

# Constraints Associated with Organic Farming Practices among Vegetable Farmers in Southwestern Nigeria

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**Abstract:** *Organic farming is a production system that sustains the health of soils, ecosystem and people. Hence, constraints associated with organic farming practices among vegetable farmers were investigated in Southwestern Nigeria. A multi stage sampling procedure was used to select 94 respondents for the study. Data were collected with interview schedule and analysed using descriptive (percentages and mean score) and inferential (PPMC) statistics. Results revealed that majority of the respondents had an average farm size of  $0.61 \pm 0.92$  hectares,  $12.52 \pm 0.68$  years of farming experience, and all (100.0%) had contact with extension agents. Major means for receiving information on organic farming were extension agents/volunteers ( $\bar{X} = 1.32$ ), fellow farmers ( $\bar{x} = 1.22$ ) and radio ( $\bar{x} = 1.20$ ). More than two-thirds (68.1%) had high knowledge of organic farming practices, while constraints associated with organic farming were climate change issue ( $\bar{x} = 1.94$ ), poorly organised markets for organic products ( $\bar{x} = 1.89$ ) and high capital investment ( $\bar{x} = 1.83$ ). A significant relationship was observed between knowledge and constraints associated with organic farming ( $r = 0.299$ ,  $p = 0.041$ ). Given that knowledge constituted a vital factor associated with organic farming practices, along with the fact that all the respondents had contact with extension agents, training programmes should be regularly organised by extension agents on climate change issue and also to disseminate technologies on organic farming practices to farmers to further update and enhance farmers' knowledge on organic agriculture.*

**Keywords:** organic farming, technologies, farmers' knowledge, extension agents

## INTRODUCTION

Agriculture is one of mankind's most basic activities and it plays a vital role in the society and economy, yet the production process of the dominant agriculture is recognized as causing irreparable environmental degradation and as treating agricultural labourers poorly in myriad ways. The emergence of organic agriculture has been seen to be more socially conscious than the hitherto conventional farming which has been dominant over the years. Conventional farming

is associated with the careless application of poisonous pesticides (Madhu et al., 2023). People are exposed to pesticides due to ignorance during application and through the consumption of residues in the product, which may result in various types of diseases.

Ifoam (2023) defines organic agriculture as a production system that sustains the health of soils, ecosystems and people. It is a holistic production management system which promotes and enhances agro-ecosystem in health, including biodiversity, biological cycles, and soil biological activity. It combines tradition, innovation and science to benefit the shared environment and promotes fair relationships and good quality of life for all involves. Organic farming system that makes use of materials of organic origin such as compost, green manure, bone meal, natural pesticide like neem and emphasizes technology such as crop rotation, mixed farming among others (Duran-Lara et al., 2020).

Organic farming is a reliable means of ensuring sustainable ecosystem management and food security. Any agricultural production activities that take in to account the environmental, social and economic factors that positively contribute towards sustainable production are recognized as organic agriculture (Tsion and Steven, 2019). This system of food production encourages or improves soil biological activities, biodiversity and ecosystem health, which encourages the natural breeding of animals, environmental and land protection to avoid pollution. The term organic has a strong resonance with consumers' wellbeing and care for the environment.

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health including biodiversity, biological cycles and soil biological activity. Organic agriculture represents a broad set of practices that emphasize farming based on ecosystem management, integrated cropping and livestock systems, diversity of products, and reliance on natural pest and disease control without the use of synthetic inputs. Organic Agriculture is a sustainable and environmentally friendly production method which has particular advantage for small scale farmers in developing countries (World Bank, 2005).

Growing of organic vegetables can be productive and rewarding. Apart from aiding food and nutritional security, vegetables are rich in the various food nutrients, including vitamins, minerals, fibre, and contain ample amounts of carbohydrates and proteins. Research has been conducted as it relates to the nutritional value and quality of food produced within organic conditions relative to conventional farming. Fawzy et al. (2018) observed that organically produced products had better taste and flavour, and stored longer compared to traditional products. Similarly, organically grown vegetables (e.g. tomatoes, lettuce, spinach, cabbage and carrots) had higher nutritional content (i.e. vitamins and minerals) compared to traditionally grown crops. Cultivation of organic vegetable enhances the health of the soil by imparting long lasting consistency for production (Ilakiya et al., 2020). It is expected that just as consumer demand for vegetables continues to rise, in order to feed the growing population, vertical expansion should likewise be augmented added the source.

