research and development, two organic fertilizer plants in Nigeria. There are no established organic produce markets hence the disposal of organic produce is still one of the limiting factors to OF in Nigeria. There are many OF stakeholders involved in capacity building, production, research and dissemination of information on OF. There are many constraints that militate against the growth of the sector.

**Policy Recommendations Towards Sustainable Organic Agriculture Development in Nigeria:** Based on the findings of this study, the following policy recommendations were made:

- Establishment of Department of organic agriculture in higher institutions of learning especially the universities of agriculture and colleges of agriculture.
- Training extension workers in OF practices should be included in extension workers training programme curricula.
- Indigenous OF knowledge, skills, technologies and crop varieties should be included in the modern OF activities in Nigeria.
- Researches on certified OF should be included in the programmes of research institutes and universities in Nigeria.
- Set sustainable agriculture through organic practices as a priority.
- Review current policies and programmes and remove disincentives to organic agriculture for example, subsidies on agro-chemicals.
- Adequate and prompt funding of OF research.

**Recommendation for Certified Organic Farming in Nigeria:** Based on the findings of this study, the following recommendations were also made for achievement of certification of OF in Nigeria:

- The three tiers of government in the country should mount serious awareness campaigns to sensitize Nigerian populace on numerous benefits of OF especially on health, finance and environment as well as emphasize on its contributions in mitigation of climate change. This can be done through television and radio jingles, newspapers, posters, etc.
- Build on indigenous knowledge in response and in partnership with farmers; and promote development of local and regional markets for organic products.
- Private sector can get involved in supporting awareness campaigns for getting into organic agribusinesses such as establishing organic fertilizer plants, agricultural commodity storage, processing and marketing, agricultural input supply and distribution; production of commercial seeds, seedlings, brood stock and fingerlings, etc.

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