Over time, efforts have been directed at vegetable farmers towards the embracement of organic farming practices in the production of different types of vegetables, since the goal of any farming activity is a sustainable production of quality food with little or no effects on the environment. With the increasing awareness of the health benefits of organic products by the

populace, various organic demand platforms have sprung up and there has been an increasing demand for organic products by consumers all over (Schrear and Padmanabhan, 2020). This has resulted in an increase in the cultivation of organic products (Fawzy et al., 2018). Yet, there is presently a grave concern on the indiscriminate use of chemicals in agriculture especially by vegetable farmers who are often uninformed in the act of proper handling and usage. The need for farmers to be aware and have knowledge of organic agricultural practices cannot be over emphasized. Hence, the need to study constraints associated with organic farming practices among farmers for better understanding with a view to recommend best practices to overcome the challenges and achieve optimal production of quality vegetables at sustainable level. The specific objectives were to:

1. describe vegetable farmers' production characteristics;
2. ascertain vegetable farmers' means of receiving information on organic farming;
3. examine vegetable farmers' knowledge on organic farming;
4. identify constraints associated with organic farming practices.

## METHODOLOGY

The study was conducted in Southwestern Nigeria which comprised 6 states out of which 2 states (Osun and Oyo) were purposively selected. One Local Government Area (LGA) was purposively selected from each of the two states due to the preponderance/ volume of organic farming taking place in different communities within the LGAs. These were Ejigbo from Osun State and Orire from Oyo state. Three villages were selected from each LGA, making 6 villages, while 15 respondents were selected from each village. A total of 90 respondents were used in the study. Data was collected with the aid of the interview schedule containing close and open ended questions and variables were measured as follows:

- **Production characteristics:** Variables under this were farm size, farming experience, and contact with extension agents. Means and percentages were used to describe the production characteristics of the respondents.
- **Means of receiving information on organic farming:** This was measured using a 3-point interval scale of always (2), occasional (1), and never (0) with the scale containing 8 information channels. Highest score obtainable was 8 and lowest score was 0. The weighted mean scores were obtained and used to rate the channels on the basis of their importance to vegetable farmers.
- **Knowledge on organic farming practices:** This was measured using a 2-point interval scale of yes and no with the scale containing 8 items. Correct responses were scored 1 while wrong responses were scored 0. Highest score obtainable was 8 and lowest score was 0. The mean score was obtained and used to categorise respondents into high (mean score and above) and low (below mean score) knowledge levels.
- **Constraints associated with organic farming practices:** Farmers were presented a list of 10 limiting factors, using a scale of major factor (2), minor factor (1) and not a factor (0). Highest score obtainable was 20 and lowest score was 0. In order to determine the strength of the listed factors, their mean scores were obtained and used to rank them.

## RESULTS AND DISCUSSION

### Production characteristics of vegetable farmers

The production characteristics of respondents are shown in Table 1. Being vegetable farmers, most respondents (91.5%) cultivated farm sizes of between 0.1-1.0 acres, while the average farm size was  $0.61\pm 0.92$  acres. This finding depicts them as small scale vegetable farmers and their farm size can determine the extent of their willingness to practice organic farming. Farmers with large farm sizes have been observed to commit a larger percentage of their plots to organic agriculture relative to those practising organic agriculture cultivating on smaller plots (Ume et al., 2023). The respondents possessed moderate vegetable farming experience ( $12.52\pm 0.68$  years), which can equally have a bearing not only on their commitment to practice organic farming but also on the amount resources used. The moderate farming experience gained across the past cropping season could grant them the ability to observe the adverse outcomes of input-intensive farming practices on the high cost of input and degradation of the environment (Singh et al., 2023). All the respondents (100.0%) having contact with extension agents can further promote the practice of organic farming, this is even as extension agents, by virtue of their closeness to farmers, are better positioned to relate with and persuade farmers on the benefits of organic farming. Extension services rendered by government and NGOs agencies for instance usually train farmers and persuade them to embrace agricultural practices that are sustainable (Chichongue et al. 2020).

**Table 1: Production characteristics of vegetable farmers**

Variable	Percentage	Mean
<b>Main occupation</b>		
Farming	74.5	
Trading	6.4	
Artisan	8.5	
Civil servant	10.6	
<b>Farm size</b>		
0.1 – 0.5	51.1	$0.61\pm 0.92$
0.6 – 1.0	40.4	
> 1.0	8.5	
<b>Vegetable farming experience</b>		
1 – 5	6.4	$12.52\pm 0.68$
6 – 10	14.9	
11 – 15	61.7	
16 – 20	4.3	
> 20	12.8	
<b>Extension contact</b>		
Yes	100.0	
No	0.0	
<b>Extension contact frequency</b>		
Weekly	6.4	
Fortnightly	12.8	
Monthly	12.8	

Occasionally	68.1	
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### Means of receiving information on organic farming

The essence of information to farmers is that it helps to guide decision making, in that to choose among different agricultural production systems, farmers require comprehensive information on the condition of environment resources. As indicated in Table 2, major means for receiving information on organic farming were extension agents ( $\bar{x}=1.32$ ), fellow farmers ( $\bar{x}=1.22$ ) and radio ( $\bar{x}=1.20$ ). These information sources are among those identified by FAO (2015) as being one of the procedures for converting a farm to organic agriculture, which involves the collection of information on appropriate organic farming practices. As regards fellow farmers for instance, getting information from peers makes it possible to receive first-hand information within local settings. Similarly, farmers' decision to embrace organic farming practices has been traced to them receiving information from extension agents in Southeast Nigeria (Osterholz et al., 2021). On its part, radio finds salience as an important means of organic farming information platform in that farmers can simultaneously and conveniently listen to farm broadcasts on radio anywhere while carrying out tasks on the farm (Amusat and Omirin, 2023). Organic farmers essentially need information on: ways of maintaining/improving the fertility of the soil; ways of keeping crops healthy; ways of increasing farm diversity; and ways of adding value to organic produce as well as best way market them (FAO, 2015).

**Table 2: Modes of receiving information on organic farming**

Modes	Mean	SD
Extension agents/volunteers	1.32	0.47
Radio	1.20	0.54
Television	0.67	0.82
Internet	0.38	0.68
Fellow farmers	1.22	0.55
Farmers' guide	0.42	0.78
Print media	0.43	0.79
Organic farmers' association	0.47	0.83

### Knowledge on organic farming practises

The importance of possession of a good knowledge of organic farming practices by farmers cannot be over emphasis. The knowledge will help farmers to produce the right types of organic products meeting the specific requirements. Table 3a reveals that all the respondents were knowledgeable on relevant technologies as regards organic vegetable production. This is due to the fact that there are vibrant organic farmers association in the study area and expert volunteers training interested farmers on best organic farming practises in addition to famers' exposure to the practical demonstration of extension personnel in the communities. Results in Table 3b reveal that more than two-quarters (68.1%) of the vegetable farmers were characterised by high knowledge on organic farming practices. The correct responses provided to knowledge statements in Table 3 further give credence to the high knowledge possessed by them, indicating that they largely understood what organic farming entails. This is not unconnected with the observation that all the respondents had contact with extension agents.

Research has shown that motivation to practice organic farming has been shaped by smallholders' knowledge as well as their contact with extension agents (Kapioru et al., 2023).

**Table 3a: Vegetable farmers' knowledge on organic farming practices**

Statements	Correct response (%)
Organic farmers should not use herbicides	100.0
Organic farmers can use NPK fertilizers	100.0
What can you use to control pests in vegetables: neem/ dichloroforce?	91.5
How can you maintain soil fertility in organic farming: manure/ urea?	89.4
How can organic farmers control weeds: herbicides/ weeding?	95.7
Can you control vegetable pest with wood ash	97.9
Can you use chemically treated seed in organic farming	97.9
Organic farming is environmentally friendly	91.5

**Table 3b: Levels of vegetable farmers' knowledge on organic farming practices**

Levels	%	Mean
High	68.1	7.62±0.61
Low	31.9	

### Constraints associated with organic farming practices

Though considered as the best approach for sustainable agriculture, certain constraints hinder the practice of organic farming vegetable farmers. The need to identify and understand constraints that are associated with organic farming is vital because as observed by Ume (2023), it is a common practice among organic farmers to assign just a small proportion of their field for cultivation of organic crops. This suggests that the practice of organic farming is limited by certain factors confronting smallholders. Study findings in Table 5 reveals that key among such factors were climate change issue ( $\bar{x}$ =1.94), poorly organised markets for organic products ( $\bar{x}$ =1.89) and high capital investment ( $\bar{x}$ =1.83). Capacity building on climate change issue for small holder farmers will likely boost organic farming. Among other things, organic farming engages the use of precision and highly efficient technology to overcome climate change issue (Ilakiya et al., 2020), which smallholders most times do not have access to, coupled with the technical knowhow of how to make use of them. Consequent on product cost, the market demand can widely vary for organic products, including among different commodities of vegetables. The effect of this is a lack of sales opportunities in the local markets in areas where the consumption of organic products is still low (Research Institute of Organic Agriculture, 2021). Furthermore, for smallholders to convert their practices from inorganic to organic farming, capital is crucial. As such, research has shown that farmers who are connected to institutions that assist them with soft loans and interest-free credits were highly involved in organic farming practices (Sapbamrer and Thammachai, 2021).

**Table 5: Constraints associated with organic farming practices**

Constraints	Mean	SD
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Climate change issue	1.94	0.25
Illiteracy/low level of education of farmers	1.81	0.45
Poorly organised market for organic products	1.89	0.31
High capital investments	1.83	0.43
Inadequate access to extension agents	1.17	0.56
Inadequate returns on investment	1.53	0.50
Scarcity of materials to use as organic manure	1.47	0.58
Low access to technologies on organic farming	1.79	0.41
Inadequate knowledge of consumers on organic produce	1.66	0.48
Scarcity of labour	1.62	0.49

### Relationships between farm size, farming experience, knowledge and constraints associated with organic farming practices

Results in Table 6 indicate a significant relationship between knowledge and constraints associated with organic farming practices ( $r=0.299$ ,  $p=0.041$ ). An earlier finding revealed that most of the vegetable farmers were characterised by high knowledge on organic farming practices, being a consequence of all of them having contact with extension agents. This rightly accounts for why smallholders' motivation to practice organic farming is shaped by the knowledge they possess (Kapioru et al., 2023).

**Table 6: Correlation analysis between farm size, farming experience, knowledge and constraints associated with organic farming practices**

Variables	r-value	p-value
Farm size	0.190	0.200
Farming experience in organic farming	0.047	0.753
Knowledge on organic farming	0.299*	0.041

\* $P \leq 0.05$

### CONCLUSION AND RECOMMENDATIONS

Key limiting factors associated with smallholders' practice of organic farming were climate change issue, poorly organised markets for organic products and high capital investment. Knowledge on organic farming practices was largely high, being a consequence of all the vegetable farmers having contact with extension agents, with extension agents equally observed as the most important means for receiving information on organic farming. To encourage more smallholders to make a switch from conventional to organic farming practice, capacity building on climate change issue, availability of markets for organic products, and institutions supporting farmers with soft loans/ interest-free credits should be made available.

## References

- Amusat, A.S. and Omirin, T.I. (2023). Assessment of the effectiveness of Institute of Agricultural Research and Training (IAR&T) Communication Channels among Farmers in Orire Local Government, Oyo State, Nigeria. *Canadian Journal of Pure and Applied Sciences*, 17(1): 5605-5610.
- Chichongue O, Pelser A, Tol JV, Du Preez C, Ceronio G (2020) Factors influencing the adoption of conservation agriculture practices among smallholder farmers in Mozambique. *Int J Agri Ext*, 7(3):277–291. <https://doi.org/10.33687/ijae.007.03.3049>
- Duran-Lara, E.F, Valderma, A and Marican, A (2020). Natural organic compound for application in organic farming. *AGRICULTURE* 10:41. DOI:10.3390/agriculture10022241.
- FAO. (2015). Training manual for organic agriculture. Food and Agriculture Organization, Rome, Italy.
- Fawzy, Z.F., Li, Y. and Shaymaa, I.S. (2018). Organic Farming and Good Agriculture Practices (Global GAP) to Achieve Food Safety for Crops: As a Review. *Research & Reviews: Journal of Agriculture and Allied Sciences*, 7(1): 27-34.
- IFOAM. (2023). Definition of Organic Farming. Available at <https://www.ifoam.bio/why-organic/organic-landmarks-definition-organic> (Accessed January 25, 2024)
- Ilakiya, T., Parameswari, E., Davamani, V. and Yazhini, G. (2020). Organic vegetable production. *Research Biotica*, 2(2): 50-54.
- International Fund for Agricultural Development (IFAD) . (2005). *Annual Report*. [https://www.ifad.org/documents/38714170/39624783/ar2005\\_e.pdf](https://www.ifad.org/documents/38714170/39624783/ar2005_e.pdf)
- Kapioru, C., Pudjiastuti, S.S.P., Un, P., Bernadina, L., Hendrik, E. (2023). Factors associated with the development of organic agriculture in Kupang District, Indonesia. *Russian Journal of Agricultural and Socio-Economic Sciences*, 4(136): 98-105. DOI 10.18551/rjoas.2023-04.08
- Madhu, R, Preeti , K, Seema Bayana and Sonia K (2023) .Impact of Organic farming on soil health and nutritional quality crops. <https://DOI.ORG/10.016/J.JSSAS.2023.O7.002>
- Osterholz, H., Burmeister, C., Busch, S., Dierken, M., Frazão, H. C., Jenny, R. H., et al. (2021). Nearshore Dissolved and Particulate Organic Matter Dynamics in the Southwestern Baltic Sea: Environmental Drivers and Time Series Analysis (2010–2020). *Front. Marine Sci.*, 8. doi: 10.3389/fmars.2021.795028
- Research Institute of Organic Agriculture. (2021). Organic farming: Basic principles and good practice. FIBL, Frick, Switzerland. Dossier No. 1141.
- Sapbamrer, R., and Thammachai, A. (2021). A systematic review of factors influencing farmers' adoption of organic farming. *Sustainability*, 13: 3821–3842. doi: 10.3390/su13073842
- Schreer, V and Padmanebham, M (2020). The many meaning of organic farming. farming food security and food sovereignty in Indonesia. *Organic Agriculture* 10:327-328. DOI 10.1007/s/13165.019-00227-2
- Singh, S.P., Priya, P. and Sajwan, K. (2023). Factors influencing the adoption of organic farming: a case of Middle Ganga River basin, India. *Org. Agr.* <https://doi.org/10.1007/s13165-022-00421-2>



- Tsion ,K and Steven, W ( 2019). An overview use and impact of organic and synthetic farm inputs in developed and developing countries.African Journal of Food Agriculture Nutrition and Development. 19(3) 14511-14512. doi.10.18697/ajfund.8615825
- Ume, C. (2023). The role of improved market access for small-scale organic farming transition: implications for food security. J. Clean. Prod.387:135889. doi: 10.1016/j.jclepro.2023.135889
- Ume, C.O., Onah, O.G., Okpukpara, B.C., Chukwuma-Ume, N., Charles, U.I., Omeje, E.E., Chiemela, C.J., Chituru, I.J. and Orazulike, O. (2023). Factors influencing smallholder adoption of organic agriculture in Southeast geopolitical region of Nigeria. *Front. Sustain. Food Syst.*7:1173043. doi: 10.3389/fsufs.2023.1173043